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Editorial

Depression and its stigma — A challenge

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Depression is the leading cause of ill health and disability worldwide. It affects people of all ages and from all arenas of life. Recent data from World Health Organization (WHO) show more than 300 million people are suffering from depression, an increase of more than 18% between 2005 and 2015.[1] Even in this era of increasing advancement in medicine and health sector, psychiatric illnesses still suffer from burden of stigma and that, coupled with lack of adequate support for people with mental illnesses prevents them from leading a healthy and fruitful life.

Depression causes mental distress and affects the capability of an individual to carry out even the simplest day to day activities. It also impacts the interpersonal relationships of sufferers. At worst, depression can lead to suicide, now the second leading cause of death among 15-29 year olds who are the future of our society.[2]

Yet, depression can be prevented and treated. A better understanding of what depression is, and how it can be prevented and treated, will help reduce the stigma associated with the condition, and lead to more people seeking help. Hence this year the theme of WHO World Health Day is "***Depression let's talk***".

Depression is one of the priority conditions covered by WHO's Mental Health Gap Action Program , which aims to help countries increase services for people with mental, neurological and substance use disorders, through care provided by general health workers. The highlight is on the fact that with proper care, medication and psychosocial support, ample amount of people with mental disorders, including depression, could begin to lead normal lives despite scarcity of resources.[2]

Stigma, a major setback in treatment of psychiatric disorders, is defined as a sign of disgrace or discredit, which sets a person apart from others. The stigma of mental illness, although more often related to context than to a person's appearance, remains a powerful negative attribute in all social relations.[3] Studies report that people facing stigmatization have poorer quality of life. This further worsens their prognosis. Stigma also inhibits people from openly discussing their mental health issues and thus, hampers treatment.

According to the Global Burden of Disease report 2004 by WHO, depression is the third leading cause of burden of disease worldwide.[4] Depression is in fact the leading contributor to the burden of disease in middle and high income countries. This is a treatable condition and the burden can therefore be significantly reduced. Stigma contributes a great extent to the burden of untreated depression in the community.

Initiatives to reduce stigma and discrimination can involve a variety of components, such as training, education, media campaigns, contact with people having mental illness, or combinations of these strategies. [5] Writing about issues related to mental health helps create awareness among people .The internet is a highly effective means of distributing information and specific anti-stigma initiatives.

Wolff et al[6,7] have provided a practical working model for interventions aimed at various target groups , important wherein was to listen to the concerns of the people whose attitudes you wish to change. The content and pattern of awareness programs need to be tailored according to the settings, for example schools, workplaces and welfare services.

The core of the WHO campaign is the importance of talking about depression as a vital

component of recovery. The importance of talking of depression as an illness, with a family member or a friend, thus overcoming the barrier of stigma and seeking help would be the first and foremost step towards recovery.[8]

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Review Article

Community Mental Health in India: Perspective, Challenges and Strategies

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Introduction

Communities are important as they serve to fulfil a desire to be in a relationship, to belong and to be connected to others.[1] Playing a significant role in socialisation of a child and providing key spaces in the form of environmental models to learn and unlearn social roles and responsibilities, communities can be a source of fulfilment, bring about feelings of security, role models, accepted norms for social roles and responsibilities. Due to the distinct focus on the strong and influential role of communities on an individual, community care has been highlighted both internationally and nationally as the most desirable, most accessible, affordable and least restrictive form of mental health care.[2] Let us understand the concept of community mental health in detail:

The concept of "community mental health" incorporates two aims viz.treatment and rehabilitation of the mentally ill within the community, and; improvement of the nation's mental health status.[3] Community mental health is defined as care and services provided to persons with mental health problems and their families in community settings. In developing countries like India, community settings include a person's home, large joint family system, general practitioner's clinic, a government run Primary Health Centre (PHC), a district hospital, a non hospital residential facility e.g. half way homes/ hostel run by a Non Governmental Organisation (NGO), a private psychiatrist's clinic/ office, a counsellor centre or a rehabilitation centre run in the community providing day care programs and other community based services. The broad goals and principles of community mental health include decentralisation, comprehensive care, accessibility of appropriate and affordable mental health care to all, engagement of NGOs, multi-disciplinary and multi-sectoral involvement, participation of the community and inter-sectoral collaboration.[4] Such a wide range of services are provided by a multi disciplinary team of professionals including psychiatrists, social workers, nurses, counsellors, multipurpose health workers and PHC doctors. Some of the community mental health services may include the following:

a) Early identification of mental disorders
b) Prompt treatment
c) Management of persons with chronic mental disorders
d) Referrals to secondary and tertiary mental health services
e) Preventive level activities in schools, colleges, anganwadis, craft centres and other community based centres
f) Promotive level awareness campaigns on raising awareness on mental health as a positive concept in the communities

Community mental health may be adopted as a strategy of community development that furthers the mental health of all community members through promotion of mental health and prevention of mental disorders. Such services may provide accessible, affordable, acceptable and quality mental health care in the community for people with psychosocial disabilities aiming at their social integration. It is implemented with the active participation of service users, their families and communities together with health, education, social and employment services.[5] Through partnerships across professionals from

diverse fields, mental health care can be delivered effectively in primary care settings, through community-based programmes and task shifting approaches that engage and support skilled non-specialist health professionals, lay workers, affected individuals, and caregivers in mental health service delivery.[6] However, it may also be added that community care of mental illness does not undermine the importance of specialized mental health institutions in service delivery, training, research and policy formulations. After gaining a conceptual understanding about community mental health, let us enumerate features of an Indian community from the perspective of mental health:

Indian Communities: A Mental Health Perspective

Indian families and communities are known for their bonding, a sense of solidarity and strong emotional ties. Currently undergoing a rapid transformation due to multiple socio-economic and political factors, there has been a rise in the number of nuclear families, reported increase in the incidence of violence, marital discord, teenage pregnancies/ abortions, single parenthood, lifestyle diseases and incidents of substance abuse and alcoholism in the Indian communities. Nevertheless, Indian communities are still known for their sense of belonging, love and care for members in their family and neighbourhood. The following areas depict few distinctive features of Indian communities in the contemporary scenario from a mental health perspective:

Role of Family

Family is seen as the single most important source of care in India and therefore has been an essential part of the mental health care programmes.[7] Families, as primary caregivers, are involved in taking care of the patients under care of mental health services as they have been traditionally contained within the community with their families. This is different from the developed countries where the thrust is on professionals and institutions in the area of mental health care. In a developing country like India with more than 1 billion people, the role of family becomes even greater due to the paucity of trained personnel in the field of mental health.[8]

Lack of Mental Health Professionals

There is an acute shortage of mental health professionals as against the magnitude of growing demand in urban as well as rural communities. There is also very limited institutional infrastructure in the form of formal psychiatric institutions like mental hospitals, the general hospital psychiatric units, alternative community care facilities to meet the needs of the millions of the mentally ill persons needing care.[7] The huge gap in the availability of mental health professionals can be depicted in the Table 1 given below:

Table-1: Availability of Mental health Professionals in India

Mental Health Professionals	Require-ment	Availability
Psychiatrists	11500	3800
Clinical Psychologists	17250	898
Psychiatric Social Workers	23000	850
Psychiatric Nurses	3000	1500
Total	54750	7048

Source: Lok Sabha Secretariat Paper[9]

Traditional Beliefs

Indian communities are also characterized by faith on the traditional healers in urban as well as rural locales. Beliefs about supernatural causation of illness and greater superstitious beliefs about mental illness are associated with the presence of religious healers in the pathway of psychiatric care. A large section of population turns to traditional and religious healers for relief and treatment associated with mental illness. There is greater tolerance for illness behaviour, lowered expectations and religion-based coping as well as healing strategies adopted by many families and communities.[4] While the medical establishment understands the usefulness of roping them in as partners to reach out to the population, there is a lot of hesitation and reluctance to put this approach into practice and as such this remains a vast untapped resource.[10]

Gender Concerns

Gender and mental health has emerged as an important discourse in relation to the contemporary socio-cultural ethos in Indian society, its dynamics of power and politics. Gender affects many aspects of life, including access to resources, inculcated

methods of coping with stress, styles of interacting with others, self-evaluation, spirituality and expectations of others. Thus, from a gender perspective, girls and women in the communities experiencing emotional distress and /or psychological disorder are neither identified nor treated by their doctor due to non disclosure.[11] Furthermore, due to severe shortage of accessible and appropriate services in mental health care, they are denied of treatment and care.

Rural-Urban Divide

There has been a rapid growth of private psychiatry in urban areas with associated spread of services to peripheral cities and small towns and challenges of regulation.[12] Epidemiological studies done in last two decades, however, show that the prevalence of mental disorders ranges from 18 to 207 per 1000 population with the median 65.4 per 1000 at any given time and most of these patients live in rural areas, far away from any modern mental health facilities.[13] Moreover, a very large proportion of the rural health care providers in the private sector are not qualified. They are often illegal medical practitioners or under-qualified for the task at hand.[14]

Stigma Associated with Mental Illness

There is an inherent stigma associated with mental illness that is prevalent at the individual, societal and institutional levels. Thus the need for sensitisation of the community on mental health gains significance as it is directly linked to community based rehabilitation so that once a person with severe mental illness goes back to community after improvement, the person is gainfully rehabilitated.[15]

After a reflection on the features of Indian communities from a mental health standpoint, let us study the changing paradigms in care and treatment of persons with mental disorders in the communities:

Tracing Deinstitutionalisation: Programmes and Policies

Deinstitutionalisation and the emphasis on community care has been a paradigm shift for psychiatric treatment worldwide. The model for mental health care over the past half century has changed from institutionalization of individuals suffering from mental disorders towards a community care approach. This has brought in a growing interest in the area of community mental health. The change was due to respect for the human rights of individuals with mental disorders and also in the area of psychopharmacology - discovery of new classes of drugs and newer forms of psychosocial interventions; thrust on the human rights movement, and; the increasing focus on the holistic concept of health by WHO since 1948. These along with the technical and socio-political events contributed to a change in emphasis from care in large custodial institutions to more open and flexible care in the community.[16]

An analysis of community care programs in the country traces its initiation in the late-1970s by the National Institute of Mental Health and Neuro Sciences (NIMHANS) through a model of community care in Bellary which was later taken up for implementation of the District Mental Health Programme (DMHP), an essential arm of the National Mental Health Programme (NMHP).[17] The movement towards deinstitutionalisation aimed at enhancing the quality of care available in the community. It was assumed that the newer psychotic drugs would be able to control most of the symptoms and persons with mental illness would be rehabilitated faster in the communities with better insight about their illness and the community would be also better sensitised and tolerant towards them. Adequate infrastructural facilities and resources for community based care were also perceived to be available.[18]

The success of deinstitutionalization however, depends on a number of key conditions including the establishment of a comprehensive community support system, an enabling environment that allows the people with mental illness to experience all the rights of citizenship as other individuals do, and tolerance and non-discrimination in the local community.[19] In a community setting, there are wide needs of mental health including persons with serious mental disorders, mental health of women, children and adolescents, both school going and out of school, persons attempting suicide, special groups like refugees, survivors of disasters, public mental health education, prevention of mental illness and promotion of mental health. Different target groups also imply a wider understanding of their specific needs as well as that of wider socio-cultural issues and thus careful planning needs to be undertaken in planning

community based programs and interventions involving a team of multi-disciplinary professionals.

An analysis of community mental health initiatives in India reflect largely isolated efforts despite the growing interest in the field.[10] The huge divide between the demand and the resources has left major parts of the country totally devoid of any mental health services. There is a huge gap between the available community based services and the large number of persons with mental illness. Several innovative strategies such as community mental health camps and extension clinics have subsequently been tried with varying degrees of success with regards to sustainability and transference of care. Moreover, many of such efforts have not been sustainable and the primary reason for it has been the fact that they were psychiatrist-driven models.[20] These indeed imply the need for concerted and strategic efforts at the policy as well as grassroots level in order to successfully conceive and implement community health programs in the country. Let us take a look at a few eclectic strategies to strengthen community mental health services in the Indian context:

Strengthening Community Mental Health Care: Eclectic Strategies

For the successful implementation of community mental health programmes, multi-pronged efforts are needed with careful planning, monitoring and implementation at micro as well as macro levels. Some of the probable strategies towards strengthening community mental health in Indian communities are as follows:

Promotion of mental health as a positive concept

The care of people with mental and behavioural disorders depends upon the prevailing social values related to the social perception of mental illness.[16] Thus, fighting the stigma associated with mental illness becomes significant. The major elements of mental health may be promoted with focus on increasing well-being, competence and resilience and creating conducive living environments and conditions. Through public mental health education, concept of mental health can be promoted along with the role and impact of environmental stressors in causing mental illness. By focusing on strengths based perspective, the stigma associated with mental illness can be reduced involving the use of innovative strategies for Information Education and Communication.

Integration of services

There is a need for integration of various services in the area of mental health rather than having stand alone services for mental illness. WHO too recommends the development of comprehensive community-based mental health and social care services; the integration of mental health care and treatment into general hospitals and primary care; continuity of care between different providers and levels of the health system; effective collaboration between formal and informal care providers; and the promotion of self-care, for instance, through the use of electronic and mobile health technologies.[21] Mental health programmes thus may be integrated with other health programmes, such as those for women and children, or rural development. Thus, inter-ministerial linkages can be strengthened with the incorporation of mental health of citizens as a cross cutting theme for effective planning and service delivery.

Strengthening community care centres

A wide variety of community care alternatives, essentially from the voluntary sector are available including the day care centres, half-way homes, long-stay homes and centres for suicide prevention. There are interventions that address care of the elderly, disaster mental healthcare, and school and college mental health programmes. All these have been accepted by communities, suggesting the need for more of such community care services. Such services, when provided in a user-friendly manner, are more likely to be used by the public. However, there is an urgent need to consolidate the experiences of the work in this area, in terms of the needs of those who seek help from these facilities, the nature of interventions, the outcome of care, the needs of the staff and human rights. There is also a need to develop mechanisms to meet the demand for institutional care, to standardize the norms for setting up of these facilities and to develop mechanisms to ensure the human rights of persons receiving care from these facilities.[22]

Multi Pronged Approach

To deal with the age old stigma related to mental illness, a multi pronged approach is needed that is inclusive of interventions targeted at rehabilitation of persons with mental disorders, prevention of mental illness as well as promotion of mental health. Francis, Pulla and Goel[23] have given a mental health promotion practice model which addresses three levels of intervention. First, strengthening individuals by increasing emotional resilience through promoting self-esteem, life and coping skills; Secondly, strengthening communities by increasing social inclusion and participation, improving neighbourhood environments and building self-help networks and finally, reducing structural barriers to mental health, by reducing discrimination and inequality and promoting access to education, employment housing and support for those who are vulnerable. Thus, a multisectoral approach is required whereby services support individuals, at different stages of their life course and, as appropriate, facilitate their access to human rights such as employment (including return-to-work programmes), housing and educational opportunities, and participation in community activities, programmes and meaningful activities.[21]

Individualisation of Cases

Community-based service delivery for mental health needs to encompass a recovery-based approach that puts the emphasis on supporting individuals with mental disorders and psychosocial disabilities to achieve their own aspirations and goals. The core service requirements include listening and responding to individuals' understanding of their condition and what helps them to recover; working with people as equal partners in their care; offering choice of treatment and therapies, and in terms of who provides care; and the use of peer workers and supports, who provide each other with encouragement and a sense of belonging, in addition to their expertise. Documentation and research on individual cases/ innovative approaches can enable in learning from experiential accounts.

Early Identification

Children and adolescents with mental disorders should be provided with early intervention through evidence-based psychosocial and other non-pharmacological interventions based in the community, avoiding institutionalization and medicalization.[21] With de-institutionalized care with focus on the participation of people with mental disorders in family and community life and civic affairs, they can also be aided in speedy recovery and rehabilitation. Early identifications, referrals by community health workers in addition to after care and follow up of cases of persons with mental illness can aid in rehabilitation.

Training of Mental Health Professionals

The paucity of treatment facilities and mental health professionals in the government sector has widened the treatment gap in mental health. Government must focus on education and training of mental health professionals including psychiatrists, clinical psychologists, psychiatric social workers and psychiatric nurses. All postgraduate departments of hospitals must have provision for running specialised courses on child mental health, refresher courses and have separate provisions to develop community based treatment and prevention programmes on mental health. Role of multi disciplinary professionals may be emphasized in the rehabilitation of persons with mental disorders, prevention of mental illness and promotion of mental health. Professional social workers can contribute in an eclectic manner at micro, mezzo and macro levels to engage with mental health issues and bringing about holistic interventions in larger society.[24]

Capacity building of community based functionaries

Communities can be made self reliant through training of grassroots functionaries like Anganwadi and Asha workers, ANMs, PHC staff, community members and volunteers. The involvement of traditional healers, medical practitioners as well as RMPs, self help and support groups in the community can play an important role in reducing stigma against mental illness. Thus, capacity building of various functionaries is needed to enhance their knowledge and skills for an early identification of persons with mental illness, referrals, life skills training, resource mobilisation and support throughout treatment and rehabilitation of persons with mental illness as well as their care givers.

Intersectoral partnerships

Partnerships in mental health practice between the professionals from diverse specialities demands a synchronisation of many professional attributes.[25] Thus, community mental health team would comprise of psychiatric doctors and nurses, professional social workers, psychologists, community volunteers etc. The overall effort is to decentralize and de-professionalise the services so that there is greater reach of the services.[7]

Involvement of Media

Public awareness programmes on mental health should be developed using local media – print, audio (community radio) and visual (local TV channels) – and by organizing classes in schools, colleges and other educational institutions. There is a need for promotional and preventive components, for example referrals to suicide prevention, workplace stress management, school and college counselling services.[17]

Role of NGOs

Non-governmental organizations can continue to play a pivotal role in filling the gap in the existing mental health services in India and the substantial need for these services. Various strategies that have been employed in community care have attempted to utilize existing community resources for implementation. Informal manpower resources incorporated with specialist psychiatric care and integrated with existing health care facilities have been general strategies. While the feasibility and cost-effectiveness of the NGO operated community outreach programs for the mentally ill have been demonstrated, various factors are seen to influence the planning and execution of such programs.[26] Common NGO activities include advocacy, mental health promotion, prevention of mental disorders, rehabilitation, and direct service provision.[17] These can be strengthened further through grants-in-aid.

The Gender Sentient

The gender perspective needs to be mainstreamed in all policies and programmes pertaining to community mental health. Holistic sensitization programmes at the level of individual, family and community are necessary to bring about a basic sensitivity regarding exploring inherent talents among both girls and women and promoting self esteem and raising confidence. Multipronged strategies using innovative methods may be adopted to invoke innovative thinking, nurturing innate talents among girl children and moving beyond the confines of stereotypical sex based compartmentalisations.[28]

Scope for Innovative Programs

Community radio, mobile telephonic helplines, psychological first aid in mental health, use of mobile clinics, outreach services, mental health care camps and many innovative programs can be developed to promote well-being and increase resilience.

Conclusion

Holistic mental health implies individuals' ability to form and maintain affectionate relationships with others, to perform the social roles usually played in their culture and to manage change, recognize, acknowledge and communicate positive actions and thoughts.[28] The positive mental health consists of the protection and development of all levels of human society of secure, affectionate and satisfying human relationships and in the reduction of hostile tensions in the community.

Community mental health in the Indian context has to focus not only on the treatment of mental illness but also on the prevention of mental illness particularly among the vulnerable sections of society and towards promotion of positive mental health. There is need for a vision for the development of community based and community intensive mental health program that is broad-based and inclusive of all the needs of all the people.[12] There is also a need to evolve indigenous community psychiatry model wherein a process of task shifting is accomplished by utilising and partnering locally available resources such as lay health workers and traditional healers, apart from incorporating home-grown micro-financing schemes for entrepreneurs for rehabilitation purposes rather than replicate the models developed in the high-resource countries.[17]

Action to support mental health at the community level provides a platform to develop and improve social norms, values and practices, while encouraging community empowerment and participation. Central to a number of community-based approaches is the realization that changes within a community can be best achieved through

engaging people of the community. This change is brought about by efforts to improve key determinants of mental health, including a social inclusive community, freedom from discrimination and violence and access to economic resources.[21] The thrust on de-institutionalisation and rehabilitation of those suffering from mental disorders, especially women and children may be taken up at the mass level through creative and innovative strategies.[11]

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Review Article

Functional Gastrointestinal Disorders

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The functional gastrointestinal disorders (FGID) constitute a significant proportion of patients attending pediatric, medical, surgical,psychiatric and gastroenterology outpatient departments. These disorders are associated with impaired social and occupational functioning, impaired quality of life, absenteeism from work and burden on medical services.

Psychosocial factors: Stress and psychosocial factors affect the gut physiology, symptom perception, illness behavior and treatment outcome. There is reciprocal interaction between physiologic and psychosocial processes.

The role of brain in regulating gut is reflected from gut motility changes in irritable bowel syndrome (IBS)[1] and also from association of stress with psychosomatic gastrointestinal disorders (e.g. irritable bowel syndrome, acid peptic disease, ulcerative colitis, psychogenic abdominal pain etc.

The stress factors found to play an important role in the function of gut and the resulting disorders are:

A. *Past History:* Past history of physical and sexual abuse is associated with FGID[2] and increased medical care seeking[3].
B. *Personality:* Higher degree of neuroticism plays an important role in the aetiopathogenesis of irritable bowel syndrome[4] (IBS).
C. *Stress:* Social and occupational stress exacerbate the symptoms of FGID[2].
D. *Psychiatric Disorders:* Psychiatric disorders (especially major depression, dysthymia, generalized anxiety disorder, hypochondriasis, panic disorder and somatization disorders are frequent comorbid conditions of IBS (40-60% in Gastroenterology clinic)[5]
E. *Illness Behavior:* The patients with FGID often believe that they have a serious illness. They ignore all medical information about the non seriousness of disease. They more often visit physician and remain absent from job[6]. The somatization behavior is often learnt during childhood[7]. Patients suffering from IBS visiting specialty clinic have more anxiety, depression [8,9] and health related anxiety[10].
F. *Health related quality of life (HRQOL):* It is defined as the impact of illness on activities of daily living, the perception of the illness and its consequences. There is impairment in work productivity and HRQOL in IBS[11].

Assessment

Comprehensive workup of the patient includes detailed reliable history, correlating important biological factors and psychosocial events contributing to the origin, perpetuation and increase in severity of illness.[12,13] A patient centered approach is better.[5]

The psychosocial factors influence the chronicity and sustainability of illness, health care seeking behavior, disability disproportion, giving undue responsibility to physician and others impact of illness, role of family factors and by producing comorbid psychiatric illness.

There is need to use symptom based diagnostic criteria and investigations according to objective evidence (not on patient's demand), which are useful in treatment. The scales which are useful include

for personality (MMPI, EPI), structured psychiatric interviews (SCID), symptom checklist (SCL-90), anxiety and depression (Spielberg state trait anxiety Inventory, HAM – D), illness attitude scale, social support questionnaires, coping strategies questionnaires, Health related quality of life (HRQoL) and IBS – QoL.[5] The assessment of adaptations to illness attention from others, release from responsibilities and demand for social and financial compensations is important.

Management

The physician must empathize with patient, clarifies misunderstandings, elicits and acknowledges the patient's knowledge, beliefs, concerns and expectation, discusses a plan of treatment and psycho educate the patient and caretakers.[14]

The association between bowel symptoms and psychosocial events provides the input for cognitive behavior therapy. Health promoting behavior rather than symptom reinforcing strategies is important.

The patients needs psychiatric consultation if there is comorbid psychiatric disorders, a history of abuse, serious impairment in daily activities and multiple complaints.

Drug Treatment

It is indicated if a patient with FGID has comorbid anxiety and/or depression (which is common in about 40-50% cases). Antidepressants are helpful in regulating increased GIT motility (i.e. tricyclics in treatment of IBS), chronic pain (effect independent of effect on mood).[15] For diarrhea or nausea, tricycles are better than SSRI's. SSRI's may produce side effects due to their prokinetic effects (i.e nausea, diarrhea and cramps) but they are useful if patient has constipation, bloating and non-ulcer dyspepsia.[15]

Anxiolytic drugs are indicated to treat comorbid anxiety but addiction potential of benzodiazepines should be kept in mind.

Psychotherapy and Behavior Therapy

The type of psychotherapy and/or behavior therapy depends upon the patient's motivation and acceptance and physician's experience. Relaxations, C.B.T., dynamic and supportive psychotherapy and hypnotherapy have been used in FGID.[5] Relaxation is mainly used to reduce arousal and the techniques used are biofeedback, autogenic training, progressive muscle relaxation and yoga or transcendental meditation. CBT is designed to bring about alteration in patient's perception and their ability to control GI symptoms through practice. CBT is also useful in FGID to control comorbid anxiety and depression, perfectionist attitude, assertion difficulties and expectation for social approval. Dynamic or interpersonal psychotherapy is used to correct interpersonal difficulties (with relations). Hypnosis including autohypnosis is used to make the patient progressively relax and give suggestions to reduce striated muscle tension. Psychotherapy and or behavior therapies are superior to pharmacotherapy.[14]

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Review Article

Promoting Human Behaviour for Environmental Sustainability: An Urgent Need for Homeostasis of the society

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Introduction

The advancement of human civilization followed by modernization, globalization and myopic development activities have led to the careless use, misuse and over exploitation of the planet's existing natural resources. As a result, in the 21st century environmental sustainability has emerged as a key issue for the human societies all over the world. It is commonly observed that in the mad race to consume more and more, individuals are now making decisions that benefit only themselves. They are using up the earth's resources at a much faster rate than the natural processes could regenerate them. According to United Nations Environment Programme (UNEP), research has shown that loss of biosphere integrity, increased carbon dioxide levels, degrading levels of land and fresh water system and release of huge quantities of agricultural chemicals in the environment is causing damage to our own life support and making our earth all the more less habitable for human population.[1] The Millennium Ecosystem Assessment (2005) provides a comprehensive review of the status, trends and possible future conditions of ecosystems, ecosystem services and human welfare. Its findings include "Over the past 50 years, humans have changed ecosystem more rapidly and extensively than in any comparable period of human history, largely to meet rapidly growing demands for food, fresh water, timber, fiber and fuel. This has resulted in a substantial and largely irreversible loss in the diversity of life on earth".[2]

Now the common concern for all is how to secure sufficient quality of natural resources, ecosystems and the diversity of plant and animals, including the human living environment?[3] How can we all make this world we inhabit a better place for our children and grand children with more economic resources for all – with a more livable environment – with greater social justice and inclusion? These issues have posed a great challenge before the world's noble community including the behavioural scientists to think and develop such a model or strategy that could stabilize and reverse the degrading eco-system while meeting the increasing demands on their services. Thus, for solving the existing global problem they are now shifting the focus to behavioural dimensions of environmental sustainability. We should not forget that human well-being and survival ultimately depend on the good health of the ecosystem.

For understanding the behavioural dimensions of environmental sustainability, let us first understand what is an environment ecosystem and what do we mean by sustainability? Then we shall know how changing the behavioural dimensions of human beings could promote environmental sustainability?

What is Environment and Ecosystem?

Environment is the surrounding or conditions in which a person, animal or plant lives or operates. Whereas, an ecosystem may be understood as a dynamic complex of plant, animal and micro organism and their non-living environment interacting

as a functional unit. Thus, environment is part of ecosystem.

What is Sustainability?

The most common definition is the one given by the United Nations World Commission on Environment and Development (WCED) in 1987, known commonly as the Brundland Commission after its Chairperson Gro Harlem Brundland:

"Sustainable development is development that meets the needs of the present without compromising the ability of the future generations to meet their own needs".

Since 1987, the term "sustainable development" has been used to denote economic, social and environmental dimensions of our future survival. The 17 Sustainable Development Goals of the United Nations give us direction. They are aspirational. They were adopted in September 2015 and each goal has specific targets to be achieved over the following 15 years. These needs to be enumerated as each one of us has to contribute responsibly in order to achieve them.[4]

Societal forces responsible for Environmental Sustainability

Basically, there are 5 main factors that influence the production, consumption and sustainability of ecosystem and their services. They are: (i) population, (ii) Material comfort, (iii) use of technology, (iv)institutions, and most importantly (v) culture and human behaviour. The development of these driving forces is supported by evolution in the institutions in which society is organized, and in society's culture as expressed in general values, norms and beliefs. These driving forces may be traced in their quantitative and qualitative development from the beginning of human emergence on earth.

According to the classic formula given by Leslie A. White, energy and the evolution of culture (1943)[5]

Cultural development (C) = energy consumed per capita per year (E) x efficiency of technical factors utilising the energy (T)

The purpose of culture is to serve the needs of man. These needs are of two kinds: (1) those which' can be served or satisfied by drawing upon resources within the human organism alone. (2) The second class of needs can be satisfied only by drawing upon the resources of the external world.

According to another classic formula total environmental resource use (involving wasteful emissions) is a multiplicative function of population consumption and technology.[6] Formula I=P x A x T

I - Impact
P - Population
A - Average Affluence – consumption per person
T - Average resource intensity of the technology of the use per unit of production

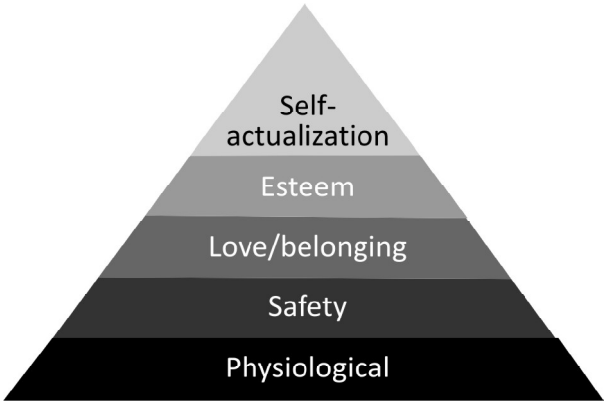
Therefore, each driving force encompasses specific factor as well as opportunity for environmental decline or sustainability.

1. Population

It is a condition when the population exceeds the carrying capacity of its ecological niche. World population is expected to grow from the present to about 9 billion around 2050. This implies a further increase in environmental impacts. Experts believe that a reduction in population growth will follow improvements in people's standard of living.

1. Material comfort

Increasing wealth is an important human aspiration worldwide. Naturally, a basic kind of material security and comfort is necessary in all parts of the world. Due to the emergence of global middle class, human needs expanded from purely surviving to become much more layered and complex. Expanded consumption has resulted from a gradual transformation of basic needs fulfillment into meeting ever-new temptations. One popular summary is the hierarchy of needs of Abraham Maslow – Human beings recognize and then attempt



to satisfy their needs in a particular sequence.[7]

Thus, to reduce environmental damage and risks significant changes are needed in consumer behavior, in manufacturers' products and supply of goods and services. Significant changes are also required in people's ability to fulfill their needs and values in a gratifying and sustainable way, using broader than material notions of quality of life.

3. Technology

Vast use of technology, vehicles, and equipment by people is leading to overall increase in environmental burden. The environmental effectiveness of technologies strongly depends on the way users interact with them. Thus, there is huge potential for materials efficiency, energy saving, waste reduction, and decreasing ambient noise levels in the way people use them i.e. in a eco-friendly manner.

4. Institutions

Institutions are the formal laws and informal norms that constrain and shape economic decisions. Sustainability crucially depends on the institution of a given country i.e. how successfully the policies are being adopted. Any attempt to impose sustainability will involve changing the institutions that currently constrain the use of resource. For example – prohibiting fishermen from fishing during certain periods of the year. The potential for changing them depends on the country's laws and political system, which are also institutions. The addiction to short-term economic growth usually overrides the desire for long- term environmental quality and security. Thus it makes it considerably more difficult to come with ways to achieve sustainability, but it increases the chance that those policies being proposed will actually have the intended consequences.

5. Culture

Culture refers to the unique behavior patterns and lifestyle shared by a group of people, which distinguish it from others. It permeates people's interactions/behaviour with technology, shapes industrial production and household consumption, and guides procreation and population development. Culture pushes social and economic institutions regulating the demand for and the supply of material goods and services. In many cultures, material possessions and consumption signify people's identity, success, and power in society.[7] Thus, culture creates a layer between environmental effects and the rest of humanity thus protecting both from damage by the other.

Human Behaviour

Human behavior has been identified to be influenced by culture, tradition, human physiology and genetic factors. According to Miller & Schiffer (1996) human behaviour is defined as any activity of a person, involving the consequential manipulation of at least one interactor, taken to mean a physical object in the person's environment or another person.[8]

Human behaviour plays an influential role in the sustainability of ecosystem through the values, beliefs, and norms that human beings share in the society as part of their culture. In other words, culture conditions individuals' perceptions of the world, influences what they consider important, and suggest what courses of action are appropriate and inappropriate. Thus, cultural factors can influence human behaviour including consumption behaviour (what and how much people consume) and values related to environmental stewardship leading to environmental sustainability.

Behavioural Change for Environmental sustainability

The most difficult task is to change the behaviour of people that has been shaped over decades, if not centuries. Change is difficult because societies prefer status quo and as such there is always resistance to change. However, behaviour could be changed/ influenced in social and cultural context in which schools operate namely – family (through enculturation), neighbourhood/society (through

socialization), and peer environment (through influence and acculturation). Let us now understand what culture is all about? And, how culture shapes personality and behavior of human beings which in turn are responsible for environmental decline or sustainability?

Culture is a kind of behaviour. Culture is learned by the process of enculturation and is transmitted from generation to generation through family units and social environment. It occurs and is enforced through family units and is enforced by personal child rearing patterns, institutionalized education and the surrounding social system.

Culture impacts human mind and behaviour. Theorists argue that socialization moulds a person's emotions, thoughts, behaviours, cultural values and norms so as to function as productive members in the human society.

There are 5 different view points while studying the interaction between culture and personality and how culture impacts human behavior: (i) **Configuration approach (Ruth Benedict, Margret Mead):** The basic premise is that culture and personality are so inter-connected that they cannot be viewed separately. But this was criticized being too humanistic without enough quantitative approach.[9] (ii) **Anti-culture-personality relationship:** This view point advocates that human beings have developed adaptive responses to the environment to survive.[10] (iii) **Psychological Reductionism contender:** This view point looks at individual psychological aspects as the cause of social behavior.[11] (iv) **Personality Mediation (Abraham Kardiner, Ralph Linton):** According to this view point religion is affected from basic personality structure which in turn is developed from settlement patterns of society which is influenced by the environment. This view reconciled sociological and cultural approaches with that of Psychological Reductionism.[12] (v) **Two-system view (Inkeles & Levinson, and Spiro):** It holds that culture and personality interact and balance one another. Personality affects the operations of the socio-cultural system. Culture and personality track along an interconnected curve. Culture influences socialization pattern which in turn shapes some of the variance of personality Thus, culture shapes people's behavior, but, at the same time, it is molded by the ideas and behaviour of the members of the culture. Thus, culture and people influence each other bilaterally and interactionally.[13] Thus, training about sustainability as a core value in whatever one thinks and does should be provided through enculturation and socialization. The children should be taught and trained about sacred/profane, totem/taboo, right/wrong, ethics and morality in the family by their parents. This would develop them into human beings with values for environmental stewardship and sustainability. For averting the threat of environmental resource depletion, a variety of approaches toward changing user behaviours have been proposed, such as providing technical alternatives, regulatory rules, financial incentives, information, social examples, and/or organizational change.

Changes in human behaviours may be encouraged by addressing individual persons and groups knowledge, beliefs, and preferences, for instance, through marketing, advertising, and information strategies. However, such demand-side management may have limited effects. Behavioural changes and adaptations may also be induced by modifying choice situations through supply-side management, that is, via changes in entire provisioning systems, in physical infrastructures and technology, as well as in pricing.

Suggestions regarding Human behaviour for Environmental Sustainability

We should try some of these suggestions and see how they are making a difference in our lives.

These suggestions are to give more time to children at home who have the huge potential to act as future agents of change, teach about 3Rs (Recycle, Reuse, Recovery), proper waste management at home, purchase sustainable goods and services (purchase wisely), purchase and use energy efficient appliances, reduce utility bills, grow your own garden, minimize waste, compost kitchen waste, use public transportation more often/go for car pool, plant more trees, support organizations dedicated to sustainability, turn off electrical appliances when not in use, avoid pesticide and fertilizer use, buy local products like food & vegetables, turn off engine of your car/bike/etc. when idling for more than 10 seconds, bring a canvas/cloth bag to the grocery store, use washable utensils, plates, glasses, cups, model sustainability for your students, reward and celebrate sustainability in a

very visible way, speak up when you see, hear and read ideas that are contrary to sustainability, get involved on campus and off in organizations and activities that promote sustainability, make sustainability a core value in everything you do become a sustainability champion.

Conclusion

The world is abundant in natural resources. It is difficult to imagine how some critical resources could be replaced in time to avoid significant change to humanity. After more than three decades of policy making, many cases of hazardous pollution have been resolved. However, as human populations continue to grow, there is increasing demands on all resources. This is evident from the fact that demand for food and water is increasing continuously, material consumption is intensifying and production technology is further expanding. Consequently, the quantity and quality of environmental resources keep steadily decreasing.

Promoting environmental sustainability requires management of urban living environments,natural resources, wildlife and recreation areas, the ambient climate and weather conditions for all forms of life, and above all by adopting eco-friendly/wise human behaviour for dealing with them. The environmental policy makers should consider the behavioural dimension while formulating policies in such variety of domains as energy generation and their use, livestock farming and food production, household consumption, tourism, and transportation, etc. Thus, for the formulation of new strategy it is the responsibility of the policy makers to adopt behavioural intervention programs so far as behavioural dimensions are concerned for promoting environmental sustainability. For approaching the adopted objectives and for ensuring effective policy, more multi-disciplinary research is required extending the role of behavioural and social scientists. Mahatma Gandhi has rightly said that "be the change that you want to see in the world".

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Original Article

Development and Standardization of Scale to Assess Teachers' Knowledge about Adolescents Suicide (T-KAS)

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Abstract

Background: *There is no scale to assess knowledge and attitude of the teachers in prevention of suicide among youth in India.* ***The*** *aim of this research was to develop and standardize indigenous scale to measure teachers' knowledge and attitude towards prevention of suicide among adolescents.* ***Methods:*** *Teachers Knowledge and Attitude Towards Suicide Scale (T-KAS) was prepared and tested with 200 teachers.* ***Results:*** *The factor structure of the scale based larger sample of 200 higher secondary school teachers using exploratory factor analysis revealed four factors such as 'Warning Signs of Suicide (WSS)", 'Risk Factors for Suicide (RFS)', 'Attitude about Suicide (AS)' and 'Suicide Prevention and Intervention Skills (SPIS)' which constituted total 40.00 % of the variance. The split half reliability, internal consistency reliability, construct aspect of content validity, of the final 40-items T-KAS was found to be highly adequate.* ***Conclusion****: T-KAS is the only scale available in India Settings. The utility of the scale need to be established with diverse group of settings.*

Key Words: *Suicide, Knowledge, Attitude, Prevention, Scale, Teachers.*

Introduction

Suicide is one of the major causes of death among adolescents worldwide. The number of adolescent's committing suicide has drastically increased over the years. Globally, an estimated 71,000 adolescents commit suicide every year. Suicide is the second leading cause of death between the age group of 15-29 years[1] in India. Given the alarming increase in rate of suicide, preventing suicide among adolescent has become an issue of paramount importance with the focus on primary prevention. The great tragedy about youth suicide is that it takes place despite of the suicidal youth giving out distress signal.[2] Although teachers interact with suicidal students on a daily basis, most of the time they lack skills to identify suicidal intent of students in the classroom due to lack of training. Major factor of the teachers' role in assisting high-risk students depends on their ability to recognize and respond appropriately to verbal, behavioural and situational signs of suicidal intent in their students.[3,4] Early recognition of suspected high-risk students could greatly facilitate appropriate treatment and subsequent prevention of youth suicide. For teachers to effectively intervene with suicidal students, they need to have adequate knowledge in suicide risk factors, early warning signs, skills in identification and positive attitude in helping suicidal students.

When it comes to assessing the teachers

knowledge and attitude about the adolescents' suicide there is no scale to measure the extent of knowledge, belief, attitude, preparedness of the teachers in prevention of suicide among the youth. The existing few scale such Adolescent Suicide Behaviour Questionnaire;[5] Attitude towards Attempted Suicide;[6] Suicide Attitude Questionnaire;[7] Suicide Behaviour Questionnaire;[8] Suicide Ideation Questionnaire[9] and Suicide Opinion Questionnaire[10] are of western origin and are appropriate for western context. These scales are relevant in clinical population and not specific to school teachers in terms of assessing their knowledge, attitude and skills in suicide prevention among youth. There is no culturally appropriate scale to measure the teachers' knowledge and attitude in prevention of suicide among youth in the Indian context.

Aim and Objectives

The aim of the current study was towards developing and standardizing a scale for Indian setting. The present study was designed to achieve following objectives: 1) to develop indigenous scale to measure teachers knowledge about adolescents suicide; 2) to establish reliability of the scale and 3) to determine the factor structure of the measure as an evidence of its construct validity.

Method

The method followed in the process (Figure-1) of developing the new scale are discussed comprehensively based on theoretical background on scale construction under the following three main phases:

Phase I: Scale Construction

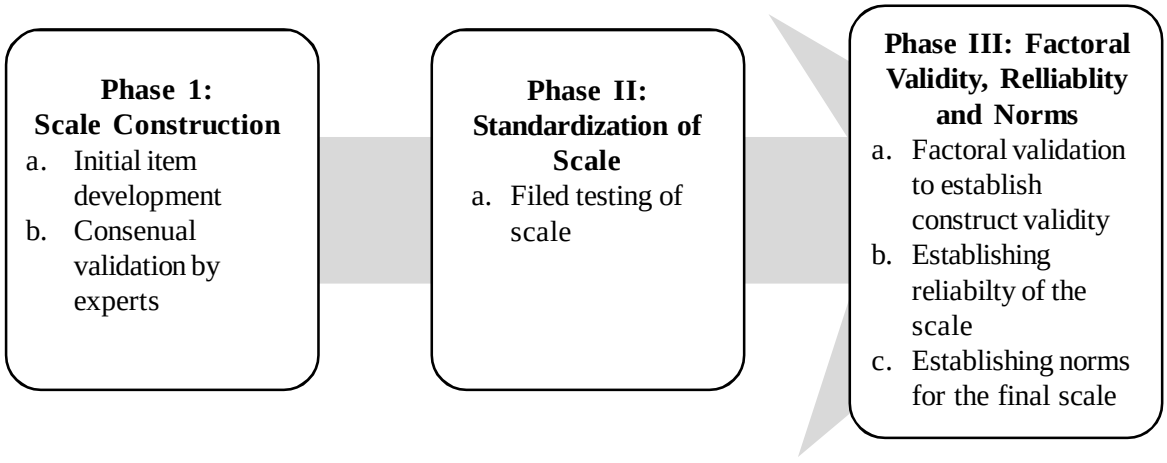
a. Initial Item Development

A comprehensive review of literature was done. The existing scale in relation to research was reviewed. Instead of pooling of items from the existing scales, initially100 items were developed by the researchers. These items were grouped into four priori dimensions such as: Knowledge about Identification Suicide (KIS), Knowledge about Risk Factors for Suicide (KRFS), Attitude about Suicide (AS), and Knowledge about Suicide Prevention (KASPIS).The respondent was provided with 5 possible responses on a Likert scale: Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree to indicate their agreement/disagreement about the degree to which the statements reflects a strong point about the attitude. The scoring of the items ranged from 1 to 5, positively worded statements are scored 1, 2, 3, 4 and 5 for the responses Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree respectively and negatively worded item being scored in reverse order i.e., 5, 4, 3, 2 and 1 for the same respectively.

b. Consensual Validation by Experts:

To ensure content validity of Teachers Knowledge about Adolescent Student's Suicide (T-KASS) was submitted to eight experts in the field of psychiatry, clinical psychology, epidemiology, mental health education, psychiatric social work and psychiatric nursing. The experts validated each of the items for a) cultural relevance b) clarity c) comprehensibility d) readability e) suitability for 5-point rating and f) representativeness of items in

Fig-1: Process of Scale Development-T-KAS



each dimensions of the scale. Only those items, which had complete agreement among three or more judges, were retained in the scale. Therefore, the initial item pool of 100 items was reduced to 61 items after scrutinizing on the basis of redundancy, cultural relevance, comprehensibility and readability.

Phase - II: Standardization Scale

Field Testing of Scale: Results

A pilot study was carried with initial 61-items scale with 30 higher secondary teachers. The main study was carried out with 200 teachers from higher secondary schools using random sampling technique to examine the measurability of the instrument.Those teachers of secondary and higher secondary schools, who speak English and willing to participate, were included in the study. Primary school teachers were excluded from the study.

The main study was also carried out with the purpose to further reduce the items in a meaningful manner using factory analysis, establish construct validity, and establish reliabilities and the norms for the final interpretation of the scores of scale. The age of the teachers ranged from 24 to 60 years with the mean age of 39.16 (SD ± 9.21) years. Majority 63% of teachers were female with majority 55.5% teachers were graduates. 86% of the teachers were married. The teaching experience of the teachers were ranged from 1 to 34 years and mean year of experience was 11.75 (SD ± 8.37) years.

Phase III : Factorial Validity, Reliability and Establishing Norms for the Final Scale

a. Factorial Validation to Establish Construct Validity

Construct validity indicates the extent to which a research tool measures exploratory concepts or constructs at account for performance on a tool. Factor analytic techniques are used to substantiate the existence of such constructs.[11] In order to determine the construct validity, exploratory factor analysis with varimax rotation was employed as to establish the factor structure of T-KAS. This analysis was employed as no empirical evidence of suicide prevention knowledge, attitude and awareness dimensions was found previously in India. The items with content relevance and factor loading of at least 0.40 were included in each factor using Kaiser's criteria of retaining only factors with Eigen values greater than 1.[12] The satisfactory significant factors were those which had an Eigen value of at least 1.00. Four meaningful factors with Eigen values of greater than 1.00 emerged. Nearly 21 items were discarded from initial 61 items scale. The final scale has 40-items which were renamed as following four factors based exploratory factor analysis. The first factor contained 12 items was labelled 'Warning Signs of Suicide (WSS)", factor two contained 11 items labelled as 'Risk Factors for Suicide (RFS)', factor three contained 6 items was labelled as'Attitude about Suicide (AS)' and factor four contained 11 items was labelled as 'Suicide Prevention and Intervention Skills (SPIS)'. Total four factors constituted total 40.00 % of the variance (See Table-1). The results of this analysis were largely supportive of the theoretical construct of the scale.

b. Establishing Reliabilities of the Scale:

Two type's reliability techniques were used to establish the reliability co-efficient of the newly developed scale. The two types of reliability tests were:

Internal consistency Cronbach's Alpha: Cronbach's alpha coefficient is a measure of consistency of responses across items dependent on length. The internal consistency Cronbach's alpha for overall scale was 0.80 indicating high degree of reliability of the scale. The Cronbach alpha value for each factors were WSS (0.80), RFS (0.85), AS (0.75), and SPIS (0.77).

Guttmann split-half reliability: The T-KAS scale was divided into two halves i.e., all the odd items were made as first halves and even number was as second halves. The two set of same scale were given to 30 teachers. The correlation between the scores of two parts was 0.799 indicating highly reliability co-efficient value of the newly established scale.

c. Establishing Norms for final scale:

The total items of scale are the 40. Each of the items was measured on 5 point scales.1 for 'Strongly Agree' and 5 for 'Strongly Disagree'. Thus the possible score is 40 and maximum score is 200. Based on the score is obtained from 200 subjects. Three levels of scores obtained. Percentile score were computed to desire 3 range of cut off score

Table-1: Factor Loading for Corresponding Items on the T-KAS Obtained on Rotated Component Matrix[a]

Items	Factors			
	1	2	3	4
2	**.572**	—	—	—
3	**.720**	—	—	—
4	**.585**	—	—	—
5	**.512**	—	—	—
6	**.512**	—	—	—
7	**.652**	—	—	—
8	**.587**	—	—	—
9	**.676**	—	—	—
10	**.742**	—	—	—
11	**.476**	—	—	—
12	**.692**	—	—	—
13	**.511**	—	—	—
14	—	—	**.542**	—
15	—	—	**.488**	—
16	—	—	**.451**	—
17	—	—	—	**.465**
18	—	—	—	**.610**
22	—	—	**.510**	—
23	—	—	—	**.568**
26	—	—	**.415**	—
27	—	—	**.533**	—
30	—	—	—	**.586**
31	—	—	—	**.487**
33	—	—	**.587**	—
35	—	—	**.479**	—
36	—	—	—	**.413**
37	—	—	**.618**	—
38	—	—	**.573**	—
42	—	**.566**	—	—
46	—	**.635**	—	—
47	—	—	**.501**	—
48	—	**.732**	—	—
49	—	**.705**	—	—
50	—	**.589**	—	—
51	—	**.588**	—	—
52	—	**.551**	—	—
58	—	**.590**	—	—
59	—	**.706**	—	—
60	—	**.444**	—	—
61	—	**.524**	—	—

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 8 iterations.

for overall T-KASS 40 item scale. At 25th percentile score was 143 and at 75th percentile score was 167.Thus the three levels of scoring can be summarized as follows.

Less than 143 is	High knowledge and attitude
143- 167	Moderate knowledge and attitude
168 and above	Poor knowledge and attitude

d. Descriptive Statistics of Final 40-Items T-KAS:

The mean scores, standard deviations, minimum and maximum scores in each domain of final 40-items T-KAS is shown in the Table–2. The minimum score for overall scale was 65 and maximum score

Table - 2: Descriptive Statistics of Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Warning Signs of Suicide (WSS)	200	43.00	15.00	58.00	33.00	8.70915
Risk Factors for Suicide (RFS)	200	37.00	11.00	48.00	25.00	5.97776
Attitude about Suicide (AS)	200	23.00	16.00	39.00	26.46	4.43136
Suicide Prevention and Intervention Skills (SPIS)	200	17.00	6.00	23.00	14.93	2.49840
T-KAS Total	200	90.00	65.00	155.00	99.40	14.60884

was 155. The overall mean score was 99.40 with SD of 14.60

Discussion and Conclusion

The purpose of this multiphasic study was to develop indigenous scale to measure teachers' knowledge towards prevention of suicide among adolescents; to establish reliability of the scale and to determine the factor structure of the measure as an evidence of it construct validity. The initial psychometric properties of the scale suggest that the T-KAS is a potentially reliable and valid measure to assess the knowledge and attitude of teachers towards prevention of suicide among adolescents in schools from general population. The Cronbach alpha coefficient and overall split of half reliability index showed high degree of internal consistency and stability among the items. Further research need to be conducted to understand utility of the scale in bringing about the attitudinal change and knowledge enhancement in early identification and prevention among suicide by school teachers. The scale can also be used in Gatekeeper training program to assess change in attitude and knowledge before and after training program.

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Original Article

Mental Health of the Primary Caregivers of Children with Intellectual Disability

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Abstract

Introduction*: Taking care of a child with intellectual disability can be extremely burdening. Care giving hassles lead to a lot of stress and consumes a lot of time and energy. It affects the well being of the caregivers, thus affecting the mental health.* ***Objective****: The aim of the study was to understand the mental health of the primary caregivers of children with intellectual disability. Method: To accomplish this, a sample of 90 primary caregivers of intellectually disabled children was taken. Intellectually disabled children in the age range of 2 - 18 years were selected (30 each of mild, moderate, and severe levels respectively). Questionnaires were administered to measure hassles, well being, and coping skills of the caregivers. This was followed by a semi structured interview.* ***Results****: Results revealed that the caregivers were high on hassles and well being, and used both problem and emotion focused coping. It was seen that increase in hassles reduced the well being and led to increase in the use of coping skills. Positive reframing and Social support seeking were the mostly used coping skills and helped reduce the stress and thereby, increased the well being.*

Key words: *Caregivers, Intellectual Disability, Well Being, Coping Skill.*

Introduction

Care giving for a special child is more stressful than caring for a normal child as it requires a lot of time, effort, and energy. The concept of intellectual disability is used to describe an extremely heterogeneous group who differs in terms of causes, degrees, and treatments of their disability. Intellectual disability is the condition of arrested or incomplete development of the mind, characterized by impairment of skills manifested during the developmental period, and skills which contribute to the overall level of intelligence.[1] DSM-5[2] has revised the term Mental retardation as Intellectual disability (Intellectual Developmental Disorder). It is characterized by sub average intellectual functioning (below IQ 70) and has an onset before the age of 18 years. They show difficulty in performing skills of daily life like communication, self care, home living, social, and interpersonal interactions, self direction, functional academics, and leisure activities.

Levels of Intellectual Disability and Educational Expectation

U.S., American Association on Intellectual and Developmental Disabilities (AAIDD)[3] and the Diagnostic and Statistical Manual on Mental Disorders (DSM-5),[2] defines intellectual disability as "the developmental condition that is characterized by significant deficits in both intellectual functioning and adaptive behavior, including conceptual, social and practical skills.'' [2,4] The terms intellectual functioning and adaptive behavior are two different constructs but one in itself is sufficient to meet the diagnostic criteria for intellectual disability. Earlier DSM-IV TR[5] classified intellectual disability on the

basis of severity levels into mild, moderate, severe and profound but now according to[2] DSM-5 it has been classified on the basis of individual's adaptive functioning level across conceptual, social and practical skills to guide clinical judgment in determining the severity level of intellectual disability.

Table-1: Mental Retardation classification levels[6]

Types	Stanford Binet and Cattell Tests (SD = 16)	Wechlers Scale (SD = 15)
Mild	52-67	55-69
Moderate	36-51	40-54
Severe	20-35	20-39
Profound	0-19	0-19

Caregiving

Caregiving is providing a wide array of help to an older person or someone with chronic, disabling or serious health condition.[7] Caregivers may provide emotional or financial support as well as hands-on help with different tasks. A "family caregiver" is anyone who provides any type of physical and/or emotional care for an ill or disabled loved one at home. They can either be seniors taking care of their spouses, children taking care of their grandparents, neighbors taking care of the elders in the locality, or parents taking care of their disabled child. Most of the caregivers are woman but men are also fulfilling the duty. Caregiving involves taking care of their personal needs such as dressing, bathing to managing other daily activities without outside assistance. They can be helped by the support services. But other job responsibilities can bring about physical and psychological strains to the caregivers.

While dealing with the intellectually disabled highest priority should be given to the severity. The level of disability and adaptive functioning of the intellectually disabled children creates different levels of caregiving demands and subjective caregiving burden. Care giving is a lifelong commitment during which a caregiver takes many different roles and experiences a lot of stressors. Caregiving of intellectually disabled is non normative and becomes more taxing as the child becomes an adult. As the child reaches heterogeneity starting from birth, in the child's early years parents have the task of detecting the child's handicap, defining the process positively and accepting the child emotionally.

Caregiver's mental health

Parents experience immense stress while taking care of their exceptional children. Many mothers of children with intellectual disability experienced significant amount of caregiver burden and seek a lot of social support as compared to mothers of normal children.[8] It has however been found that parents of Down's syndrome as compared to the normal children are less stressed. It was observed that parents with low education and from lower socio economic strata have the poorest health.[9]

Stress is a psychological process characterized by behavioral and physiological responses to stressors.[10] Stressors are events or thoughts that threaten or challenge the organism. Factors related to appraisal, affect the treatment strategies. Reactions to stressors were understood by the General Adaptation Syndrome which was given by Selye (1956).[11] Lazarus rather than focusing on the event, focused on the appraisal of the event. There are two types of appraisal which determine coping with stress: primary and secondary appraisal. Appraisal of stressor elicits emotional, behavioral and physiological responses. According to[12] Lazarus (1984) stress occurred due to lack of physical and social resources. It is anadaptive process aimed at altering a stressful situation or accommodating its effects. Stress affects both physiological and psychological processes.[13]

A research was based on studying the psychological problems in three types of families, families with disabled, with mentally retarded, and those with a healthy child. The first two groups experienced most financial stress, disruption in family routines, leisure and poor social interaction, and increase in social burden. Similar findings were reported by a study.[14] Caring for a child with intellectual disability can be highly stressful and affects the physical and the emotional health of a person [15,16]. Parents of children with intellectual disability have been found to have a lot of caregiving burden as compared to the controls.[17] Parents of children with intellectual disability also experience stress, physical and mental stress and it was also found that parents had more of mental stress as compared to physical stress[18] (Gupta and Kaur, 2010).[19] Sinha (Sushruta quote) defined health as the prasannanme. A healthy person

has features in right quantities (sama), defects or weakness (samadosh), digestive qualities (samadhatu), and normal body (malakriya). It is related to total well being and happiness. It is the balance between inner and intra psychic forces. Well being is defined as a subjective feeling of contentment, happiness of one's role in the world of work, sense of achievement, utility, belongingness, and no distress, worry, or dissatisfaction.[20]

Thus, in order to deal with the stress the care givers use coping strategies to enhance their well being.

Coping strategies

Coping strategies can be defined as cognitions and behaviors used by the individual in evaluating the stressors that involve either active or avoidant coping strategies aimed at decreasing the amount of stress.[21,22] Coping is a major determinant in the relationship between stressful events and adaptation outcomes.[23]

Problem-focused coping targets the causes of stress in practical ways which tackles the problem or stressful situation that is causing stress, consequently, directly reducing the stress. It is a conscious attempt to directly prevent, eliminate, or improve the stressful situation.

Emotion-focused coping involves trying to reduce the negative emotional responses associated with stress such as embarrassment, fear, anxiety, depression, excitement, and frustration. Emotion-focused coping strategies used during unchangeable situations involve a cognitive reappraisal process that includes self-reflection and taking control over one's emotions.[24] It examines the emotional response to the stressor.

1.1. Need of the study

Caregiving disrupts the daily routine of an individual. Because of the additional tasks of the child and other family responsibilities, caregivers do not have time for themselves. This leads to a lot of burden and stress. This can in turn affect their health and well being. The unchangeable conditions of the child with intellectual disability leaves the parents disturbed lowering their well being. In order to deal with the circumstances the parents try to deal with them by using coping strategies. Because of limited work related to well being and coping skills of the caregivers of children with intellectual disability, the current research was designed.

Method

1.2. Participants

The study consisted of 90 primary caregivers of children with intellectual disability (30 each of mild, moderate, and severe levels respectively). The diagnosis for identifying children was based on the diagnosis done by the institution from which the participants were selected. Children diagnosed with intellectual disability in the age range of 2-18 years, belonging to middle and upper middle class families of various family structures nuclear, nuclear with grandparents, and joint were determined and their caregivers were selected for the study.

1.3. Tools

1. Hassels and Uplifts Scale[25] (Lazarus and Folkman, 1989)

The scale was used to find the everyday coping and daily hassles in a person's life. Uplifts are positive encounters and emotions to counter the negative aspects. It consisted of 117 items. The scale has two possible scores, namely, (1) Frequency of number of hassles encountered without considering severity. (2) Severity. The normative data is available for the whites, middle aged adults, and college students in the age range of 20 to 60 years.[26] The internal consistency reliability of the scale was .79. It has good construct validity.

2. Ways of coping questionnaire(Folkman and Lazarus, 1988)[27]

This was used to explore the role of coping in the relationship between stress and adaptation outcomes. The test comprises of 66 items based on cognitive and behavioural skills. The sub scales of the test included problem and emotion focussed coping skills.

Problem focussed coping includes confrontive coping, distancing, self controlling, seeking social support, accepting responsibility, escape avoidance, painful problem solving, and positive reappraisal) and emotion focussed coping includes distancing, seeking social support, positive reappraisal and escape avoidance. The scale had good face validity.

3. PGI General Well Being Measure (Verma and Verma, 1989)[20]

It is a measure of subjective, psychological well being. This scale was modified to contain 20 items. The scoring of the test consisted of easy counting of ticks and has versions of English and Hindi. It has good inter-rater reliability of .86.[28] It has good validity and shares a relationship with quality of life scale and learned helplessness.

Semi structured Interview

Semi structured interview schedule was constructed to obtain qualitative data to discover child's health status, perceptions and reactions of caregivers and others to the child's and caregivers lifestyle change. There were 6 items in total with item no.5 and 6 had two sub parts (a and b). Each item had 2-6 options and the subject was required to choose the option(s) applicable to him/her. Item no. 1, 2, 3, 5 (a), 6 (a) and 6 (b) required elaboration if the subject thought the last option to be applicable. Item no. 5(b) was an open ended question. The verbatim and responses were obtained in the same medium, and were marked in the interview schedule by the interviewer manually.

1.4. Procedure

The data were collected from Special schools and Hospitals of Guwahati and Delhi. After the rapport formation, the benefits of the study were explained to the caregivers and their consent was taken. In order to obtain the quantitative data, all the questionnaires were administered. This was followed by the administration of the semi structured interview schedule to obtain the qualitative data. The data were then analyzed.

Results

In order to study the "Mental health of the primary caregivers of the children with intellectual disability'', the data was collected and analyzed using mean, standard deviation, correlation and percentages. The summary of the results has been depicted in the Table 2, Table 3 and Table 4 as below.

The mean of the Hassles score (frequency) (M = 43.7, SD = 19.53) and the well being score was (M = 12.87, SD = 4.55) higher than the average means of the normative data. This indicates that the sample was high on hassles as well as well being.

Table-2: Mean and standard deviations of the variables among the primary caregivers of children with intellectual disability

Variable		Mean	Standard Deviation
Hassles		43.7	19.53
Coping skills	Problem Focused	40	8.25
	Emotion Focused	38.27	11.02
Well being		12.87	4.55

Table-3: Relationship between the Hassles, Well being and Coping skills

Variables	r.
Hassles & Problem Focused Coping	.48**
Hassles and Emotion Focused coping	.62**
Hassles and Well Being	-.73**
Problem Focused coping and Well being	-.59**
Emotion Focused coping and well being	-.35*

*significant at $p < .05$, df = 29
**significant at $p < .01$, df = 29

The mean of the problem focused coping that is, (M = 40, SD = 8.25) was found to be higher than the mean of emotion focused coping (M = 38.27, SD = 11.02). This indicates that the participants used both the type of coping styles.

On computation of correlation, a significantly negative relationship was found between hassles and well being (r = -.73**). This meant that when an individual faces too many hassles his well being reduces, and only when a few hassles are present the well being of the person is high. During the analysis it was also depicted that there was a significant positive relationship between hassles and problem focused coping (r = .48**) and emotion focused coping (r = .62**). This indicated that stress lead to an increase in the use of both problem focused coping and emotion focused coping. Further, a significant negative relationship between problem focused coping and well being (r = -.59) and emotion focused coping and well being (-.035) was found. This indicated that excessive use of coping skills reduced the well being.

The excessive stress experienced has been supported by the results that 75.86 % of the caregivers said that their life style had changed and almost 48.28 % of them believed that most of their time and energy was consumed during care giving and was stressful. High well being score is supported

Table-4: Caregivers perceptions on the interview schedule items

Life style changed	75.86
Time devotion by primary caregivers	48.28
Initial reaction of the caregivers to the health status (acceptance)	27.59
Discovery of the child's health status few years after birth	65.52
Caregivers time for themselves	41.38
Caregivers able to manage time because of family support	31.03
Social activity of the child with Intellectual Disability	75.86
Others reactions to the child with Intellectual Disability	62.07

by the fact that 41.38 % of the total caregivers got time for themselves and 31.03 % managed time for themselves by taking help of their family for care giving and did not get involved in less important activities. But on qualitative analysis it was also; found that 65.52 % gathered the awareness about their child's intellectual disability few years after their birth. So, the caregivers reacted by accepting the fact (emotion focused coping) and gathering more information (problem focused coping). This served as an adaptive strategy and lead to positive well being.

Discussion

Care giving is an extremely stressful task. Mental health of the caregivers and their well being are affected by the kind and the amount of care giving they are involved in. Results have shown that high level of stress due to daily life hassles was experienced by the caregivers of children with intellectual disability[29,30,17] (mean score of 43.7 as seen from Table 2) Stress was found to be more among the mothers because of the additional household and social responsibilities[31,32,33] The excessive stress experienced has been supported by results that 75.86 % (as seen from Table 4) of the caregivers said that their life style had changed and almost 45 % (as seen from Table 4) of them believed that most of their time and energy was consumed during caregiving and was stressful. Higher well being found among the caregivers could be because caregivers reported going out, and engaging in leisure activities that lead to higher well being (mean score of 12.87 as seen from Table 2). This is supported by research emphasizing on the need of social support services to reduce depression among the caregivers of intellectually disabled.[34] The fact that most of the caregivers belonged to middle and high socio economic strata and have had higher education could have also contributed to the higher well being of the caregivers. This is supported by the finding that caregivers from lower socio economic strata and less education were in the poorest of health.[9] Higher well being of the caregivers could also have been a result of higher social support (62.07 % as seen from Table 1.4) received by them. This can find support by the fact that 41.38 % (as seen from Table 4) of the total caregivers got time for themselves and 31.03 % (as seen from Table 4) managed time for themselves by taking help of their family for care giving and did not get involved in less important activities. This is supported by the study, stating that mothers of children with intellectual disability experienced more caregiver's burden and were more social support seekers than the mothers of normal children, which reduced their burden.[8,35]

On analysis, a negative relationship was found between hassles and well being. Caregivers stress might have mediated the impact of reduced social involvement leading to reduction in psychological well being among parents of children with intellectual disability.[34,36] This was also supported by a study that burden and the quality of life were significantly worse for caregivers who cared for patients with physical and mental diseases.[37] Mothers of children with developmental disabilities as a result of stress had poor quality of sleep and poor well being.[38] Thus, caregiving could be stressful because the number of tasks involved affects the daily living activities in a number of ways, making the individual feel more hassled, and making their well being endangered. Social support could have also mediated to reduce the stress and increase the well being. As 16.03% of the participants used social support seeking and it moderated to increase the well being, family support to the family caregivers could have also brought about improvement in the children with intellectual disability.[39,40] Joint families made the parents more confident in engaging their children in social activities. This made the parents mental health positive and developed a secure social network for them. Caregivers made their children participate in hobby classes and took them for long drives because

of the increased social acceptance (75.86 % as seen from Table 4). This involvement of the children enhanced the adaption of the caregivers, thus increasing the well being and adoption of coping skills.

From the results, it was seen that problem focused and emotion focused coping were used almost equally, revealing that coping skill use depended on the type situation they were used in [41]. Emotion focused coping skills might have been used by the parents as it reduced the pain and helped them accept the unchangeable situation.[42] Problem focused coping skills might have been used because after accepting the situation, parents visit the doctor and take any course of action in order to prevent, eliminate or significantly improve a stressful situation. It was observed that mothers of children with intellectual disability used more problem focused coping whereas fathers had been seeking more social support [43]. The coping skills mostly used were positive reappraisal, followed by planned problem solving, social support seeking, and self control, accepting responsibility, distancing, confrontive coping and escape avoidance. Highest use of Positive appraisal might have been related to the religious dimension as in India, it is an important dimension and is related to personal growth. Religious involvements lead to the acceptance of the child's health status and helped in redefining the disability.[44]

It was found that with increase in hassles, problem focused coping was used as the situation was considered to be controllable and changeable. This was perceived as controllable because the caregivers belonged to the middle and upper socio economic strata and had adequate resources to support the child's health facilities, took help from outside assistance, had social support from family members and provided special education to the child. Thus, a positive environment helped the caregiver approach the situation with confident and a positive affect, thus, thereby dealing effectively with the stressors experienced by them. Positive reframing strategies thus, helped in reduction of stress.[45,46,47] It was also revealed that with increase in stressors, the use of emotion focused coping skills also increased. This indicated that in order to survive the stress they experienced, they tried to manage their emotions as they thought that the situation was not under their control. Since, it was seen that the caregivers got a lot of social support; they coped effectively with their emotions and the stressful situations. This is supported by the study on children with developmental delays, stating that parents because of the excessive care giving stressors, used variety of coping strategies.[47]

Results, however depicted that increased use of problem focused coping reduced the well being of the caregiver. This might have resulted as problem focused coping helped in reduction in stress, but since the situations were considered to be uncontrollable and unchangeable, this resulted in a negative impact on health. Excessive use of problem coping skills and excessive caregiving demands could have also resulted in burnout, leading to reduction in the well being, Since, the problem of the child is emotionally burdening they tried to keep away from the problem, thereby repressing their emotions. Thus, use of emotion focused coping skills lowered the well being. They might also deny the problem and used ineffective coping styles leading to reduction in their well being.

Well being of a caregiver is affected by the stress of caregiving of the child with intellectual disability but there are moderators like appropriate coping skills, availability of social support, leisure activities of caregivers, helped reduce stress and increase the well being. It can thus be concluded that if the caregivers accepted their child's health status, which cannot be changed and took appropriate steps, they could help their children build on their strengths and helped the caregivers have a positive mental health.

The limitations of the study were that the sample size of the study was small making it difficult to generalize the findings to the large population. More variables like attitude, depression etc could be included. Also the current study did not focus on differences between the care giving of intellectually disabled children of different gender and care giving by caregivers of different genders. Another limitation was that it did not include care giving of physically disabled children. So, presence of physical disability in children with intellectual disability can be researched further.

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Original Article

Impact of Self Efficacy, Support and Coping Strategies on Psychological Well-being in Substance Abusers

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Abstract

Introduction: *Various studies have been conducted to determine the causes of drug abuse from a psychological perspective. This study aims to find out the relationship of self-efficacy, social support and coping strategies with psychological well-being among substance abusers.* ***Methods:*** *A descriptive correlation survey was carried out. A sample of 45 substance abusers men filled general and social self-efficacy scale (GSES & SSES), multidimensional perceived social support (MSPSS), coping behaviour inventory (CBI) and general health questionnaire (GHQ) along with socio-demographic and clinical profile sheet. Appropriate descriptive and inferential statistics was applied to compute results.* ***Results:*** *Majority of substance abusers (62.22%) had severe psychological stress. Findings revealed that psychological well-being had significant relationship with social self-efficacy ($r = .411$, $p < .05$), amount of perceived support ($r = .386$, $p < .05$), social support ($r = .366$, $p < .01$) and use of behavioral coping strategies ($r = .559$, $p < .05$) among substance abusers.* ***Discussion:*** *Results indicate that social self-efficacy and behavioral coping contribute to the psychological well-being among substance abusers. The contribution of general self-efficacy and poor friends and family support in the relation with more use of cognitive coping strategies may have important implications for the design of promotional programs aimed at enhancing psychological well-being among substance abusers.*

Keywords: *Self-efficacy, Social support, Coping, Psychological well-being, Substance abusers*

Introduction

The illicit drug use been well thought-out as major social intimidation in Punjab. The close geographical propinquity of Punjab to the international borders and other North Indian state that produces illicit drugs has intensify drug use in Punjab.

United Office on drugs and crime reported 62.5 million alcoholics, 8.75 million cannabis users, 2 million opiates and 0.29 million of hypnotic sedative user in India.[1,2] Study reported that 20-30% of adult males and 5% of adult females use alcohol while 57% of males and 10.8% females consume opiates in one or any other form[2]. It is also reported that heroin (36%) primary abused drugs followed by opiates (29%) and cannabis (14%)[3]. It has been estimated that 14% patients admitted in hospital have alcohol and drug abuse and addiction disorders and almost 20% of all medical cost spends on inpatient care is associated with substance abuse[4].

Family has significant impact on psychological wellbeing on human being. It is also evidenced that family communication patterns amongst addicts family and non-addicts' family, showed weak

communication patterns and less effective interactions amongst former addicts.[5] Besides, less support from family members and the community by large towards former addicts highly promote the addiction tendency.[6,7.8] Other promoting factor for substance abuse is self-efficacy, defined as a degree to which an individual feels confident and capable performing certain behaviour in a specific situational context.[9] As described in the cognitive behavioral model of relapse, high level of self-efficacy are predictive of improved alcoholism treatment outcomes.[10] It is also pointed out that improvement in self-esteem positively also leads to curb drug addiction.[11]

In addition, According to Bandura[12], self-efficacy has a central role in regulation of emotional states. In other words, self-efficacy belief makes people able to interpret potentially threatening expectations as manageable significant challenges and help them feel stressful in such situations. Thus, by reducing the negative thoughts and concerns of potential threats, they can regulate their emotional states[13]. In addition, Bandura[14], and Roddenberry[15] found a relationship between low mental health and general self-efficacy.

According to Folkman et al,[16] coping strategies are cognitive and behavioral efforts used in order to manage (dominate, tolerate, reduce, or minimize) the external or internal specific demands which are beyond their resources of power. People are distinct in terms of use of coping strategies. Coping has also been studied in ability to control behaviour like drinking, over eating, studying and dating.[17] In alcoholics the findings generally have indicated that non-alcoholics and alcoholics differ in their ability to cope, especially in the cognitive coping. Relation and refusing to drink were associated with increasing success to handle urges.[18] In smokers failure to engage in coping strategy was associated with relapse. Both cognitive and behavioral cooing equally effective though the combination was better in another study.[19]

Material and Methods

A descriptive correlation survey was designed. The sample was drawn from the population of patients admitted in the psychiatric ward at Sri Guru Ram Dass Hospital (SGRD) Vallah, Amritsar (Punjab). As the treatment center population comprises almost exclusively of males, only men were recruited for the study. By using purposive sampling technique, over a period of about 5 months (July 2015 to November 2015), 45 patients were enrolled in the study. The inclusion criteria were; (1) patients should be 18-65 years age group, (2) patient meeting the criteria of ICD-10 for substance dependence and diagnosed by psychiatrist for substance abuse. Patients having any co-morbid physical, psychological, and psychiatric disorders were excluded from study.

Assessment

Socio-demographic and Clinical data sheet- Socio-demographic data were obtained from case notes, and conducting interview with patients and relatives present at the time of data collection.

General Health Questionnaire (GHQ)[20]- Psychological well-being was assessed by using General Health Questionnaire (GHQ), consists of 12 items, each one assessing the severity of a mental problem over the past few weeks using a 4-point Likert-type scale (from 0 to 3). The score was used to generate a total score ranging from 0 to 36. The negative items were recoded from 3 (*always*) to 0 (*never*). High scores indicatepoorpsychological well-being in substance abusers. The GHQ has acceptable validity and reliability.

***Coping Behaviour Inventory* (CBI)[21]** - It consisted of 36 items and devised in two parts; cognitive (20 items) and behavioral (16 items) coping strategies. Lower scores on CBI reflect more frequent use of specific coping strategies. The CBI has acceptable validity and reliability.

Self-efficacy Scale - A Hindi version of general self-efficacy scale[22] (GSES) and social self-efficacy (SSE) scale was used to rate efficacy level. GSES consists of 10 items using a 4-point Likert-type scale (from 1 = not at all true to 4 = exactly true). The score was used to generate a total score ranging from 10 to 40. SES consists of 8 items using a 5-point Likert-type scale (from 1 = not very well to 4 = very well). Scale total score range from 8 to 40. Higher score on both the scale indicate high level of self-efficacy and vice-versa. The self-efficacy scale has acceptable validity and reliability.

The Multidimensional Scale for Social Support (MSPSS)[23] - It consisted of 12 items rated on a 7 point rating scale (1 = very strongly disagree

to 7 = very strongly agree). MSPSS measure the level of support available from friends, family and society or significant others. Getting high score on instrument indicate good social support status. Assessment was conducted on 3rd day of the admission once the detoxification process was claimed over by psychiatrist. The MSPSS has acceptable reliability and validity.

Ethical Consideration

The study was approved by the Ethical Committee (EC) of the Medical College and Research Center, Amritsar, Punjab. Written informed consent was also collected from each participant before proceeding to data collection by explaining the study objectives, their involvement, duration, and possible use of findings in future. Researcher also kept in mind that data collection process will not bring any sort of interferes in usual treatment process of patients. Patients were also informed for not using any invasive investigation to collect data simultaneously.

Results

A small part of the study is already published regarding demographic and clinical profile[24] of substance abusers admitted at hospital for de-addiction. Table 1 & 2 shows the descriptive statistics (mean, standard deviation, range of sum score) and correlation matrix for the variables. Findings indicate that there is a marginal difference between social efficacy (26.49 ± 5.89) and general self-efficacy (24.82 ± 4.18) in substance abusers. Further, findings report that amount family support (19.73 ± 3.54), friend support (19.49 ± 3.82) and social support (19.96 ± 4.74) among substance abusers are close in proximity. In terms of coping strategies use, it shows that use of behavioral coping strategies (26.42 ± 4.92) was more frequent as compared to cognitive coping strategies (30.07 ± 5.35). In terms of psychological well-being, majority of the substance abusers (62.22%) were in severe stress followed by typical stress (26.67%).

Further, findings revealed that psychological well-being was found significantly related with social self-efficacy (r = .411, $p < .05$), amount of perceived support (r = 386, $p < .05$), and social support (r = .366, $p < .01$) and use of behavioral coping strategies (r = .559, $p < .05$) among substance abusers. (Table 2)

Simple linear regression analysis was performed to explore the predictors of psychological well-being among substance abusers. Findings reported that social self-efficacy ($p = .005$), behavioral coping strategies ($p = .000$) along with social support ($p = .013$) and psychological distress ($p = .002$), social and emotional issues ($p = .000$) and cognitive problems ($p = .002$) did have significant impact on

Table-1: Descriptive statistics of the study variables (n=45)

Variables	Categories/level	f (%)	Mean ± SD	Range
GHQ 12	Normal	5 (11.11)	11.80 ± 0.45	11-12
	Typical	12 (26.67)	14.61 ± 0.83	13-15
	Evidence of stress	28 (62.22)	18.21 ± 1.28	16-20
	Psychological distress	—	07.25 ± 2.21	0-15
	Social & emotional disturbances	—	07.47 ± 2.56	0-15
	Cognitive disturbances	—	02.29 ± 1.25	0-6
MSPSS	Low acuity	01(2.22)	37.01 ± 2.81	12-48
	Moderate acuity	34 (75.56)	55.71 ± 4.64	49-68
	High acuity	10 (22.22)	73.21 ± 2.30	69-84
	Social support	—	19.96 ± 4.74	1-28
	Family support	—	19.73 ± 3.54	1-28
	Friends support	—	19.49 ± 3.82	1-28
	Total	**—**	**59.18 ± 9.08**	**1-84**
Self-Efficacy	**GSES**	45 (100)	**24.82 ± 4.18**	**1-40**
	SSES	45 (100)	**26.49 ± 5.89**	**1-40**
Coping (CBI)	Cognitive	—	30.07 ± 5.35	0-20
	Behavioral	—	26.42 ± 4.92	0-16
	Total	**—**	**56.49 ± 7.84**	**0-36**

***Note: GHQ**-General health questionnaire, **MSPSS**-Multidimensional social support scale, **GSES** - General self-efficacy scale, **SSES**-Social self-efficacy scale, **CBI**-coping behaviour inventory*

Table-2: Correlation matrix of the study variables (n=45)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. GHQ TOTAL	1												
2. GHQ Psychological distress	.450**	1											
3. GHQ Social and emotional	.700**	-0.223	1										
4. GHQ Cognitive	.441**	0.018	0.095	1									
5. SSES	.411**	0.033	.501**	-0.035	1								
6. GSES	-0.007	-0.255	0.15	0.088	0.236	1							
7. MSPSS	.386**	-0.106	.521**	0.093	.668**	0.255	1						
8. MSPSS Social	.366*	-0.172	.551**	0.086	.533**	0.279	.872**	1					
9. MSPSS Family	0.287	-0.08	.399**	0.043	.605**	0.136	.722**	.556**	1				
10. MSPSS Friends	0.198	0.037	0.185	0.074	.367*	0.134	.626**	.318*	0.101	1			
11. CBI TOTAL	0.291	0.162	0.204	0.073	.427**	0.176	.343*	0.267	.309*	0.198	1		
12. CBI Cognitive	-0.088	0.052	-0.14	-0.02	0.084	-0.026	0.019	-0.073	0.045	0.094	.785**	1	
13. CBI Behavioural	0.559**	0.202	.477**	0.138	.589**	.308*	.525**	.504**	.443**	0.213	.739**	0.164	1

*Note: *. Correlation is significant at the 0.05 level (2-tailed),*

***. Correlation is significant at the 0.01 level (2-tailed). 1-GHQ TOTAL, 2-GHQ Psychological distress, 3- GHQ Social and emotional, 4-GHQ Cognitive, 5-SSES, 6-GSES, 7-MSPSS, 8-MSPSS Social,9- MSPSS Family, 10-MSPSS Friends, 11-CBI TOTAL, 12-CBI Cognitive, 13-CBI Behavioural*

Table-3: Associations of GSES, SSES, CBI and MSPSS with GHQ:

Simple Linear Regression (n = 45)					
	Variables	**F (p)**	**R square**	**β**	**t (p)**
Self efficacy	GSES	0.002 (.963)	.000	-.007	5.285 (.000)
	SSES	8.470 (.005)*	.169	.411	4.619 (.000)
MSPSS	MSPSS	7.547 (.009)*	.149	.386	2.464 (.018)
	Social Support	6.671 (.013)*	.134	.366	5.312 (.000)
	Family Support	3.860 (.056)	.082	.287	3.871 (.000)
	Friends Support	1.755 (.192)	.039	.198	4.880 (.000)
CBI	CBI total	3.977 (.053)	.085	.291	2.551 (.014)
	Cognitive	0.332 (.567)	.008	-.088	6.108 (.000)
	Behavioral	19.519 (.000)*	.312	.559	2.611 (.012)
GHQ	Psychological distress	10.962 (.002)*	.203	.450	7.087 (.000)
	Social & emotional	41.225 (.000)*	.489	.700	9.773 (.000)
	Cognitive	10.398 (.002)*	.195	.441	14.080 (.000)

*Note:*significant < 0.05 level*

psychological well-being among substance abusers. (Table-3)

Discussion

Psychological well-being is an influential factor in both physical and mental health. Our findings reveal a close association of social self-efficacy, social support and behavioral coping strategies with psychological well-being among substance abusers.

Social relationship and social support are potent variables that can reduces exposures to stress, promotes health and buffer the impact of stress on health, thus contributing to increases in both the quality and length of life. Measures of social support have been consistently related to physical health outcomes as well.

Present study findings reported a close link of psychological well-being with social self-efficacy, amount of perceived support & social support and use of behavioral coping strategies among substance abusers. Similar findings reported in studies conducted by Berkman et al[25] and Blazer DG et al[26] for association between perceived social support and physical health status.

Another study conducted byLaudet et al

(2006)[27] on alcohol patient also revealed that social support has significant relationship with meaning and quality of life satisfaction. Likewise, close parallel findings also reported in studies conducted by Wethington et al (1986)[28] and Osmany et al[29] which said that perceived emotional support and mental health are positively correlated.

Where the health practice is believed to lead to desired consequences but the change is difficult to make, self-efficacy consideration are probably paramount. Present study justified role of social self-efficacy in psychological well-being among substance abusers. Similarly, consistent findings reportedin study conducted for outcome expectations, such as perceived susceptibility to life style related illnesses or perceived benefits of taking the medications, are associated with self-efficacy.[28,29]

Further, study conducted byCondiotte et al[30] and McIntyre et al[31]onself-efficacy suggest strong associations between self-efficacy and progress in health behaviour change and maintenance. These findings can be explained by the fact that sense of high self-efficacy can help people to manage and control themselves when they are exposed to negative events or stressful situations.

As a result, they are protected against many psychological problems. On the other hand, a feeling of low self-efficacy prevents individuals from effectively dealing with stressful situations. Feeling more stress would lead to different diseases and psychiatric disorders. Therefore, drug abuser men with low self-efficacy feel inefficient and unable to control themselves when facing with stressful situations. They give up easily and feel depressed, anxious and frustrated. Therefore, they try to cope with their psychological problem and to achieve relaxation and peace through alcohol and drugs.

Effective uses of coping strategies have significant impact on psychological and physical health as well. Study justified relationships of use of behavioral coping strategies with improved psychological well-being. Similarly, it has been reported previously that the number and effectiveness of coping strategies among patients are important in determining relapse among substance abusers.[32,33] Thus, a maladaptive coping strategy, along with how they perceive and assess problems, leads to acute problems and mental disorders. Such individuals use alcohol and drugs in order to cope with their problems and to feel relaxed. For predictors, similar and consistent findings reported in a study conducted by Bavojdan et al[34] revealed that mental health can be estimated by general self-efficacy belief, coping strategies and locus of control among substance abusers.

Conclusion

To summarize, this study found a consistently positive and significant relationship of psychological well-being with social self-efficacy, social support and use of behavioral copping strategies among substance abusers. Many programs designed to influence health practices implicitly enhance self-efficacy, social support development and better coping styles use. A better understanding of the circumstances in which self-efficacy, support availability and better coping strategies is important for enhancing effective health promotion programs for a greater number of substance abusers.

Limitations

This study should have been seen under several limitations and findings should be only considered preliminary in this field. First,only subjective self-reports were used for measuring individual aspects. A second limitation is the cross sectional design of our study, which makes conclusive statement about causality in our findings impossible. They thus need to be confirmed in a longitudinal design.

Implications

The contributions of social self-efficacy, social support and effective coping strategies have significant importance on psychological well-being among substance abusers. These findings may have important implications for the design of health promotion programme aimed at developing social self-efficacy and focus on social support along with use of behavioral coping strategies to curb the substance abuse phenomena among substance abusers.

However, the author indicates that such interventions, even though potentially effective, need a better theoretical foundations and should take in to accounts all possible difference among substance abusers (i.e. socio-economic status, education status, habitat, etc.). Longitudinal studies are needed, however, to support the casual chain result of this cross sectional study should be considered

preliminary in this area.

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Original Article

A clinical study to analyze Hyponatremia induced by the use of Selective Serotonin Reuptake Inhibitors (SSRIs)

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Abstract

Introduction: *Antidepressants have been found to be associated with a number of side effects of which hyponatremia is one important side effect.* ***Aim:*** *To know the prevalence of hyponatraemia in the patients receiving Selective Serotonin Re-uptake Inhibitors (SSRIs)* ***Methodology:*** *Study was conducted in Psychiatry outpatient clinic of Mahatma Gandhi Institute of Medical Sciences, Sewagram. Forty-five OPD patients having diagnosis of Depressive episode as per DSM-IV-TR criteria were included in the study. A semi-structured Proforma was used for socio-demographic variables. Serum sodium levels were done at baseline (before starting antidepressants) and after one month of treatment. Data was analyzed with EPI Info-6 software.* ***Results:*** *Mean serum sodium concentrations of the patients in the SSRI group were139.3 $\pm$ 2.88 (Mean + SD). Out of the 55.55% patients who developed hyponatremia, 28% were on Fluoxetine, 32% were on Sertraline and 40% were Escitalopram. All of the patients who developed hyponatremia were in the mild hyponatremia reference range i.e. serum sodium levels were between 125-134meq/L.* ***Conclusion:*** *SSRIs can lead to development of hyponatremia so while prescribing these drugs serum sodium level should be monitored, especially in medically compromised and elderly patients.*

Key words: *Hyponatremia, SIADH Mechanism, SSRIs.*

Introduction

Hyponatremia is usually defined as a serum sodium concentration below 135 mmol/L. It is a disorder of sodium and water metabolism and is the most common electrolyte abnormality in the hospitalized patients with a prevalence ranging from 15-30%.[1] Hyponatremia is a risk factor for hospital mortality (9-27%) and in common population about 1% of the patients develop hyponatraemia.[2] It's causes are numerous and often elusive.[3] Medications are a very common cause of both acute and chronic hyponatremia. Water and electrolytes in the body exist in a delicate balance, the disruption of which can be lethal. Total body water and tonicity is tightly regulated by renal action of antidiuretic hormone (ADH), Renin Angiotensin Aldosterone system, norepinephrine and by the thirst mechanism.[4] Abnormalities in water balance are manifested as sodium disturbances–Hyponatremia and Hypernatremia. Normal serum sodium levels in the body lies in between 135meq/l – 142meq/l.

Patients with hyponatremia may be asymptomatic or present with nausea, anorexia, muscle cramps, weakness, fatigue, confusion and disorientation. Severe hyponatremia may result in

serious neurological sequelae. Both the magnitude and rate of development of hyponatremia are important determinants of the severity of clinical symptoms.[5] Signs and symptoms of hyponatremia are primarily related to the central nervous system. Swelling of the neurons is manifested as headache, lethargy, confusion, gait disorder, nausea, vomiting and in severe hyponatremia as seizures, coma, permanent brain damage or death. Severe hyponatremia ($Na^+ < 120$meq/l) and rapid development of hyponatremia (< 48 hours) are associated with development of neurological symptoms.

Drugs are probably the most common cause of SIADH: opiates, chlorpropamide, cytotoxics, psychotropics are most commonly implicated. A wide range of psychotropics have been implicated with the development of hyponatremia but the majority of reports are as single case reports. In a general population about 1% of the patients develop hyponatremia, [2] whereas in case of psychiatric patients the prevalence has been reported to range from 3.3% to 12.2 %.[6]

All classes of antidepressants have been associated with hyponatremia. The majority of reports with tricyclics and SSRIs have occurred in the elderly.[7,8,9] While all SSRIs have been implicated, there are few reports of hyponatraemia associated with MAOIs. Because the use of serotonin reuptake inhibitors is becoming more popular among elderly depressed patients, reported cases emphasize the need of greater awareness of the development of this serious complication and suggest that sodium serum levels should be monitored closely in elderly patients during treatment with SSRIs.[10]

Many psychotropic medications have been associated with hyponatremia e.g., selective serotonin reuptake inhibitors [SSRIs], venlafaxine, trazodone, nefazodone, reboxetine, mirtazepine, amoxapine, maprotiline, bupropion, carbamazepine, phenothiazines, tricyclic antidepressants, and monamine oxidase inhibitors.[11,12] The risk of hyponatremia seems to be highest during the first weeks of treatment particularly, in females and in patients with a lower body weight.[13]

Numerous case reports, observational studies, case-controlled studies and few prospective clinical trials have reported hyponatremia associated with SSRI use, with the incidence varying from 0.5% to 32%.[14] But not enough research and studies have been done on the comparison amongst the various drugs of SSRI group.

Material and Methods

The study was carried out in the Psychiatry outpatient department of a medical college and hospital based in a rural area. This was a clinical, longitudinal prospective observational comparative study. Detailed history of patients attending psychiatry outpatient department was recorded and forty-five consecutive patients fulfilling DSM-IV-TR criteria for depression were selected. Only the newly diagnosed cases were taken, who were not taking any antidepressant or any other medication likely to produce hyponatremia, those patients who were not suffering from any medical or surgical illness and patients having a normal baseline serum sodium levels. Baseline serum sodium levels were measured and after starting the patients on antidepressants, serum sodium levels were measured again after a month. Results were tabulated and the statistical analysis was done using the EPI Info-6 software.

Results

The main aim was to compare the development of hyponatremia amongst three different SSRIs. The socio demographic characteristics viz age, sex, religion, educational status, type of family, marital status, domicile and employment status of the patient subjected to the three SSRIs are described in Table-1.

As shown in Table-2 serum samples of all 45 patients before starting SSRIs and after one month of treatment with SSRIs were collected and mean serum sodium level was measured which was found to be 138.76 ± 2.86 mmol/dl and 136.76 ± 5.07 mmol/dl respectively. Results were subjected to Paired 't' test and it was found that drop in serum sodium ion level was statistically highly significant ($p = 0.001$) after one month of SSRI therapy. '*p*' value indicates that hyponatremia occurring after administration of three SSRIs used in treatment causes hyponatremia which may be of clinical significance.

As shown in Table 3 and Graph 1 that forty five patients were divided into three group of fifteen patients each and prescribed Fluoxentine 20 mg/ day, Sertraline 25mg/ day and Escitalopram 10mg/ day

Table-1: Socio-demographic details of the participants

Socio-Demographic Characteristics		Number of Patients (N=45)	
		Number	%
	21-30	14	31.1
Age (years)	31-40	15	33.3
	41-50	16	35.6
Sex	Male	19	42.3
	Female	26	57.7
Educational status	Illiterate	9	20
	Upto 4th std	8	17.8
	4th-8th std	13	28.8
	>8th std	15	33.4
Type of family	Nuclear	18	40
	Joint	27	60
Marital status	Unmarried	9	20.0
	Married	34	75.6
	Separated/Divorced	1	2.2
	Widow(er)	1	2.2
Domicile	Rural	21	46.6
	Urban	24	53.3
Employment status	Employed	20	44.4
	Unemployed	25	55.6

Table-2: Showing average levels of Serum sodium concentration before and after treatment

	N	Mean	SD	Mean difference (95% CI)	t	df	p-value
Before	45	138.76	2.86	2.73 (1.14, 4.32)	3.46	44	0.001*
After	45	136.02	5.07				

Paired *t* test (*$p < 0.05$ statistically significant.

for one month duration. Out of those fifteen patients eight (53.33%) taking Fluoxetine, seven (46.66%) taking Sertraline and five (33.33%) taking Escitalopram developed hyponatremia. When results obtained were subjected to Chi Square test value of 'p' was found to be 0.53 which was more than 0.05 and hence statistically insignificant. So, from the result this can be concluded that the hyponatremia caused by three SSRIs was having almost equal incidence.

Discussion

Out of the total patients, 55.55% patients developed hyponatremia which is higher than the previous observation made by Jacob and Spinler, through their meta-analysis of literature on

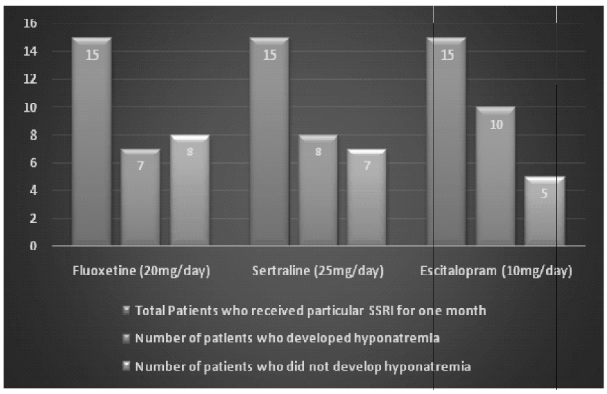
Table-3: Showing the distribution of the patients who developed hyponatremia on receiving different SSRIs

SSRI	Hyponatremia present	Hyponatremia absent	Total
Fluoxetine	7(46.67%)	8(53.33%)	15
Sertraline	8(53.33%)	7(46.66%)	15
Escitalopram	10(66.66%)	5(33.33%)	15
Total	25	20	45

Chi Square Test

Chi square value (2) = 1.26, $p = 0.53$ (NS)

* $p < 0.05$ statistically significant, $p > 0.05$ Non significant



Graph-1: Showing the distribution of the patients who developed hyponatremia on receiving different SSRIs

hyponatremia associated with selective serotonin-reuptake inhibitors, who found hyponatremia incidence upto 32%.[15] This difference may be due to the duration for which SSRIs were prescribed. In the studies which were considered in the analysis SSRIs were prescribed only for one week and then discontinued but here SSRIs were continued for one month duration without break.

Among the patients who developed hyponatremia 28% were on Fluoxetine, 32% were on Sertraline and 40% were Escitalopram. Siegler et al 1995 performed a case-control study of psychiatric inpatients in a tertiary care facility. They also found that out of the total cases who developed hyponatremia, significant associations were with fluoxetine use (Odds ratio was 21.4).[16]

None of these patients who developed hyponatremia had ever had any severe symptoms of hyponatremia. Majority of the patients amongst those who developed hyponatremia had their serum sodium concentrations in the mild hyponatremia reference range (i.e. between 125meq/L-135meq/L). However, as the sample size was too small, the results need to be extrapolated using a much bigger sample size. Not enough data is available till date for such comparative studies of various antidepressant classes leading to hyponatremia. There is need for further research in this area.

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ERRATA

The name of authors i.e. Hadis Cheraghian, Maryam Safara, Syed Amir Ghedami, Foteme Khanbeiki. Comprising spiritual well-being, perceived social support and defense mechanisms in hemodialysis patients and healthy individuals. Published Journal 2016; 19(2) : 320-327 should be read as Naser Heidari, Zahra Amanollahi, Maryam Safara and M.S. Bhatia.

Original Article

Socio-demographic correlates of obsessive compulsive disorder patients with metabolic syndrome-a cross sectional study

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Abstract

Introduction: *Metabolic syndrome (MS) is a highly prevalent disorder among the general population. Studies show an even higher prevalence among psychiatric patients. It is major predictor of mortality and morbidity. MS has been studied previously in relation with schizophrenia, bipolar disorder and depression but there is comparatively less research on MS in obsessive compulsive disorder (OCD).* ***Aims****: This study aims at comparing the socio-demographic variables between patients of obsessive compulsive disorder (OCD) having MS and not having MS along with assessment of severity of OCD.* ***Material & Methods:*** *This cross sectional study was conducted in a tertiary care psychiatry hospital. The study included total of 82 subjects who attended the outpatient clinic. Informed consent was obtained from each subject. Yale brown obsessive compulsive scale (YBOCS) was applied for assessing severity of OCD. Statistical Package for Social Sciences (SPSS) version 20.0 was applied for statistical analysis.* ***Results****: The prevalence of MS came out 32.9%. There was significant difference in age of patients when we compared the OCD patients having MS and not having MS. There were more number of married people and female patients in MS present group. Two variables (systolic and diastolic BP) was found to be significantly different among male and female. Mean score of severity of disease in MS present group was 23.48 ± 5.32 while the mean score in MS absent group was 19.31 ± 5.10 and the difference was significant with p value of 0.001.* ***Conclusions****: This study contributes to an understanding of the role that demographic factors play in development of MS in OCD patients. We suggest that clinicians should carefully screen all subjects with OCD for risk factors related to MS and all patients should receive evaluation and surveillance of metabolic and laboratory measures.*

Keywords*: Obsessive compulsive disorder, Metabolic syndrome, Socio-demographic profile*

Introduction

Obsessive Compulsive Disorder (OCD) is projected to be among the ten leading causes of global disability by the World Health Organization (WHO, 2005).[1] It is represented by diverse group of symptoms, that include intrusive thoughts, rituals, preoccupation and compulsions. The rate of OCD are fairly consistent with a life time prevalence in general population at 2-3%. Some researchers have found it to be 10%. These figures make OCD the fourth most common psychiatric diagnosis.[2]

The metabolic syndrome (MS) is a collection of clinical and biochemical risk factors that predispose affected individuals to cardiovascular disease, type 2 diabetes mellitus, stroke and premature mortality.[3-7] The recognition of existence

of metabolic syndrome has developed over the last two decades following the description of an insulin resistance syndrome or syndrome X in 1988.[8]

Depending on the definition used, the metabolic syndrome may include measures of general obesity (as reflected by body mass index (BMI), defined as weight in kg divided by height in meters square), central obesity (as reflected by waist circumference or waist hip ratio), dyslipidemia (as reflected by low High density lipoprotein (HDL) and/or high Triglycerides), hyperglycemia, high blood pressure and resistance to the action of insulin.

Few studies investigated the prevalence of MS in patients with anxiety disorders. A study found a positive cross-sectional association of generalized anxiety disorder (GAD)with MS in a large sample of male veterans, although the prevalence of MS among subjects with GAD was not reported.[9] In patients with posttraumatic stress disorder(PTSD), MS prevalence rates were reported to be higher than those in the general population, ranging from 25% to 47.8%.[10,11,12]

There are relatively few studies showing association between MS and OCD. A study by Konstantinos et al[13] reported a positive association between Depression and Obsessive Compulsive Disorder and the metabolic profile (controlled or uncontrolled). Patients with higher scores have higher odds of being uncontrolled diabetic patients.

There is also little research examining the physical health of patients with OCD. A recent study found that severe patients with OCD were more likely than the general psychiatric patients to have raised blood lipids and raised creatinine. This result is not likely to be attributable to co-morbid diagnoses other than OCD.[14] Though various researches have highlighted the details of biological processes involved in clinical conditions of OCD and other factors, yet only few studies have examined the socio-demographic factors potentially associated with MS in OCD group of patients.[15-17] This study was undertaken with the objective of comparing the socio-demographic variables among the patients of OCD having MS and; not having MS. It also aimed at assessing the severity of disease among the two.

Material and Methods

The study was approved by the ethics review committee of the institute in which the study was carried out. A total of 82 patients were recruited after obtaining written informed consent and were divided according to the presence and absence of MS. The study was carried out at the outpatient unit of a multispecialty tertiary care hospital from January 2015 to August 2016. Inclusion criteria: a) Age 18-60 years diagnosed as per ICD-10 criteria b) Only physically active patients (patients will be physically active if they regularly engage in any aerobic type of activity, at least twice per week for twenty minute c) written informed consent. Exclusion criteria: a) Patients who are taking medication for OCD b) history of co-morbid substance abuse c) Pregnant patients d) patients with co-morbid psychiatric and other medical illness

Tools: A semi-structured proforma was used for the assessment of the socio-demographic and clinical variables of the patients. International classification of disease (ICD 10) was used for the clinical diagnosis. The severity of OCD was assessed by Yale Brown Obsessive Compulsive Scale (YBOCS). Patients underwent an examination where their abdominal circumference and blood pressure were measured. The measurement of the abdominal circumference was taken at the midpoint between the iliac crest and the lower rib. Blood pressure was measured with the patient seated and resting. Body weight (to the nearest of 0.5 kg) and height (to the nearest of 0.001m) were recorded in subjects without shoes and wearing only light indoor clothes. BMI was calculated as weight/height^2 in kilograms per meter square. Fasting blood samples were collected to assess glucose, triglycerides and high density lipoprotein (HDL) levels.

Statistical analysis: All statistical data was analyzed using SPSS software version 20 Statistical package for window (Chicago inc). Subjects' characteristics were summarized as mean and Standard Deviation (S.D.) for continuous variables and frequency and percentage for categorical variables. Sample were divided according to the presence and absence of metabolic syndrome and then we examined demographic and clinical factors potentially associated with MS by way of chi square test in the case of categorical variables and independent-sample t-tests in the case of continuous variables.

Results

The socio-demographic data has been summarized in Table 1. The mean age of study group in years was 30.97 ± 9.56. Male were 31(37.8%) in number and females were 51(62.2%).Married patients outnumbered the unmarried with 56.1% married vs. 43.9% unmarried. 22.0% were secondary pass in education, followed, by intermediate (20.7%), illiterate (19.5%), graduate (14.6%), middle (11.0%), primary (8.5%) and post graduate (3.7%). Majority of the participants belonged to urban areas (64.6%), only 35.4% of cases were from rural areas. 30.5% of study subjects were housewife by occupation, 23.2% students, 18.3% were in Government/Private jobs, 11% were self employed, 9.8% were in agriculture and 7.3% were unemployed. Among the family type 65.9% were living in nuclear family while 34.1% were living in joint family. In the total sample 54.9% were Hindu and 45.1% were Muslims.

Out of eighty two patients MS was present in 27 patients that's its prevalence came out 32.9%.

Table 2 shows the values of different component of metabolic syndrome in whole study sample.

Table-1: Sociodemographic characteristics of sample

Variables		OCD Patients (n=82)
Age :	Mean (SD), years	30.97 (±9.56)
Sex :	Male, n (%)	31 (37.8)
	Female, n (%)	51 (62.2)
Marital Status, n (%)		
	Married	46(56.1)
	Unmarried	36(43.9)
	Divorced/Separated	0(0)
	Widow/widower	0(0)
Education, n (%)		
	Illiterate	16(19.5)
	Primary	7(8.5)
	Middle	9(11.0)
	Secondary	18(22.0)
	Intermediate	17(20.7)
	Graduate	12(14.6)
	Post graduate	3(3.7)
Locality n (%)		
	Rural	29(35.4%)
	Urban	53(64.6%)
Occupation n (%)		
	Student	19(23.2%)
	Housewife	25(30.5%)
	Self Employed	9(11%)
	Govt. /Pvt. Job	15(18.3%)
	Agriculture	8(9.8%)
	Retired	0(0%)
	Unemployed	6(7.3%)
Income n (%)		
	<1802	1(1.2)
	1803-8988	21(25.6)
	8989-18000	34(41.5)
	>18001	26(31.7)
Family n (%)		
	Nuclear	54(65.9%)
	Joint	28(34.1%)
Religion n(%)		
	Hindu	45(54.9%)
	Muslim	37(45.1%)

Table-2: Metabolic parameter of study sample

Parameter	Values(mean, SD)
TGs	115.6 ± 42.38
HDL	40.5 ± 8.04
LDL	54.81 ± 22.03
Blood Sugar(F)	91.41 ± 15.53
Blood Sugar(PP)	116.90 ± 18.28
BP(systolic)	127.8 ± 12.6
BP(diastolic)	83.68 ± 8.47
WC	85.67 ± 7.75
BMI	24.89 ± 3.21

Comparison of socio-demographic correlate among OCD patients having MS and not having MS has been summarized in Table 3. There was significant difference in age of the patients between the two groups, age (in years) of patients in MS present group was 35.7 ± 9.42 and age of patients among MS absent group was 28.6 ± 8.80 (p = 0.001). 77.7% of patients were married in metabolic syndrome present group while 45.5% were married in MS absent group, but on applying statistical test, difference was not significant among two groups. There were more number of females in both metabolic syndrome present and absent group as compare to male but on applying test again the difference didn't come out significant. There was no significant difference found in other socio-demographic characteristics in relation with metabolic syndrome.

We further compared the difference of clinical values of different component of MS between male and female among the metabolic syndrome present patients and found that two variables (systolic and diastolic BP) was significantly different among male and female which has been shown in Table 4.

We also calculated the mean score of severity of disease of OCD patients with and without MS (Table 5). Mean score in MS present group was

Table-3: Characteristics of patients with OCD with and without MS

Variables	MS present (n = 27)	MS Absent (n = 55)	t/χ2	df	p value
Age, mean SD	35.7 ± 9.42	28.6 ± 8.80	3.355	80	0.001
Sex					
Male	8(29.6)	23(41.8)	1.144	1	0.285
Female	19(70.4)	32(58.2)			
Marital Status					
Married	21(77.8)	25(45.5)	7.683	1	0.06
Unmarried	6(22.2)	30(54.5)			
Religion					
Hindu	15(55.6)	30(54.5)	0.007	1	0.931
Muslim	12(44.4)	25(45.5)			
Locality					
Rural	11(40.7)	18(32.7)	0.509	1	0.476
Urban	16(59.3)	37(67.3)			
Education					
Illiterate	8(29.6)	8(14.5)	3.729	2	0.155
Upto intermediate	13(48.2)	38(69.1)			
Graduate and above	6(22.2)	9(16.4)			
Family Type					
Nuclear	18(66.7)	36(65.5)	0.012	1	0.913
Joint	9(33.3)	19(34.5)			
Occupation					
Student	4(14.8)	15(27.3)			
Housewife	10(37.0)	15(27.3)			
Self employed	2(7.40)	7(12.8)	7.530	5	0.184
Pvt/Govt job	7(25.10)	8(14.4)			
Agriculture	4(14.8)	4(7.3)			
Retired	0(0)	0(0)			
Unemployed	0(0)	6(10.9)			

Table-4: Gender difference in metabolic parameters of patients with OCD having MS

Variable	Male	Female	T value	df	p value
TGs	149.00 ± 25.39	156.57 ± 45.95	0.436	25	0.677
HDL	36.50 ± 3.11	36.00 ± 9.15	0.149	25	0.882
LDL	61.62 ± 10.47	68.73 ± 17.98	1.039	25	0.309
BS (F)	96.37 ± 14.63	106.73 ± 18.51	1.403	25	0.173
BS (PP)	127.37 ± 12.77	127.68 ± 29.98	0.028	25	0.978
BP (systolic)	146.75 ± 8.41	132.63 ± 10.02	3.489	25	0.002
BP (diastolic)	95.25 ± 5.23	87.36 ± 7.75	2.620	25	0.015
WC	96.00 ± 4.40	90.52 ± 8.73	1.671	25	0.107
BMI	27.48 ± 2.18	27.01 ± 2.42	0.479	25	0.636

Table-5: M**etabolic syndrome and severity of OCD**

	MS present	MS absent	T value	df	p value
YBOCS	23.48±5.32	19.31±5.10	3.41	80	0.001

23.48 ± 5.32 while the mean score in MS absent group was 19.31 ± 5.10 and the difference was significant with p value of 0.001.

Discussion

Findings of the present study shows that patients with metabolic syndrome were significantly older with mean age of 35.7 ± 9.42 than the patients without MS (mean age 28.6 ± 8.80) and the

difference obtained after applying independent sample t test was significant at 0.05 level.

The observed finding was supported by Yavuz et al[18] who reported that the patients with MS were significantly older than the patients without MS (46.82 ± 8.41 vs. 33.66 ± 10.86 p < 0.001). Raquel Villegas[19] from the study on general population, reported that the prevalence of the syndrome is increasing with age, according to WHO definition: it was found to increase from 15.2% in those aged 50–59 years to 24.3% in those aged 60–69 years; according to ATPIII: 16.4% in those aged 50–59 years to 24.3% in those aged 60–69 years. Our finding was inconsistent with John et al[16]who did not find any association of age with the metabolic syndrome.

One of the possible cause of this age difference can be that aging is associated with increased insulin resistance and decline in glucose tolerance, an increase in visceral adipose tissue and a trend towards increased blood pressure.[20,21]

Our results showed that metabolic syndrome is relatively more in females (70.3%) as compared to males (29.6%). This finding is supported by previous study of Beigh[22] who reported that prevalence was higher in females (29%) as compared to males (23%). Anna et al[23] found that relatively more women met the diagnostic criteria for metabolic syndrome than men, but this did not reach the statistical significance (p = 0.089).

The gender differences in prevalence of metabolic syndrome have been found in several studies. It might be due to different cut-off points set as criteria for metabolic syndrome like WC and HDL-C.[24] The result of gender female dominance was seen in our data which is similar to the Arkhangelsk study done in Russia, China and Korea.[25,26] The influence of gender on clinical impression and pathophysiology of the syndrome is under-recognized and is an issue of increasing importance giving an alarming increase in prevalence among young women. In particular, key sex differences include distinctions in prevalence of dysglycemia, body fat distribution, adipocyte size and function, hormonal regulation of body weight and adiposity, and the influence of estrogen decline on risk factor clustering.[27] It is hypothesized that gender difference may be a result of racial and classificatory inconsistencies.[28]

Metabolic syndrome was reported more in married (77.7%) as compared to unmarried (22.3%), while in group of OCD patient in which metabolic syndrome was absent there were more number of unmarried (54.6%) people than married (45.4%), however when we compared the two group, difference didn't come out statistically significant. Empirical support to our study is provided by previous research conducted by Khanam et al.[29] who found more number of married individuals as compared to unmarried in metabolic syndrome present group, but it did not reach to the statistical difference.

In contrast to present study, Niazi[17] reported that participants who were married, no significant change in MS risk was found in comparison to single participants (MS risk score 0.03 ± 0.5 for single vs. 0.024 ± 0.52 for married). One of the research which was presented at European association for the study of Diabetes meeting in Munich, Germany highlighted that married group were 50% less likely to be overweight when compared to single group. Alexander P John[16] reported equal number of married and unmarried people in metabolic syndrome present sample.

In the present study no significant changes were observed in other socio-demographic variables (Religion, Locality, Education, Family type, Occupation) in relation with metabolic syndrome.

OCD patients having metabolic syndrome reported more severe level of disease than patients not having MS. Anxiety is reported very commonly by Obsessive Compulsive disorder patients and because anxiety triggers activation of the human stress system through behavioural and physiological changes that improve the ability of the organism to adjust homeostasis and increase its chances for survival. These processes appear to adversely affect autonomic and hormonal regulation, resulting in metabolic abnormalities, inflammation, insulin resistance and endothelial dysfunction.[30]

Our study had several limitations; the first one is the cross-sectional design. This design does not allow inferences on the temporal relationship between the variables and only shows measures of association. Future studies should investigate the potential determinants of MS in subjects with OCD using greater sample sizes and better statistical methodologies. A second limitation is the lack of a

control group from the general population.One more limitation is that the study was done at tertiary care centre, so the participants may not be representative of community. Despite these limitations, this study underlines the need for further research with prospective design and larger samples to determine the prevalence and correlates of MS in Psychiatric patients.

Conclusion

Thus, from the above discussion it was concluded that when we compared the socio-demographic correlate among the patients of OCD having MS and not having MS, significant difference was found in the age of patients. Females and married individuals were comparatively more in Metabolic Syndrome present group though no statistically significance was found. Difference in mean score for severity of OCD was statistically significant between the two groups. This study contributes to an understanding of the role that demographic factors play in development of MS in OCD patients. We suggest that clinicians should carefully screen all subjects with OCD for risk factors related to MS and all patients should receive evaluation and surveillance of metabolic and laboratory measures.

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Original Article

Gender Based Study on Global Adjustment among Elderly Living in Family

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Abstract

Background*:Old age has been observed by people in society asa challenging stage among all the stage of human life (child, adult & old). Old age stage is a very important stage among all the stage of human life. In this stage individual is dependent on their own recourses for their happiness. The process of ageing in human life is a multidimensional phenomenon which associated with a combination of physical, psychological and socioeconomic factors. Elderly faces many difficulties in family which are related to adjustment. In this paper researcher focus upon the adjustment problem of elderly on gender prospective.* ***Aim:*** *To study and compare global adjustment among male and female elderly living in family.* ***Methods and Materials****: A cross sectional research design is adopted for the study. In this study researcher selected two areas of Ranchi, Kantatoli and Kanke for selecting elderly people.Tools such as socio-demographic data sheet and Global Adjustment Scale were administered to obtain the data.* ***Result and Conclusion:*** *Findings of this study indicate that Global Adjustmentis better of male elderly in comparison to female elderly people. On the basis of this study psycho-social intervention programme can be developed by psychiatric social worker to enhancing adjustment of the elderly persons in family.*

Key Words: *Social relation, Mental Health, Behavioural Problems.*

Introduction

Ageing is multidimensional phenomena which are associated with physical, psychological and social aspects of an individual. Ageing described as a progressive deterioration on the physical and mental both aspects. In this process to start declines the capacity of individual to maintain balance between homeostatic and various stressors which is subsequently increasing the chances of illness. Elderly persons gain a lot of experience in their entire life so they represent storehouse of knowledge and reservoir of wisdom in society. In present time elderly is highly vulnerable group in society. Elderly faced many problems which are related to physical health, psychological social, financial and different type of abuse in society. Modernization, urbanization and industrialization impacted Indian cultural and joint family system break into a nuclear family system. Many people are migrated from rural area to urban area to get good job, education and health facilities. Elderly faced many difficulties to adjustment in new cultural and new community. In metropolitan cities husband and wife both are working for the better life style of family, children went to school and hobbies class so elderly became lonely in family. It creates many psychological problems and adjustment related problems. The major adjustment problems occurs in elderly due to physical changes in body, retirement from job, in some cases loss of spouse, post-child rearing period (Empty nest syndrome) and grand-parenthood. However without adequate support to sustain and bear the losses the

older adult (aged) is unalterable to a profound sense of insecurity. Despair and disgust can take over the person, including the feeling, time is running out land there are no alternatives possible at this late date. Serious personality breakdown in old age may lead to criminal behaviour or suicidal tendencies.

Adjustment and Ageing

Adjustment plays an important role in process of ageing. Elderly people try to adjust in present scenario but they face some difficulties due to physical weakness and mental decline.

"Adjustment refers to the adequacy of the personal and interpersonal processes that human beings use to adapt to the environment.

Adjustment is defined as "a static equilibrium between an organism and its surrounding in which there no stimulus change is evoking a response, no need is unsatisfied and all the continuative functions of the organism are proceeding normally".[2] Adjustment is the flexibility in adopting appropriate behaviour towards changing ability, role, responsibility, environment and social network. Option for control and self-determination are important aspect for older adults for their mental health. Life is a continuous process of overcoming difficulties or of making adjustments in family, group and community. Ageing is a natural process that starts at the time of birth and progresses throughout individual's life and ends at the time of death.The major adjustment problems occurs in elderly due to difficulty in adjustment to physical changes in body, retirement from job, in some cases loss of spouse, post-child rearing period (Empty nest syndrome) and grand-parenthood. If favourable factors such as satisfaction of needs, retention of old friendships, positive social attitudes, etc. are present, they foster ego integrity of the person. However without adequate support to sustain and bear the losses the older adult (aged) suffers from a profound sense of insecurity. Despair and disgust can take over the person, including the feeling, time is running outland there are no alternatives possible at this late date. Serious personality breakdown in old age may lead to criminal behavior or suicidal tendencies.

A study on adjustment patterns and anxiety among elderly living in community suggested that elderly female had significantly higher level of anxiety in comparison to elderly male. Elderly females had difficulties in adjustment related to home, health and emotions while elderly males had more difficulties in social adjustment. Elderly females face more problems which are related to health, emotional problems and some issues with family members. Male elderly faced difficulties social adjustment with community and relatives.[3]

Older people's have adjustment related problem when living under institutional and non-institutional care. It is believed that aged people living in institutional care face much emotional problems in comparison to those living in homes which largely effected their adjustment.The results show a significant difference in gender prospective and adjustment of institutional and non-institutional old people. Female elderly people had poor adjustment in comparison to male elderly people.[4]

A study on gender difference and adjustment on rural elderly and found out that adjustment is a common problem among elderly. Elderly face difficult to adjustment due to these reasons as limited capacity, lower mental abilities and increased economic dependency. The present investigation is an attempt to study the gender differences and adjustment of elderly. Male elderly have higher adjustment in the area of health, home, social, marital, emotional and financial than the female elderly.[5]

Aim

To study the gender difference on adjustment among elderly people.

Methods and Materials

A cross sectional research design method was adopted for the study. In this study researcher selected the areas of Kanke and Kantatoli in Ranchi for collecting sample of elderly people. Samples were recruited through purposive sampling technique. The sample comprised of 60 participants who were further divided into 30 male participants and 30 female participants. Selected samples were informed about the tools for data collection and doubts were clarified. Tools such as Global Adjustment Scale were administered to obtain the data.

Inclusion And Exclusion Criterion

Inclusion Criteria: Educated up to 5th standard, both male & female, age range between 65-75 years**,**

willing to participate in study.

Exclusion Criteria: History of any major physical illness, psychiatric illness and neurological illness, living without family members.

Tools

1. **Socio-Demographic Data Sheet:** It is semi-structured, self-prepared performa especially drafted for this study. It contains information about socio-demographic variables like age, sex, religion, education, marital status and domicile.
2. **Global Adjustment Scale (GAS):** Global Adjustment Scale was designed and developed by Psy com-service India (1994). Global adjustment scale adult form age range 20 year and above. The adult from tries to obtain information from individual is concerning what he thinks and feels about his.
   - **(a)** ***Family*** relationships i.e., with the spouse and children, with regard to freedom and cohesion in the family.
   - **(b)** ***Health*** i.e., about the physical functioning of his body.
   - **(c)** ***Social*** environment, friends and acquaintances outside the home, with regard to how hostile or submissive he is around them and how hostile or submissive he is around them and how much trust the person has on people around him.
   - **(d)** ***Emotion*** in terms of maturity and sensitivity.
   - **(e)** ***Occupation*** which focuses mainly on job satisfaction and job involvement.
   - **(f)** ***Sex*** related behaviour i.e., about sex related knowledge, anxiety, myths, satisfaction, etc.

In this study researcher used only three domain of this scale Health, Social and Emotion.

The split –half reliability of Health, Social and Emotion is 0.69, 0.79 and 0.73. The factorial validity coefficient of Health, Social and Emotion is 0.65, 0.65 and 0.70.

Result & Discussion

Table No 1 shows the socio-demographic variable between male and female elderly person. In religion, 25(83.5%) Hindu and 5(16.7%) Christian participants were male participants while 22(73.3%) Hindu, 7(23.3%) Christian and 1(3.3%) participants were female. In category, 19(63.3%) Gen, 5(16.7%) OBC and 15(50%) SC participants were male while 18(60%) Gen, 5(16.7%) OBC and 7 (23.3%) ST participants were female. In marital status, 12(40%) married, 3(10%) unmarried, 15

Table-1: Socio-demographic variables between male and female elderly people:

Variable		Group		df	c^2
		Male	Female		
Religion	Hindu	25 (83.33%)	24 (80%)	2	1.52NS
	Christian	5 (16.66%)	5 (16.66%)		
	Other	0	1 (3.33)		
Category	GEN	19 (63.33%)	18 (60%)	3	1.36NS
	OBC	5 (16.66%)	5 (16.66%)		
	SC	1 (3.33)	3 (10%)		
	ST	5 (16.66%)	7 (23.33%)		
Marital Status	Married	12 (40%)	13 (43.33%)	2	1.23NS
	Unmarried	3 (10%)	2 (6.66%)		
	Other	23 (76.66%)	20 (66.66%)		
Education	Below Metric	15 (50%)	18 (60%)	2	2.78NS
	Metric	6 (20%)	4 (13.33%)		
	Above Metric	9 (30%)	8 (26.66%)		
Residence	Rural	10 (33.33%)	12 (40%)	1	0.21NS
	Urban	20 (66.66%)	18 (60%)		
Family	Nuclear	10 (33.33%)	12 (40%)	1	0.28NS
	Joint	20 (66.66%)	18 (60%)		
Occupation	Govt. Job	14 (46.66%)	12 (40%)	3	1.23NS
	Pvt. Job	7 (23.33%)	6 (20%)		
	Business	3 (10%)	4 (13.33%)		
	Other	6 (20%)	8 (26.66%)		

NS = Not Significant

(50%) other (widower and separated) participants were male while 13 (16.7%) married, 2(6.70%) unmarried, 15(50%) other (widow and separated) participants were female. In education, 15(50%) below matric, 5(20%) matric, 9(30%) above matric participants were male while 18(60%) below matric, 4(13.66%) matric, 8(26.66%) participants were female. In residence, 10(33.3%) rural and 20(66.7%) urban participants were male while 12 (40%) rural and 18 (60%) urban participants were female. In socio-demographic variables

Table-2: The difference of age (years) between male and female elderly people

Variable	Group	Mean ± Std. Deviation
Age	Male	68.60 ± 3.99
	Female	68.10 ± 3.79

Table-2 revels that mean ages of male respondents were 68.60 ± 3.99 years while the mean ages of female respondents were 68.10 ± 3.79 years.

Table-3: Comparison of Global Adjustment between Male and Female Elderly People

Variable	Group		t
	Male (N=30) Mean ± SD	Female (N=30) Mean ± SD	
Emotional Adjustment	15.03±3.69	26.23±4.19	10.97**
Social Adjustment	15.80±5.16	28.56±5.73	9.05**
Health Adjustment	15.26 ±6.69	29.40±4.95	9.29**
Total Adjustment	46.10±10.01	84.20±10.09	14.67**

** = significant at 0.01 Level

This study is based on comparison of Global adjustment (domain wise) between male and female elderly living within family setup. Significant group deferences were found in health adjustment, social adjustment and total adjustment between male and female elderly people living within family setup.

Emotional Adjustment

The mean score of emotional adjustment was 15.03 ± 3.69 of the elderly males and 26.23 ± 4.19 elderly females. Emotional adjustment domain of Global Adjustment Scale in this scale showed high score suggesting poor adjustment in that area and low score suggesting good adjustment in that area. Elderly females faced more emotional problem because of unsatisfactory home relationship, fear, emotional isolation, communication gap in family.

Health Adjustment

The mean score of health adjustment was 15.26 ± 6.69 of those respondents who were living in old age home. The mean score of health adjustment was 29.40 ± 4.95 of those respondents who were living with family. The result showed that the health adjustment was good of those respondents who were living in old age home because they received good facilities of medical care since, every week in old age homes doctors came for checkup. They were more health conscious because they lived alone took care of themselves properly.

Social Adjustment

The mean score of social adjustment was 15.80 ± 5.16 for male respondents while the mean score was of 28.56 ± 5.73 for female respondents. Elderly males had better health in comparison to elderly females. Elderly males get more chance to participate in social activities and they spend lot of time in same age group outside of family. A study on elderly found that elderly male had good social adjustment in comparison to elderly female.[6]

Total Adjustment

The mean score of total adjustment was 46.10 ± 10.01 for male respondent while 84.20 ± 10.09 for female respondents. A study on elderly female reported that they faced many problems related to gender, widowhood and old age. Due to these problems they faced adjustment and health related problem.[7] A gender based study on adjustment among elderly and found that female elderly were facing more adjustments problem in area which is related to health and emotional in comparison to male elderly.[3] Another study on elderly reported that problems of adjustment in old age are due to diminishing health, limited capacity, lower mental abilities and increased economic dependency.[8]

Future Directions & Implication

The study needs to be carried out on larger sample with comparable representation of both the groups. The future studies must attempt to investigate other social aspects which is related to aging.The scope for intervention by mental health professionals, especially psychiatric social workers

in planning and delivering adequate therapeutic services in the clinical context.

Conclusion

Present study is a based on cross sectional research design to assess and compare Adjustment between male and female elderly people living with family.The findings of the study indicate that male persons have better adjustment in comparisons to female elderly persons.The Adjustment problem of female elderly people need to be studied further in order to fill the gap in the literature and can plan the appropriate psychosocial interventions.

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Original Article

Parental Addiction to Social Networking Sites and its Impact on Attachment with their children

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Abstract

Background: *Addiction of parents with social networking sites hampers parent child attachment. It disrupts communication which negatively impacts closeness and attachment. The present research thus seeks to investigate the impact of parents social networking site addiction on attachment with their children.* ***Materials and method:*** *A sample of 40 parents living in Mumbai with their children in the age group of 13 to 18 years were selected. The Social Networking Addiction scale was administered on parents to identify their level on addiction to social networking sites. Based on the obtained scores the parents were grouped into four categories namely, Both Addicted, Both not Addicted, Only Mother Addicted and Only Father Addicted. Children under each category were given the Parental Attachment Questionnaire to measure level of attachment.* ***Results:*** *The highest level of attachment was found for both not addicted parents and lowest for both addicted parents, but on statistical analysis of significance of the differences between the 4 groups, no significant difference was found. Therefore parental addiction with social networking sites doesn't seem to affect parent-child attachment. The findings could have been due to the fact that the enrolled samples were adolescents in whom the quality time is required rather than constant monitoring.*

Key words: *Parental attachment, Addiction, Social networking sites*

Introduction

Parenting or child rearing is the process of promoting and supporting the physical, emotional, social, financial and intellectual development of the chid from infancy to adulthood. An important ingredient in achieving this is the quality of attachment between the parent and the child.[1]

Attachment is a deep and enduring emotional bond that connects one person to another across time and space.[2] An important precursor to development of attachment is communication. This is because communication transmits mental content and creates understanding among people impacting their relationship with each other.[3]

Similarly parental communication styles have found to have an impact on attachment, intimacy and achievement motivation of adolescent children. Therefore communication between parent and children is very important.

But in the present age the behaviour and communication of parents is regulated by social media which allows people to ignore their feelings, emotions, obligations as chronicled by Turkle.[4] Hence parents who are over involved in social media tend to have less interactive relation with their child. The number of parents over involved with or addicted to social media is substantial as indicated by statistical studies.

Thus the present research explores how in the current scenario the behaviour of parents which is influenced by their addiction to technology impacts the level of attachment with their children. Several studies linking influence of social networking use

and family relations have been conducted which have been cited in the literature review section.

Literature Review

Parenting style is a determinant factor in child development as it affects psychological and social functioning of the children.

Baumrind (1991) identified three types of parenting styles: authoritarian, permissive, and authoritative (Berger, 2001) based on differences in style of communication between parents and children.[5,6] Thus the style of communication is an important factor of parenting style which in turn impacts attachment and development of the child. But unfortunately in today's world, parents are addicted to social networking sites which prevents proper communication.Though parents generally report that they are on their mobile devices for a few seconds at a time, video evidence shows that they can be absorbed for more than 3 minutes at a stretch .[7] Statistics also show parents on Face book are especially avid users of whom 75% log on daily, including 51% who do so several times a day. Mothers on Facebook are more likely to check the platform several times a day compared to fathers, 56% vs. 43%.

Much has been written about the dangers of Internet addiction though there are currently no social policies or agencies which directly affect the issue of excessive social media usage and its potential subsequent effect on parenting. Like any addiction, the real cost, is to the number and quality of relationships with others especially children because in using social media excessively, the supervision or attention given by a parent can be haphazard or inconsistent, which can lead to a disintegration of the "secure base of the attachment relationship". [8] Distracted parenting is also a direct threat to child welfare as parents are often more engaged in their devices as opposed to supervising their children closely.[9]

There is very little research done on how parents using social media affects the attention and care they are providing to their children. Most of the information currently available is through mainstream media articles. The New York Times reported that the children raised the examples of feeling hurt and not wanting to show it when their mother or father would be on their devices instead of paying attention to them.[10]

The Pittsburgh Post-Gazette explained that adults with children are actually more likely to use social media than adults without children. This subsequent inattention by the parents towards their children can lead to increased incidences of tantrums, separation anxiety, and resistance to discipline.[11]

Much more research needs to be conducted on the specific impact of social media addiction on parenting ability and attention which is a new phenomenon. New research focus should be on the new generations of parents who are surrounded by social media and the internet use on a daily basis. This is what the present research aims to achieve by studying the impact of social networking sites on Parent-Child attachment within the Indian context.

Research Methodology

Aim

To find out whether the parental addiction to social networking sites will impact the level of attachment with their children.

Objectives

To understand the influence of social networking sites on people's life in terms of the attachment between parents and children.

To create awareness about the increasing addiction of social networking sites and its effects on the relationships between parents and children.

Hypothesis–Parents addiction to social networking sites does not impact their level of attachment with their children.

Independent variable – The addiction of parents to social networking sites i.e. not addicted and addicted is classified into 4 categories namely-

- Both addicted parents.
- Both not addicted parents.
- Only Mother addicted.
- Only Father addicted.

Dependent variable–The level of attachment of children with parents i.e. scores obtained on attachment scale.

Sample – A total of 40 parents were randomly selected and administered the addiction to Social networking site questionnaire. On the basis of the scores 10 parents each were separated into 4 categories namely both addicted, both non-addicted,

only father addicted and only mother addicted. Their children were administered the Parental attachment questionnaire.

Controls –

- All families resided in Mumbai.
- Children were in the age group of 13-18 years.
- Each parent owned a cell phone and/or laptop and/or computer.
- Each parent used atleast one of the social networking sites available today like-
  a) Facebook
  b) Whatsapp
  c) Instagram
  d) Twitter.

Tools

- The Parental Attachment Questionnaire (PAQ) scale developed by Mureen E. Kenny consisting of 55 items.[12]
- The Social Media Addiction Questionnaire developed by Beth Morrisey consisting of 12 items.[13]

Design – A randomised design with one independent variable having 4 levels and each participant exposed to only one level was used.

Data analysis – A one way between subjects ANOVA was calculated.

Results & Discussion

The present research study investigated the relation between parental addiction with social networking sites and attachment with their children. The demographic variables indicated that children in the sample were in the age group of 13-18 years (both boys and girls). In case of parents, the average age of mothers was 40 years and that of father was 44 years.

The parents were administered the Social Networking Addiction Questionnaire and on the basis of the scores they were classified into four groups namely, Both Addicted, Both Not Addicted, Only Mother Addicted and Only Father Addicted. Children in each group were given the Parental Attachment Scale to measure attachment.

At an apparent level the highest level of attachment was found for not addicted parents pair (201.1) followed by only Father Addicted (198.8) only Mother addicted (195.5) and least being for both addicted parents (184.7). (Table-1).

At an apparent level the null hypothesis was rejected as a connection between addiction of parents to social media and level of attachment was found. In order to ascertain whether these differences were significant a one way between subjects ANOVA was calculated.

The *f* value was found to be 0.74 which was not significant at either 0.01 or 0.05 level of significance. (Table 2) Thus, the null hypothesis was validated i.e there is no impact of parental social networking sites addiction on attachment with children. This may be because attachment in adolescence is dependent upon various factors like parent-child understanding, the quality time spent together, their attachment formed when they were younger. Since adolescents are mature and peer relationship has been established, the importance of daily attention from parents might not be very significant. Also though the study has not explored the social networking site use of children which could be an important factor.

Limitations

The Sample size was restricted to Mumbai only.

Table-1: Mean of attachment scores in four parental Categories

	Both Addicted	Both Not Addicted	Only Mother Addicted	Only Father Addicted
Total	73880	80440	78360	79520
Mean	1847	2011	1959	1988

Table-2: Shows the *f* value

Source	S S	Df	MS	*f* value
Between groups	1284.88	3	428.29	
Within groups	25721.5	156	164.88	2.59
Total	27006.38	159	593.17	

1) The Age group was limited only from 13-18 years.
2) Gender comparison of children was not done.
3) Family background were not taken into consideration.
4) Children's social net-working site addiction not explored.

Conclusion

The present research did not find any significant impact of parental addiction to social networking sites on attachment with their children. Hence we can conclude that although there is an increase in the use of social media amongst both parents and adults it does not necessarily affect the relationship which they share with their children. Parents tend to balance their work commitments, their usage of social media and the quality time which they allot to their children and family as a whole.

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Original Article

Electronic screen use and Mental Well-Being in Early Adolescents

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Abstract

***Background**: Today's children spend a great deal of time viewing electronic screen devices, but the consequences of such behaviors, if any, are unknown. **Objective**: This piece of research sought to study the effect of total daily electronic screen time use on mental well-being of adolescents. **Material & Method**: We analyzed cross-sectional, population-based data of early adolescent children from various schools in Aligarh. Warwick-Edinburgh Mental Well-Being Scale of mental well-being covering subjective well-being and psychological functioning of participants was used. **Results**: Our study concluded that well being of children was better of those children who were spending more time watching TV/DVD/etc. as compared to those who were not giving any time on this activity and the mean difference obtained was significant at 0.05 level of significance. The mental well-being was better of adolescents who were playing computer games or using internet for academic purposes as compared to those who spent no time on it. **Conclusion**: There are applications of the Internet that can help children succeed academically and socially and grow cognitively. However, there is potential harm the Internet can do if it is not used appropriately. The way Internet use affects children depends on the context and way it is used.*

***Keywords:** Electronic Screen, Mental Well-Being, Mental Health, Early Adolescents*

Introduction

Electronic screen use has increased greatly among children in developmental countries and the reason behind it is advancement of technology.[1-3] Some of the researches have shown negative correlation between time spent at home and sedentary behavior but decreased social, communal or family activities and increased screen use among children.[4,5] Computer game playing and television viewing are reported as most popular screen media activity among children.[3] A study was conducted in USA by Kaiser Family Foundation and the findings revealed that children aged > 8 yrs. spend an average of 6.43 hours per day on electronic media.[6] Other findings of a study conducted in America are that nearly one half (47%) of American children spend > 2 hours per day on various types of screen viewing activities[6]. In India, no such study has been conducted.

Both positive and negative effects of electronic screen use have been documented by previous researches. The positive side has shown effect in relation to children's self-conceptualization and socialization through increased opportunities for playing, communicating and learning.[7-10]

Increase reaction time, self-esteem and socialization in children are other positive benefits of increased screen time.[11] Nonetheless, there are growing concerns worldwide that electronic screen viewing may be related to a huge number of problems in children. Some studies have shown increase level of aggression, arousal and aggressive cognition in children who are spending more time

on electronic screen watching or playing violent video games.[12-15] Reduction in social anxiety and improvement in quality of life of adolescents' friendship due to online communication was shown in a study conducted by Desjarlais & Willoughby.[16] One of the other study results showed that about 62% of boys claimed that playing video games relaxes them, 50% claimed that it helps them forgetting their past and around 46% said it releases their anger.[17] There is a continuous debate on the causality of increasing exposure to screen media, health risk behaviors and other correlated problems among children.[18] A prospective longitudinal study revealed that childhood television viewing was associated with attention problems in adolescents[19,20] and extensive television viewing have negative effect on attention and long term educational outcomes.[21,22]

The World Health Organization[23] has declared positive mental health to be the 'foundation for well-being and effective functioning for both the individual and the community' and defined it as a state 'which allows individuals to realize their abilities, cope with the normal stresses of life, work productively and fruitfully, and make a contribution to their community.' The capacity for mutually satisfying and enduring relationships is another important aspect of positive mental health.[23] The term positive mental health is often used in both policy and academic literature, interchangeably with the term mental well-being. It is a complex construct, covering both affect and psychological functioning with two distinct perspectives:- the hedonic perspective, which focuses on the subjective experience of happiness and life satisfaction, and the eudemonic perspective, focusing on psychological functioning and self-realization.[24]

Till date both positive and negative outcome in children related to electronic screen use has been found. However, no study has specifically been studied the relationship between electronic screen use activities and specific mental well-being in children. Therefore, the purpose of the current study was to examine the relationship between mental well-being indicators and the amount of time spent on electronic screen viewing activities in early adolescents.

Objective

Study the effect of daily electronic screen use on mental well being in early adolescents.

Material and Methods

Sample

The present study used cross-sectional data from various primary schools in Aligarh. The sample size comprises 200 students in 10-13 years of age. They were studying in 6th, 7th, 8th and 9th grade, and were in the age group of 10-13 years. Questionnaire method was used to collect the data and researcher supervised questionnaire completion on site. All students who attended school on the day of the data collection were asked to participate in the study. The questionnaire was administered and completed within the regular classroom hours.

Measures

Electronic screen use

Screen use was assessed with the following five question about the average time respondents usually spent each day on the following activities: watching TV/DVD/VCR, playing Internet computer games, playing computer games not on the internet, using internet communication or 'chatting' channels and 'other' computer use. Response values/options were anchored as 1 = 'No time', 2 = '1/2-1 hours', 3 = 'about 1 hours', 4 = 'about 2 hours', 5= 'about 3 hours' and 6 = '4 hours or more'. For the purpose of analysis, all variables were re-coded into three groups with 1 = '0-1 hour per day', 2 = '2-3 hours per day' and 3 = '4 hours or more per day'.

Warwick-Edinburgh Mental Well-Being Scale(WEMWBS)[25]

WEMWBS is a 14 item scale of mental well-being covering subjective well-being and psychological functioning of participants. All items are worded positively and measures positive mental health. The scale is scored by summing responses of each item answered on a 1 to 5 Likert scale. The minimum scale score is 14 and the maximum is 70.

Results and Discussion

Independent samples t test was used to examine the difference between mental well being and time spent on various electronic screen uses. Significant difference was found on mental well being and time

Table 1: Difference between well-being and various electronic screen use (*< 0.05)

	Electronic Screen Use	N	X	SD	t	P	Effect size
Mental Well Being	No Time	30	45.46	8.15			
	Time spent on watching TV/DVD/etc				2.24	.026*	.21
	30 min and more	170	48.98	7.88			
	No Time	119	49.01	8.38			
	Time spent on playing internet computer games,				1.19	.234	.09
	30 min and more	81	47.64	7.37			
	No Time	114	48.30	8.35			
	Time spent on playing computer games				.311	.756	.02
	30 min and more	86	48.66	7.55			
	No Time	104	49.00	7.9			
	Time spent on using internet communication				1.01	.313	.07
	30 min and more	96	47.86	78.63			
	No Time	151	46.80	7.8			
	Time spent on academic purpose				.801	.424	.11
	30 min and more	85	48.58	18.02			
	No Time	134	48.79	8.29			
	Time spent on downloading movies/music				.833	.406	.06
	30 min and more	66	47.78	7.38			
	No Time	114	48.80	7.47			
	Time spent on social websites				.705	.481	.05
	30 min and more	86	48.00	8.67			

spent on watching TV/DVD/VCR (t=2.24, p=.026). Mean scores of "no time" spent on watching TV/ DVD/VCR was M=45.6, SD= 8.15 and mean score of 30 min or more time spent was M= 48.98, SD= 7.88. This suggests that children who spend more time on watching TV/DVD/VCR have better well being as compared to children who spend no time on it. What this fails to tell us is the magnitude of the difference. In other words, how much more effective was the effect on mental well-being? To answer this question, we standardize the difference and compare it to 0. A t-test's effect size indicates whether or not the difference between two groups' average is large enough to have practical meaning, whether or not it is statistically significant. In reporting and interpreting studies, both the substantive significance (effect size) and statistical significance (P value) are essential results to be reported. Further, Cohen's effect size value (d = .21) suggested a small to moderate practical significance.

No significant difference was obtained on any other electronic screen use activity. Adolescents who were not giving any time on playing computer games, on internet communication, downloading movies and on social websites their well-being was better as compared to those adolescents who were allotting 30 min or more time on these activities. Whereas adolescents who spent more time on electronic screen use for playing computer games and doing academic activity their mental well being was better as compared to those who allotted less time on such activities.(Table I)

Discussion

In recent years, the potential effects of excessive computer use have been of interest to study among children. Nevertheless, much remains to be understood about the potential influences of electronic screen use and child well-being. More recently, research has been undertaken to explore the impact of screen use on mental and social health of children and adolescents, finding some benefits to the new technologies as witnessed in our study, where positive relation was found between well-being of children and more time spend on various electronic screen use devices like watching TV/ DVD, playing computer games or using internet for academic purpose. Social networking using screens offers opportunities for children and adolescents to communicate with friends and family and develop social ties not offered by conventional interaction. For example, previous research has identified that screen use was positively related to quality of peer relationships[26] and computer use by children has

been identified as being associated with enhanced self-esteem[26].It was found that educational games provided stress relief, increased attentiveness, school performance, and may increase supportive relationships. Subrahmanyam et al[27]did cognitive research which suggested that games played on the computer, which includes online games, can be a helpful step to computer literacy (the knowledge and ability to use a computer and other technology efficiently.) Therefore, access to a computer can produce or foster a helpful skill. There is also limited research that shows that home computer use can be a helpful tool for children to increase academic performance. Wilson[28] found that educational programs and situation comedy increased altruism, cooperation and tolerance among youth. Group interaction, collaboration and motivation can be increased by digital media. Also, positive association between video games play and group cooperation, self-esteem, creative thinking and problem solving was reported. However, such studies have been conducted on small samples over a short period of time, thus, hampering their conclusions and generating a need of detailed research in the same context. Studies have shown that computer use can impact positively upon children's alphabet recognition, language, early mathematical knowledge, cognitive development and create a positive attitude toward learning. However, screen media present highly arousing, abnormal sensory input to the brain's activating system. Excessive and inappropriate screen use has also been implicated in reduced learning and as having a negative impact upon the development of attention in children.[29-32] However, media in its improvised form can do enough good too.

On the other side of the coin an expanding body of research has identified that excessive screen use is associated with, and leads to, concerning negative mental and social outcomes. Low mood and sense of loneliness is indicated as being associated with online social networking and general internet use. The majority of recent studies have focused on exposure to violence in electronic media, predominantly from computer game playing. Our findings are in harmony with many of them. For example, Nelson and Gordon-Larsen[33] found an association between time spent in front of electronic screens and sleeping problems in adolescents. This relationship was particularly evident in those who reported spending no time per day on electronic screen-based on playing games, not using internet for communication or not spending time on social websites their well being was better as compared to who spent more time on these activities. Dworak[34] also reported that excessive television viewing and computer game playing significantly reduce sleep efficiency among school-aged children, subsequently causing a higher risk for attention deficit/hyperactivity disorder and also negatively relating to the children's cognitive performance.

A prospective study recently published by Hume[35] also partly supports our findings that there is an association between reduced wellbeing and TV viewing among adolescent girls. Their results implied that negative symptoms predicted increased TV viewing over time in girls. They concluded that the findings were probably because of withdrawal from social activities. Furthermore, Jolin and Weller[36]reviewed a large amount of contemporary literature on the topic and presented an overview of the relationship between television viewing and sleep, attention and interpersonal relationships in children and adolescents. However, only one recent study on the association between media use including television-viewing and the risk of depression was mentioned in their review. That particular study was conducted by Primack[37] and included participants from grades 7 to 12. They underwent depressive symptom assessment 7 years later in their young adulthood. The results revealed greater odds of depression in adulthood for each additional hour spent in front of the television without foundation, in childhood. The same relationship was observed for total media exposure.

This study has some limitations. *First*, findings are based on cross-sectional data, so temporal order of cause and effect is not possible to assess. One therefore needs to keep in mind that the findings of the study reveal the co-occurrence of increased screen use and prevalence of negative mental well-being symptoms in the population among 10–13-year-old children. We are unable to conclude whether screen use causes improved or decreased mental well-being or whether the well-being status leads to increase or decrease of electronic screen use. *Second*, findings are entirely based on self-reports. We are therefore, unable to rule out

responses but the large sample size minimizes this limitation. *Third*, with fast-paced technology advancement and use, measuring 'screen use' has become increasingly difficult in recent times. Despite these limitations, this study has several strengths and has an opportunity to add some knowledge in this discipline of research.

Conclusion

Our study concluded that mental well being of children was better of those children who were spending more time watching TV/DVD/VCR, playing computer games or using internet for academic purpose as compared to those who spent no time on it. Whereas well-being of children was better for those children who were giving no time on playing internet computer games, not using internet for communication or not, spending time on social website. Good amount of scientific work shows that media and its various forms are almost like a hazard to an individual's subjective well-being. Nevertheless, the debate continues about whether the time period of media use or the content or both are to be held responsible for degradation of subjective well-being. Wilson[27] is of the opinion that media effect depends on the content to which the children are exposed and is highly influenced by age, gender, race, home life and temperament. In conclusion, internet use can have positive and negative effects on children's performance in school. There are applications of the Internet that can help children succeed academically and socially and grow cognitively. However, there is potential harm the Internet can do if it is not used appropriately. The way Internet use affects children depends on the context and way it is used.

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Original Article

Headache masquerading as common psychiatric disorders in patients of low economic class in a tertiary care setting

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Abstract

Aims & Objectives: *To evaluate the presence of various psychiatric disorders in patients reporting with headache as the only symptom.* ***Methodology:*** *200 patients with the chief complain of headache who visited the psychiatric OPD of a tertiary care were investigated. Out of them 50 who had pure psychiatric illness without any other neurological disease were investigated and their diagnosis was made. Independent sample t-tests was applied to generate results.* ***Results:*** *The most common psychiatric diagnosis seen in the sample was Depression (64%) out of which 47% showed features of Depression with anxious distress. Other psychiatric disorders seen were Generalized Anxiety Disorder, Panic Attacks, Somatic Symptom Disorder and Obsessive Compulsive Disorder. For pure psychiatry related illnesses female to male ratio was 1.64.****Conclusion:*** *The increasing frequency of psychiatric disorders among patients who only visit the doctor seeking treatment of headache shows the need for better identification of psychiatric disorders because proper diagnosis and target of psychiatric treatment shall give complete relief to the patient's symptomatology.*

Keywords: *Anxiety Disorders, Depression, Headache, Panic Attacks.*

Introduction

Every individual during their life time experiences headache at one point or the other. Headache is an extremely common symptom and collectively headache disorders are among the most common of the nervous system disorders, with a prevalence of 48.9% in the general population.[1] Headache is often considered harmless and merely an indicator of stress but it can also be one of the heralding signs of a major neurological disorder such as, Cerebro-vascular accident or a brain tumour. That is why the association of headache with organic neurological disorders has been thoroughly investigated and documented. After the introduction of "the migraine personality" by Wolffe,[2] headache has also gained attention with psychiatric disorders. The association of headache has been seen with both DSM-IV-TR Axis I and Axis II disorders in various meta-analysis. Some studies[3,4] have also shown that the incidence of psychiatric disorders has been seen more commonly with migraine and chronic tension type headache. It has also been seen that episodic headaches are difficult to treat if there is a background of psychiatric illness and such issues are not adequately treated.On the World Health Organization's ranking of causes of disability, headache disorders are amongst the ten most disabling conditions for the two genders, and amongst the five most disabling for women.[5]

The present study was conducted to find out

whether headache independent of any other organic disease can be because of any psychiatric illness and if so, which are the various psychiatric illnesses responsible for headache as symptom.

Methodology

This is a cross-sectional clinical study which was conducted during a period of two months, from August 2016 to September 2016 at a tertiary care hospital and research centre mainly catering to rural and semi-urban population. There is no relation between headache and psychiatric illnesses was established as null hypothesis for the study. All the data pertaining to the study was collected during the patient's first visit to the hospital.

Around 200 patients were shortlisted for the study who reported to the psychiatry OPD with chief complaint of headache. All the patients were subjected to a brief interview regarding the socio economic details (like age, marital status and duration of marriage, type of family – nuclear/joint/ extended, monthly income, education, occupation and duration and past treatment history of headache) followed by detailed history recording, clinical examination and investigations. For psychiatric diagnosis of the headache patients Mini-International Neuropsychiatric Interview (MINI) which was administered by a practicing psychiatrist.[15] The MINI is a validated scale and primarily focuses on mood and anxiety spectrum disorders. While the interview predominantly focuses on DSM-IV and ICD 10 criteria, a DSM 5 diagnosis for all the patients was also made as per the recent changes in the guidelines.

All the data recorded was then subjected to statistical analysis using SPSS v20 software and Independent sample t-tests.

Results

It was found that out of 200 headache patients, 150 patients had concomitant signs and symptoms suggestive of a neurological cause of headache like transient visual disturbances, localizing signs, pressure symptoms etc. (Figure-1). These patients were referred to concern specialty outpatient departments. Remaining 50 patients who had only symptomatology of psychiatric disorders were then subjected to MINI and diagnosis was established using DSM-IV, ICD 10 and DSM 5.

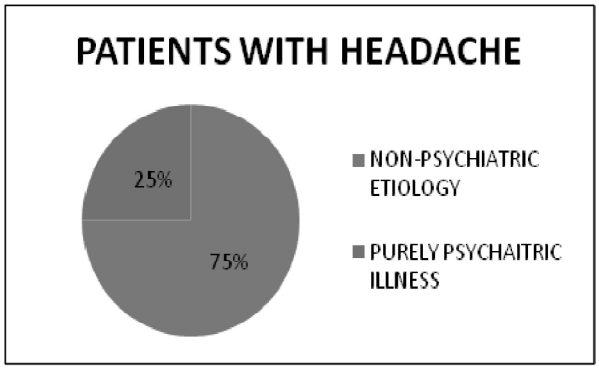

Fig-1. Prevalence of headache as a symptom in Psychiatric and Non-psychiatric patients.

The most common psychiatric diagnosis which emerged in these patients was Depression (diagnosed as per the DSM 5 criteria). Thirty two patients (64 %) showed signs and symptoms of Depressive disorder as per DSM 5 out of which seventeen patients (53%) showed features of Depression without any additional specifiers and fifteen patients (47%) showed features suggestive of anxiety along with depressive symptoms. Other diagnoses seen among in the sample were Generalized Anxiety Disorder (n=11), Panic Attacks (n=3), Somatic Symptom Disorder (n=2). Single case each of Obsessive Compulsive Disorder (OCD) and Polysubstance use disorder were also found (Figure-2A).

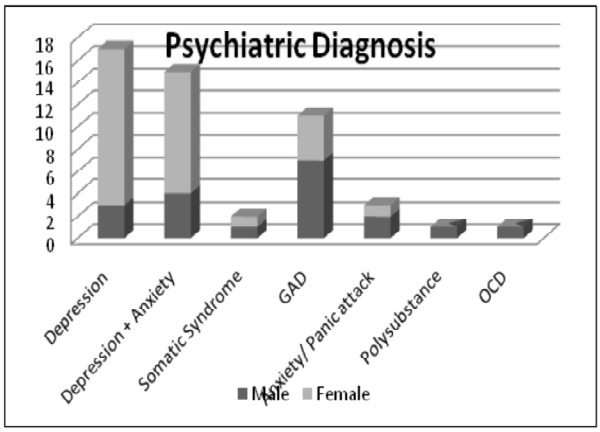

Fig-2A. Bar diagram showing the prevalence of psychiatric illnesses among the study patients.

Out of 50 patients, 31 were female (Figure -3) with ninety-four percent of them being home-makers and eighty-four percent were married.

All the patients belong to low or middle socio-economic status on the Kuppuswamy scale[1] for

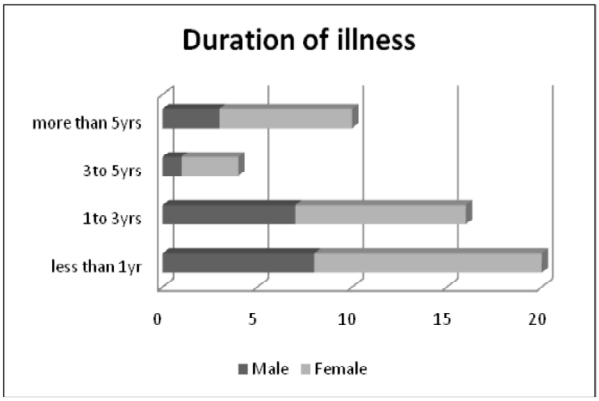

Fig-2B. Bar diagram showing the duration of illness among the study patients.

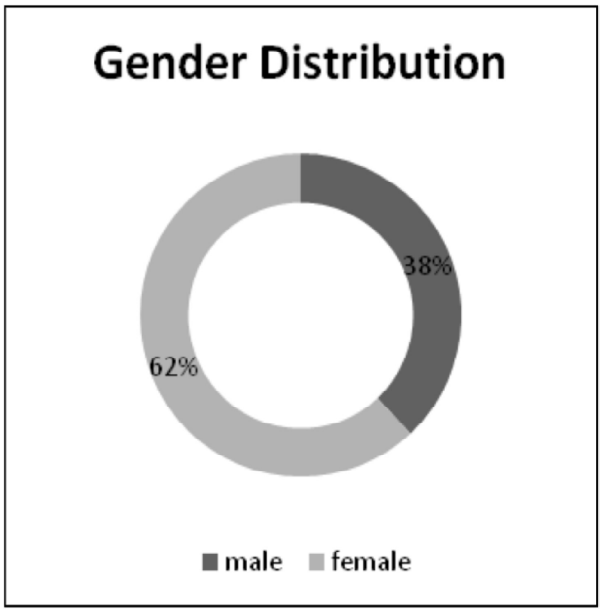

Fig-3. Pie-chart showing gender distribution amongst the study patients.

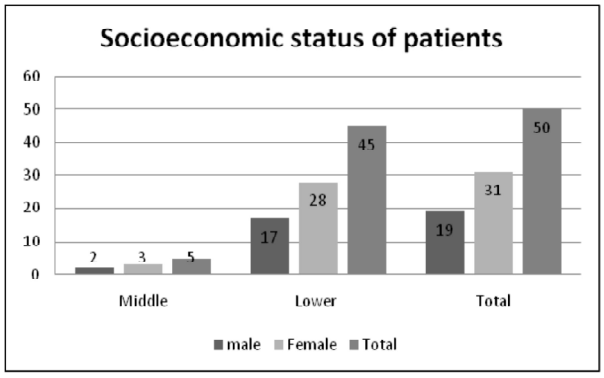

Fig-4. Histogram showing the socio-economic status of the patients.

socio-economic status expect for one patient who scored in the middle category and he was the only patient in this sample with diagnosis of Polysubstance Use Disorder (Figure-4). Out of total 50 patients, thirty-one were residing in semi-urban areas and rest nineteen in rural areas.

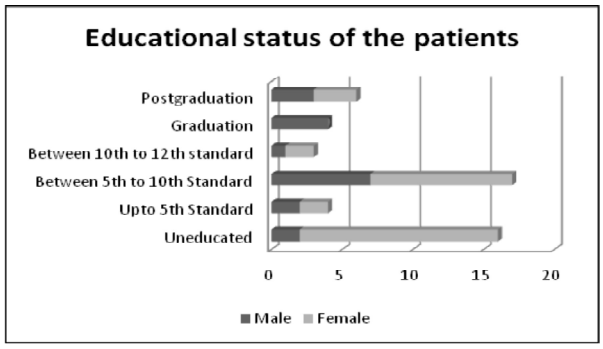

Fig-5. Bar Diagram showing the educational level of the study patients.

Most of the patients in this study were educated (n=34), however the number of patients with graduate or postgraduate level of education was only ten (Graph-5).

Discussion

The results seen above are in accordance to various similar studies[2] conducted across the world. The study conducted by Juang et al[3] amongst two hundred and sixty patients with headache showed highest rates of depression amongst both migraine patients and chronic tension type headache. Other psychiatric disorders seen amongst the patients in this study were dysthymia, generalized anxiety disorder and panic attacks. These findings are in accordance with the findings of our study. Numerous previous studies have also yielded similar results.[4] No statistical significance was seen in our study with marital status (p value 0.66) and residential status (p value 0.42).

A review article comparing over 300 studies conducted on headache patients showed that the lifetime prevalence of psychiatric disorders amongst migraine patients was greater as compared to the control groups in the respective studies.[5] However, this article classified psychiatric disorders according to the multiaxial classification system of DSM-IV. Research showed that the strongest correlation between headache and psychiatric disorders was seen amongst depressive and anxiety spectrum disorders, with these disorders being almost three times more common among patients suffering from

migraine as compared to the general population.[6] These psychiatric disorders have been shown to more commonly occurring not only among migraine patients but also amongst those suffering from chronic daily headache and tension type headache than among the individuals without headache.[7,8]

An association has been observed between migraine, anxiety and depression in some epidemiological family genetic studies, where all three disorders have been shown to occur across from one generation to the next. However, such studies also dispute the fact that if one family member is suffering from migraine then it makes other first degree relative more susceptible to develop either depressive or anxiety symptoms.[9]

Numerous studies have also been done to study the impact of untreated psychiatric symptoms on the treatment of various types of headache. These studies have shown that comorbid psychiatric disorders contribute to the difficulty in treatment and prolong the duration of migraine. An eight year follow up study comprising of 100 young adults presenting with headache was conducted to examine the co-relation between headaches. The study included depression, anxiety and sleep disturbances as psychiatric disorders. Amongst patients who had comorbid psychiatric complaints, only 14% were completely headache free on follow up. 57% patients showed no improvement in the headache symptomatology after initiation of treatment of headache and in fact the symptoms of some of the patients worsened. The study also showed that patients, who had none or only one psychiatric co-morbidity, especially sleep disturbances, showed more improvement in their headache symptoms initially as well as after 8 years of treatment.[10]

Recent studies have indicated that psychological risk factors such as depressive mood, anxiety symptoms, panic attacks play a greater role in prolonging the duration and increasing the severity of headache as compared to abuse of prescribed or over the counter analgesic medications. Untreated psychiatric symptoms also play a major role in transforming occasional headache to chronic and daily headache.[11]

Many large scale community studies have also shown a positive association between migraine and panic disorder, though authors have been divided in their opinions as to the cause of this co-relation. While some believe, this is due to the common underlying serotonergic dysfunction mechanism, which is the common patho-physiological process leading to the development of both migraine and panic disorder, others believe it to be due to the common symptomatology that both migraine and panic disorder share.[12,13]

Most of the data mentioned above comes from studies conducted in developing nations. Similar studies conducted at European headache clinics showed the frequency of depressive disorders to be less amongst those suffering from headache. This difference could either be due to the difference in general population to which these clinics cater to and due to different diagnostic criteria used to define the various types of headaches.[14]

Conclusion

Although the incidences for psychiatric disorders amongst headache patients differ from study to study, it can be concluded that headache is one of the commonly seen symptom among the psychiatric disorders for which many times patients are not aware. Headache is the most common somatization symptom which makes a patient hailing from a predominantly rural and uneducated background to visit the hospital. The results generated in this study cannot be generalized as the sample is skewered towards a religion, socio-economic class and educational background, as the hospital where this study has been conducted caters to such population. But the findings are important as they show the alarming frequency of psychiatric disorders for which patients do not seek treatment and if untreated, this leads to the inadequacies in patient satisfaction for the treatment of headache.

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Original Article

Occupational Stress and Job Satisfaction in Junior Residential Health Care Professionals of IMS-BHU Varanasi

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Abstract

Background: *The purpose of the study was to investigate occupational stress and job satisfaction in junior residential health care professionals at institute of medical science Banaras Hindu University Varanasi. A sample of 100 junior residential health care professionals of both male and female of mean age (M = 24.66, SD = 2.50) were recruited for the study.* ***Material and Method:*** *For the measurement of occupational stress, tools like Occupational Stress Index by Srivastava and Singh (1984) and Job Satisfaction Inventory by Pestonjee (1973) based on the multiplicative model of job satisfaction exploring satisfaction with number of on-the-job and off-the job factor (Vroom, 1964) was used to collect the data.* ***Results:*** *Mean difference and multiple regressions statistical technique was used to analyze the data. Significant mean difference was found between male and females on job satisfaction and occupational stress. Regression analysis reveals gender as a significant predictor of occupational stress F (1, 98) = 25.72, p < .01. These variables jointly explained 20% variance in the scores on occupational stress ÄR = .45,ΔR^2 = .20. Gender was found negatively and significantly related to occupational stress (β = - .49, t = 5.35, p < .01). However gender was also found a significant predictor of job satisfaction and dissatisfaction F (1, 98) = 10.590, p < .01 explained .09% variance in the scores on occupational stress ΔR = .31, ΔR^2 = .09. Gender was found positively and significantly related to occupational stress (β = .32, t = 5.35, p < .01).* ***Conclusion:*** *This study incorporated a set of demographic factors to provide better understanding of those factors to show a concern of occupational stress and job satisfaction among junior health care professionals which are enabling to help psychologist better to deal with it.*

Key words: *Occupational Stress, Job satisfaction and Junior Health Care Professionals*

Introduction

Occupational stress is inevitable in health care professions and is a serious concern around the world. This situation in India seems to be alarming as a consequence of its large population, which is becoming increasingly susceptible to myriad diseases and medical conditions. Such preponderance of stress is often attributed to work overload, longer working hours and lack of social support. Stress is a work related health problem[1] often leading to various mental health disorders and its impact on the profession is poor performance. National Institute for Occupational Safety and Health expressed heavy workload, infrequent rest breaks,

long working hours, shift work, hectic and routine tasks that have little inherent meaning as important job conditions leading to stress.[2] The explosive increase in research on occupational stress during the last decade[3-6] has clearly established job stress has an adverse impact on productivity, absenteeism, worker turnover and employee health as well as other adverse psycho-physiological consequences due to which an individual is unable to devote adequate time for family[7] and their needs. Family needs were found to have high correlation of excessive work demands with job stress[8] because psychological demands of a job can have pervasive and profound emotional and physical effects on the lives of workers.[9-11] Stress was found to have significant negative impact on organizational citizenship behaviors thereby affecting the performance of the work group and the organization simultaneously.[12] Occupational stressors are job related stressors which negatively influence the performance and well-being of the employees.[13] Stress affecting an employee is associated with the organization itself.[14] Lack of training was identified as an important stress factor among junior hospital doctors.[15] Earlier researches have proposed different dimensions of physical and interpersonal stressors but among the various dimensions of occupational stress, the most important of them are work characteristics, organizational environment and psychological or behavioral characteristics of an individual.[16] The three distinguished sources of stress in healthcare professionals (1) Patients as sources of stress (2) Non-patients as sources of stress: relations with coworkers, the juggling of emotional and time demands between work and family life (especially for women) (3) Organizational sources of stress which can arise from workload, paper work, responsibilities, lack of career path, decreasing professional autonomy, and lack of support[17] have found the main sources of stress in health care professionals.

Job satisfaction

Job satisfaction is a global feeling that an individual has about his/her job and the extent to which they like or dislike the job.[18] It is a pleasurable or positive emotional state resulting from the appraisal of once experience from the job including different ways (1) the degree of personal gratification received from ones work and (2) the pleasure and feeling of accomplishment derived from performing a job well.[19] Job satisfaction is a key issue for health care professionals around the world[20] and has gained increasing attention in recent years as it is not only associated with doctors burnout[21] mental health[22,23] and turnover intention[24,25] but also with the health outcomes of patients.[26] The negative aspects of the job of health care professions have major behavioral and health implications as a consequence[27,28] affects the hospital employees general lives, their physical and emotional health, their behaviors and productivity and thus affects their work positively and adversely.[29] However satisfied work force might improve the workforce performance as it does not result in absenteeism and tardiness, destructive behaviors and does not contribute to health expenses.[30] The studies examining the job satisfaction of health employees in Turkey indicated profession group with the lowest job satisfaction is nurses and physicians.[31] Most of scientist and practitioners suggest that effective and productive practices provide a better job satisfaction and eventually increase the inner performance.[32] Investigations reveal that organiza-tional feature of a structure (hospital) can greatly influence the job satisfaction for nurses.[33] Such features are the personnel shortages, lack of equipment, intention to leave and others.[34] Job satisfaction has been performed in various health care settings, including mental health services, especially in recent years.[35] Low levels of job satisfaction and high rates of burnout and attrition are common among behavioral health providers serving challenging patient populations[36] all over the world.

Material and methods

Aims and objective

Sample: A purposive sample of 100 junior residential healthcare professionals comprising of both male and female in equal proportion were recruited from IMS-BHU Varanasi, U.P.

Tools

Demographic Questionnaire: The information about demographics of the participants was collected with the help of questions related to their gender and age.

Occupational Stress Index

The Occupational Stress Index[37] consists of 46 items 28 are 'true-keyed' and rest 18 is 'false-keyed' each on five-point scale. The items relate to almost all relevant components of the job life which cause stress in some way or the other.The reliability of the scale was measured through split half (odd-even) method and the Cronbach's alpha coefficient for the scales as a whole was found to be 0.935 and 0.90 [38]

Reliability

Cronbach's Alpha for the measure of present data was .67 preferably closer to .90

Job satisfaction and dissatisfaction inventory

The inventory[39] was developed on the basis of the multiplicative model of job satisfaction exploring satisfaction with number of on-the-job and off-the-job factor[40] consist of 80 items in total and 30 items in each four areas.First two contained on-the-job factor while the latter two contained off-the-job factors.The items are framed in the form of interrogatory statements. Each item can be responded in terms of 'Yes' or 'No'. The high scores indicate high satisfaction and maximum scores 80 is for the inventory and 20 for each area.

Reliability

Cronbach's Alpha for the measure of present data was .76 preferably closer to .90

Procedure

Consent has been taken from the higher authority of the institution. Target population were identified, informed and instructed about the nature and purpose of the study. Before making any assessment an informal consent has been taken from the participants,and after the completion of the assessment they were thanked for their participation and cooperation.

Results

In table-1 Mean scores and SDs of two groups of participants for the measures of occupational stress along with its dimensions showed significant difference between occupational stress scores of two groups of participants ($t = 4.82$, $p < .01$). Mean scores show that occupational stress was higher among males participants (0.74 ± 0.44) as compared to their female counterparts (0.942 ± 0.49).

Role overload results significant difference between mean scores of two groups of participants $t = 50.6$, $p < .01$. Mean scores revealed that males ($M = 1.38$, $SD = .52$) are highly role overloaded as compared to females ($M = .93$, $SD = .71$) Role conflict results significant difference between mean scores of two groups of participants $t = 3.29$, $p < .01$. Mean scores revealed that males ($M = 1.25$, $SD = .67$) are highly role conflict as compared to females ($M = .86$, $SD = .97$). Under participation results significant difference between mean scores of two groups of participants ($t = 6.22$, $p < .01$).

Table-1: Mean difference of occupational stress between male and female junior health care professionals of IMS-BHU Varanasi

Variable	Male			Female			t
	Mean	SD	SED	Mean	SD	SED	
Role Overload	1.38	.52	.05	.93	.71	.07	5.06**
Role ambiguity	.88	.51	.05	.72	.63	.06	1.94
Role Conflict	1.25	.67	.06	.86	.97	.09	3.29**
Unreasonable Grp. & Pol. Prs	1.75	1.52	.15	1.58	1.19	.11	.880
Responsibility for persons	.94	.98	.09	.74	.44	.04	1.85
Under participation	1.12	.93	.09	.38	.73	.07	6.22**
Powerlessness	1.00	.68	.06	.24	.60	.06	8.33**
Poor peer relations	1.26	.73	.07	.82	.91	.09	3.75**
Intrinsic impoverishment	.69	1.04	.10	.52	.75	.07	1.31
Low status	.91	.58	.05	.45	.83	.08	4.51**
Strenuous working	.95	.68	.06	.44	.83	.08	4.72**
Unprofitability	.86	.53	.05	.58	.81	.08	2.86
Total occupational stress	.74	.44	.04	.42	.49	.05	4.82**

Sig. * $p < .05$, ** $p < .01$

Mean scores revealed that males (1.12 ± 0.93) are highly under participation as compared to females (0.38 ± 0.73). Powerlessness results significant difference between mean scores of two groups of participants (t = 8.33, p < .01). Mean scores revealed that males (1.00 ± 0.68) are highly powerless as compared to females (0.24 ± 0.60). Poor peer relationship results significant difference between mean scores of two groups of participants (t = 3.75, p < .01). Mean scores revealed that males (1.26 ± 0.73) have poor peer relationship as compared to females (0.82 ± 0.91). Low status results in significant difference between mean scores of two groups of participants (t = 4.51, p < .01). Mean scores revealed that males (0.91 ± 0.58) have lower status in relationship as compared to females (0.45 ± 0.83). Strenuous work results in significant difference between mean scores of two groups of participants (t = 4.72, p < .01). Mean scores revealed that males (0.95 ± 0.68) are highly strenuous as compared to females (0.44 ± 0.83) respectively.

In table-2 Mean scores and SDs of two groups of participants for the measures of job satisfaction and dissatisfaction (JSDS) along with its dimensions showed significant difference between job satisfaction and dissatisfaction (JSDS) scores of two groups of participants t = 4.10, p < .01. Mean scores show that job satisfaction was higher among female participants (M = 1.61, SD = .72)as compared to their male counterparts (1.14 ± .88).

For the measurement of other dimensions, results showed significant difference between mean scores of two groups of participants (t = 6.26, p < .01). Mean scores for females (1.88 ± 0.32) are higher for (mature of work, hours of work, fellow workers, over time regulation, interest in work and physical environmental etc. as compared to males (1.31 ± 0.84). Management results significant difference between mean scores of two groups of participants t = 3.32, p < .01. Mean scores for females (1.70 ± 0.57) are higher on management as compared to males (1.41 ± 0.65). Personal adjustment results significant difference between mean scores of two groups of participants (t = 3.24, p < .01). Mean scores revealed that females (1.54 ± 0.98) are higher on personal adjustment as compared to males (1.10 ± 0.92).

In Table 3, Multiple -regression revealed that occupational stress shows significant contribution on gender and age. In explaining scores on occupational stress $\Delta R = .45$, $\Delta R^2 = .20$, F (1, 98) = 25.72, p < .01. These variables jointly explained 20% variance in the scores on occupational stress.Gender was found negatively and significantly related to occupational stress (β = -.49, t = 5.35, p < .01). It was indicated that in gender females have more occupational stress as compared to their male counter parts. None of the other variables was found significant predictor of occupational stress.

In Table 4, Multiple Regression revealed that job satisfaction scores shows significant contribution on gender and age. In explaining scores on job satisfaction ÄR = .312, $ÄR^2 = .098$, F (1, 98) = 10.590, p < .01. These variables jointly explained .09% variance in the scores on occupational stress. Gender was found positively and significantly related to occupational stress (â = .322, t = 5.35, p < .01). It was indicated that in gender males have more job satisfaction as compared to their female counter parts. None of the other variables were found to be significant predictors.

Discussion

Present study went to find out the occupational stress and job satisfaction in corporate to various

Table-2: Mean difference of job satisfaction between male and female junior residential health care professionals of IMS-BHU Varanasi

Variable	Male			Female			t
	Mean	SD	SED	Mean	SD	SED	
Job	1.31	.84	.08	1.88	.32	.03	6.26**
Management	1.41	.65	.06	1.70	.57	.05	3.32**
Personal adjustment	1.10	.92	.09	1.54	.98	.09	3.24**
Social relation	1.01	1.0	.10	1.26	.83	.08	1.88
Total satisfaction	1.14	.88	.08	1.61	.72	.07	4.10**

Sig. * p < .05, ** p < .01

Table-3: Multiple Regression predicting demographic variables in relation to occupational stress

R	R-Square	Adjusted R Square	Std. error of the estimate	F	Significance
.456	**.208**	**.200**	**.394**	**25.722**	**.000**
Predictors	**Standardized Beta**	**t-value**		**Significance**	
Gender	-.497	-5.351		.000	
Age	-.147	-1.586		.116	

Dependent variable job satisfaction

Table-4: Multiple Regression predicting demographic variables from SDEI

R	R-Square	Adjusted R Square	Std. error of the estimate	F	Significance
.312	.098	.088	.830	10.590	.002
Predictors	**Standardized Beta**	**t-value**		**Significance**	
Gender	.322	3.205		.002	
Age	.034	.341		.734	

Dependent variable SDE

demographic factors among junior residential health care professionals.

Obtained findings of the present study regarding role overload dimension of occupational stress were high among males as compared to their female counter parts. Our findings were supported[41] and it was indicated that men are more likely to respond to role overload. Role conflict were high among males as compared to their females,same results has been point out[42] that Men experiencing greater gender role conflict were more likely to self-stigmatize and less likely to self-disclose. Further Males were found more under participation as compared to femalesthe reason may be that men are more involved in their children's education and family needs i.e. why they are not prefer to participation more. Powerlessness is highly among males as compared to females this may be the cause that males spend most of the time with their jobs and females are going to take care and fulfill of their family needs this may feel unwilling to express their feeling that will be taken from them.Poor peer relationship is high in males as compared to femalesIt might seem surprising that poor peer relationships show inconsistent association patterns. It is possible that more comprehensive measures would have rendered more accurate findings.Low status relationship was found high in males compared to females the finding was inconsistent with the results that in many countries, women still tend to concentrate in the lower-status health occupations and to be aminority among more highly trained professionals[43] Total occupational stress was high among males as compared to females. The results are in the lines with Boran[44] found high 27% of stress among health care professionals in the west.

Further it was revealed that the dimension of job satisfaction, job was found high among females as compared to males. It comes to the solution that job seeing the most growth and higher-paying salaries. Women look at overall earnings jobs that are in high demand and look for jobs with a small wage gap to make sure women are getting paid close to what men are earning. Similarly management was high among females this figure points out that from the last decade the increasing number of women reaching top positions in different work field and it was confirmed by the report in weaker sex on March 7th that girls are doing far better than boys educationally across the world. Females are higher on personal adjustment as compared to males. The findings are in the lines with the study that Despite

the dramatic surge in the number of female physicians, hospitals and medical centers havemoved slowly to provide support for women whopursue medical careers while managing families andraising children.[45] Total job satisfaction was higher among female participants as compared to their male counterparts the findings are inconsistent [46] that Female doctors had significantly lower satisfaction about workload (mean job satisfaction score difference = 0.60; 95% CI, 0.24-0.97), relation with colleagues (mean job satisfaction score difference = 0.49: 95% CI, 0.11-0.87) and autonomy (mean job satisfaction score difference = 0.45; 95% CI, 0.07-0.82) as compared to their male counterparts.

Furthermore regression analyses revealed Gender as a significant predictor of occupational stress and were negatively and significantly related to occupational stressindicated more occupational stress in females as compared to their male counter parts. The study is consistent[47] Women general practitioners both had job satisfaction and showed positive signs of mental well being in contrast withother normative groups. Similarly Gender was also found significant predictor of job satisfaction and was positively and significantly related to job satisfaction indicate males more satisfied with their jobs as compared to females. The finding was supported[48] and revealed male doctors more satisfied with their job.

Conclusion

Junior residential doctors of IMS-BHU Varanasi especially males were not satisfied with their jobs due to role overload, proper service structure, least relationship with their peers, and unprofitability. In this regard these factors were found to play a pivotal role of occupational stress. It is suggested that these overriding factors which had a greater impact on the performance of doctors would be turned to and boost satisfaction.

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Original Article

Quality of Life of Diabetic Patients in Context to Stress, Anxiety, Depression

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Abstract

Background: *Diabetes is a chronic disease and shares a bidirectional association with psychiatric disorders. The present study attempts to study quality of life of diabetic patients in context of stress, anxiety and depression.* ***Material & Method:*** *Purposive sampling was used for selection of sample (n = 240) from Jodhpur City. Among them 120 were diabetic patients, 60 males and 60 females; 120 normal population, 60 males and 60 females with age ranging from 30 to 60 years. McGill Quality of Life Questionnaire (MQOL) and Depression Anxiety Stress Scale 42 (DASS 42) was administered individually on all participants. The t-test and Pearson correlation and regression was used for analysis of data.* ***Results:*** *The results indicated that among males significant differences are present between the diabetic and non-diabetic males on measures of stress, depression and quality of life whereas among females significant differences between diabetic and non-diabetic females are present on quality of life. Among diabetic patients gender differences were also present on the measures of stress, depression and quality of life. Product moment correlation suggests that there exist negative correlation between anxiety and quality of life among diabetic patients and regression analysis shows that anxiety is contributing in overall variance of Quality of life.*

Keywords: *Diabetes, Stress, Anxiety, Depression, Quality of life.*

Introduction

Diabetes is a chronic disease that occurs when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin, it produces. Insulin is a hormone that regulates blood sugar. Hyperglycaemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels.[1]

Diabetes and psychiatric disorders share a bidirectional association -both influencing each other in multiple ways.[2]More so, as co-morbid depression and other psychological problems are prevalent and negatively affect well-being and metabolic out-comes.[3] Various biological and psychological factors mediate the emergence of psychiatric disorders in such context.[2] Anxiety and depression have higher prevalence among diabetic patients and some sociological factors such as age, gender, job and education are related to these psychological disorders.[4] Stress, anxiety and depressionare common neuropsychiatric features in diabetic patients.[5]

Being told you have diabetes, can also cause a lot of stress and pressure. Stress comes from various diabetic factors such as diagnosed with diabetes, adjusting to a diabetes treatment regimen, or dealing with psychosocial pressures of the disease.In addition, diabetes, its diagnosis or the diagnosis of complications arestressful events for many

people.People with diabetes are more likely to have poor blood glucose control.[6] One of the reasons for this is that stress hormones such as cortisol increase the amount of sugar in our blood. This can make it harder to control blood sugar levels that, in most cases, only adds to the frustration and stress.

Diabetes is associated with higher frequency of anxiety disorders, with anxiety accounting for poor glycemic control.[7] Grigsby et al. (2002) reported that prevalence of anxiety disorders among patients with diabetes is considerably higher as compared to the general population.[8]

Depression among individuals with diabetes is related to poor adherence to dietary recommendation,[9] hyperglycaemia,[6] poor metabolic control,[10] complications of diabetes.[11] Campayo et al (2010) reported that people diagnosed with diabetes are at risk of developing non-severe depression, persistent depression, and untreated depression.[12]

The ultimate goal of all health care interventions is to improve the Quality of Life of patients.[13] In a study Wändell (2005) found that diabetes affects the quality of life through macrovascular complications and associated non-vascular comorbidity, and by adding to the total burden ofdisease.[14] Goldney et al. (2004) reported that depression for those with diabetes is an important comorbidity that requires careful management because of its severe impact on quality of life.[15]

Objective and Aims

To investigate level of stress, anxiety depression and quality of life among diabetic individuals.

The aims were**:**

1. To study level of stress, anxiety, depression, and quality of lifeamong diabetic and non-diabetic individuals.
2. To study gender differences among diabetic patients on the measures of stress, anxiety, depression and quality of life.
3. To study the relationship between quality of life and stress, anxiety and depression with.

Hypothesis

$\mathbf{H_{01a}}$ = There is no significant difference on the measures of quality of life among diabetic and non-diabetic patients.

$\mathbf{H_{01b}}$= There is no significant difference on the measures of anxiety among diabetic and non-diabetic patients.

$\mathbf{H_{01c}}$= There is no significant difference on the measures of stress among diabetic and non-diabetic patients.

$\mathbf{H_{01d}}$= There is no significant difference on the measures of depression among diabetic and non-diabetic patients.

$\mathbf{H_{02a}}$= There is no significant gender difference among diabetic patients on the measures of quality of life.

$\mathbf{H_{02b}}$= There is no significant gender difference among diabetic patients on the measures of stress.

$\mathbf{H_{02c}}$= There is no significant gender difference among diabetic patients on the measures of anxiety.

$\mathbf{H_{02d}}$= There is no significant gender difference among diabetic patients on the measures of depression.

$\mathbf{H_{3}}$= Quality of lifeshows negative relationship with stress, anxiety and depression.

Method

Variable

In present study independent variables were diabetic statusand gender whereas dependent variables were quality of life and stress, anxiety and depression.

Sample

In the present study a sample of 240 individuals were selected using purposive sampling technique among which 120 were diabetic patients (60 males and 60 females) and 120 were normal people (60 males and 60 females). Age range of the present sample was between 30 to 60 years belonging to Jodhpur.

Measures

1. **The McGill Quality of Life Questionnaire: (MQOL)** was developed by Dr. Robin Cohen and Dr. Balfour Mount of the Division of Palliative Care, Dept. of Oncology, and McGill University. It includes 17 items – scored on a numerical rating scale 0-10. 1 question concerning general quality of life, 4 questions concerning physical symptoms or problems, 3 questions concerning physical symptoms and

their intensity, 1 question concerning physical well-being, 4 questions concerning psychosocial problems, 6 questions concerning existential well-being 2 questions concerning support.

2. **Depression Anxiety Stress Scale 42: (DASS 42)** developed by Lovibond & Lovibond (1995) was used for the present study. The DASS-42 consists of 42 symptoms divided into three subscales of 14 items: depression scale, anxiety scale, and stress scale. Participants rated the extent to which they had experienced each symptom over the previous week on a four-point Likert Scale ranging from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the time).

Results

Table-1: Mean, SD and t-values of Stress Anxiety and Depression among Diabetic and Non-Diabetic Males

Scales	Groups	N	Mean	S. D.	df	t
Stress	Diabetic	60	18.00	6.25	118	4.13**
	Non-Diabetic	60	13.07	6.82		
Anxiety	Diabetic	60	9.07	4.35	118	1.61
	Non-Diabetic	60	7.73	4.71		
Depression	Diabetic	60	14.67	5.69	118	4.95**
	Non-Diabetic	60	9.60	5.52		

**p < 0.05 level; ** p < 0.01 level.*

Table-2: Mean, SD and t-values of Stress Anxiety and Depression among Diabetic and Non-Diabetic Females

Scales	Groups	N	Mean	S.D.	df	t
Stress	Diabetic	60	16.00	5.16	118	0.00
	Non-Diabetic	60	16.00	5.36		
Anxiety	Diabetic	60	9.07	5.20	118	1.11
	Non-Diabetic	60	10.27	6.54		
Depression	Diabetic	60	11.20	7.25	118	1.18
	Non-Diabetic	60	12.80	7.54		

**p < 0.05 level; ** p < 0.01 level.*

Table-1: illustrates mean and SD of measures of stress anxiety and depression among diabetic and non-diabetic males. On the measures of stress among diabetic males mean and SD were18.00 and 6.25 and among non-diabetic males, it were 13.07 and 6.82 respectively. The t-value indicates that there is statistically significant difference among the means of diabetic and non-diabetic males on the measures of stress, as t = 4.13 (df = 118, p < .001).On measures of anxiety among diabetic and non-diabetic males, t-value indicates that there is no statistically significant difference among the means. Measures of depression among diabetic males mean and SD were 14.67 and 5.69 and among non-diabetic males, it were 9.60 and 5.53 respectively. The t-value indicates that there is statistically significant difference among the means of diabetic and non-diabetic males on the measures ofdepression, as t = 4.95 (df = 118, p < .001).

Table-2: illustrates mean and SD of Stress anxiety and depression among diabetic and non-diabetic females. The t-value indicates that there is no statistically significant difference among the means of diabetic and non-diabetic females on the measures of stress, anxiety and depression.

Table-3: illustrates mean and SD of Quality of Life and its sub-scales among diabetic and non-diabetic males. On the measures of physical symptoms between diabetic males mean and SD were 0.67 and SD 1.02 and among non-diabetic males it were 0.27 and 0.45 respectively. The t-value indicates that there is statistically significant difference among the means of diabetic and non-diabetic males on the measures of physical symptoms, as t = 2.78 (df = 118, p < .01). On the

Table-3: Mean, SD and t-values of Quality of Life and its sub-scales among Diabetic and Non- Diabetic Males

Scales	Groups	N	Mean	S.D.	df	t
Physical Symptoms	Diabetic	60	0.67	1.02	118	2.78**
	Non-Diabetic	60	0.27	0.45		
Physical Wellbeing	Diabetic	60	4.67	3.82	118	4.17**
	Non-Diabetic	60	7.00	2.05		
Psychological Wellbeing	Diabetic	60	0.53	0.62	118	3.19**
	Non-Diabetic	60	1.07	1.13		
Existential Wellbeing	Diabetic	60	8.27	1.07	118	4.96**
	Non-Diabetic	60	6.93	1.78		
Support	Diabetic	60	8.27	1.54	118	0.86
	Non-Diabetic	60	8.07	0.94		
Quality of Life	Diabetic	60	4.51	0.87	118	1.64*
	Non-Diabetic	60	4.72	0.50		

**p< 0.05 level; **p<0.01 level.*

measures of physical well-being between diabetic males mean and SD were 4.67 and 3.82 and among non-diabetic males it were 7.00 and 2.05 respectively. The t-value indicates that there is statistically significant difference among the means of diabetic and non-diabetic males on the measures of physical well-being, as the t = 4.17 (df = 118, p < .001). On the measures of psychological wellbeing between diabetic males mean and SD were 0.53 and 0.62 and among non-diabetic males 1.07 and 1.13 respectively. The t-value indicates that there is statistically significant difference among the means of diabetic and non-diabetic males on the measures of psychological wellbeing, as the t = 3.19 (df = 118, p < .001). On the measures of Existential, wellbeing between diabetic males mean and SD were 8.27 and 1.07 and among non-diabetic males, it were 8.27 and 1.78 respectively. The t-value indicates that there is statistically significant difference among the means of diabetic and non-diabetic males on the measures of existential well-being, as the t = 4.96 (df = 118, p < .001). On the measures of support between diabetic and non-diabetic males, t-value indicates that there is no statistically significant difference among the means. Measures of overall quality of life between diabetic males mean and SD were 4.51 and 0.87 and among non-diabetic males 4.72 and 0.50 respectively. The t-value indicates that there is no statistically significant difference among the means of diabetic and non-diabetic males on the measures of quality of life, as the t = 1.64 (df = 118, p < .05).

Table-4: illustrates mean and SD of Quality of Lifeand its subscales among diabetic and non-diabetic males. On the measures of physical symptoms between diabetic females mean and SD were 0.47 and 0.50 and among non-diabetic females were 0.67 and 0.80respectively. The t-value indicates that there is statistically significant difference among the means of diabetic and non-diabetic females on the measures of physical well-being, as the t = 1.65 (df = 118, p < .05).On the measures of physical well-beingbetween diabetic females and non-diabetic females, t-value indicates that there is no statistically significant difference among the means. Similarly, measures of psychological wellbeing between diabetic females and non-diabetic females, t-value indicates that there is no statistically significant difference among the means. On the measures of Existential, wellbeing between diabetic females mean and SD were 7.87 and 2.27 and among non-diabetic females 8.60 and 0.81 respectively. The t-value indicates that there is statistically significant difference among the means of diabetic and non-diabetic females on the measures of existential well-being, as the t = 2.36 (df = 118, p < .05). On the measures of support between diabetic females and non-diabetic females, t-value indicates that there is no statistically significant difference among the means. On the measures of overall quality of life between diabetic males mean and SD were 4.26 and1.03 and among non-diabetic females 4.65 and 0.88 respectively. The t-value indicates that there is no statistically significant difference among the

Table-4: Mean, SD and t-values of Quality of Life and its scales among Diabetic and Non- Diabetic females

Scales	Groups	N	Mean	S.D.	df	t
Physical Symptoms	Diabetic	60	0.47	0.50	118	1.65*
	Non-Diabetic	60	0.67	0.80		
Physical Wellbeing	Diabetic	60	3.60	3.21	118	0.75
	Non-Diabetic	60	4.07	3.56		
Psychological Wellbeing	Diabetic	60	0.87	0.81	118	1.37
	Non-Diabetic	60	1.07	0.78		
Existential Wellbeing	Diabetic	60	7.87	2.27	118	2.36*
	Non-Diabetic	60	8.60	0.81		
Support	Diabetic	60	8.67	1.67	118	1.36
	Non-Diabetic	60	9.00	0.90		
Quality of Life	Diabetic	60	4.26	1.03	118	2.21*
	Non-Diabetic	60	4.65	0.88		

**.p < 0.05 level; ** . p < 0.01 level.*

means of diabetic and non-diabetic males on the measures of quality of life, as the t = 2.21 (df = 118, p < .05)

Table-5: Illustrates Stress, Anxiety and Depression between diabetic males and females. On the measures of stress between males mean and SD were 18.00 and 6.25 and among females 16.00 and 5.16 respectively. The t-value indicates that there is statistically significant difference among means of diabetic males and females on the measures of stress, as the t = 1.91 (df = 118, p < .05). On the measures of anxiety between males and females, t-value indicates that there is no statistically significant difference among the means. Measures of

Table-5: Mean, SD and t-values of Stress, Anxiety and Depression among Diabetic Male and Females

Scales	Groups	N	Mean	Std. Deviation	df	t
Stress	Male	60	18.00	6.25	118	1.91*
	Female	60	16.00	5.16		
Anxiety	Male	60	9.07	4.35	118	0.00
	Female	60	9.07	5.20		
Depression	Male	60	14.67	5.69	118	2.91*
	Female	60	11.20	7.25		

**p< 0.05 level; **p<0.01 level.*

Table-6: Mean, SD and t-values of Quality of Life and its scales among Diabetic Male and Females

Scales	Groups	N	Mean	Std. Deviation	df	t
Physical Symptoms	Male	60	0.67	1.02	118	1.36
	Female	60	0.47	0.50		
Physical Wellbeing	Male	60	4.67	3.82	118	1.65*
	Female	60	3.60	3.21		
Psychological Wellbeing	Male	60	0.53	0.62	118	2.52*
	Female	60	0.87	0.81		
Existential Wellbeing	Male	60	8.27	1.07	118	1.24
	Female	60	7.87	2.27		
Support	Male	60	8.27	1.54	118	1.36
	Female	60	8.67	1.67		
Quality of Life	Male	60	4.51	0.87	118	1.41
	Female	60	4.26	1.03		

**p< 0.05 level; ** p<0.01 level.*

depression between males mean and SD was 14.67 and 5.69 and among females 11.20 and 7.25 respectively. The t-value indicates that there is statistically significant difference among means of diabetic males and females on the measures of depression, as the t = 2.91 (df = 118, p < .05).

Table-6: illustrates Quality of Life and its sub-scales between diabetic males and females. On the measures of physical symptoms between males and females,t-value indicates that there is no statistically significant difference among the means.On the measures of physicalwell-being between males mean and SD were 4.67 and 3.82 and among females it were 3.60 and 3.21respectively. The t-value indicates that there is statistically significant difference among the means of diabetic males and females on the measures of physical well-being, as t = 1.65 (df = 118, p < .05).On the measures of psychological wellbeing between males mean and SD were 0.53 and 0.62 and among females it were 0.87 and 0.81respectively. The t-value indicates that there isstatistically significant difference among the means of diabetic males and females on the measures of psychological wellbeing, as t = 2.52 (df = 118, p < .05).Measures of existential well-being between males and females, t-value indicates that there is no statistically significant difference among the means. Measures of support between males and females t-value indicates that there is no statistically significant difference among the means. Similarly, measures of quality of life between males and females t-value indicates that there is no statistically significant difference among the means.

Table-7: Shows correlation of Stress, Anxiety and Depression with Quality of Life

Scales	Quality of Life
Stress	.108
Anxiety	-.203**
Depression	-.027

***Correlation is significant at the 0.01 level (2-tailed).*

**Correlation is significant at the 0.05 level (2-tailed).*

Table 7 illustrates correlation between Stress anxiety and Depression with Quality of life. Anxiety shows significantly negative correlation with Quality of Life r = -.203 (N = 240).

Table-8: Shows that among Stress Anxiety and Depression, only Anxiety significantly negatively predict 4.1% variance in Quality of Life. In the correlation it is seen that two components are negatively correlated with quality of life. But regression analysis shows that only anxiety is contributing in the overall variance of quality of life. It indicates that probability of anxiety is strongest inoverall Quality of life among diabetic patients which somehow shades the influence of other two factors. It can be understood that anxiety shows the negative effect with quality of life among diabetic patients.

Discussion

Diabetes is a chronic disease which affects all domains of life. It is responsible for many neuropsychological disorders among individual like stress, anxiety and depression. Certainly, affects the quality of life of individual. The present study attempts to investigate stress, anxiety, depression and quality of life among diabetic patients.

The first objective was to study stress, anxiety, depression, and quality of life between diabetic and non-diabetic individuals. Results of table 1 shows there exist a high statistically significant difference between themeans diabetic males and non-diabetic males on the measures of stress, depression. Obtained means and t-values shows that diabetic males are more stressed and depressed as compared to non-diabetic males. The results are similar to the findings of which shows that patients are at 50--100 percent higher risk of developing depression as compared to that to general population.[18]Goldney et al. (2004) argues that prevalence of depression in the diabetic population was 24% compared with 17% in the non-diabetic population.[15] Results of table 2 shows that no statistically significant difference was found between the means of diabetic females

Regression Analysis

Table-8: Stepwise regression analysis of the Stress, Anxiety and Depression with Quality of Life.

Variable	R	R Sq.	R Square change	% variance	Beta Coefficient	t-ratio
Anxiety	.20	.041	.041	4.1	-.203	-3.196**

***p<0.01 level.*

and non-diabetic females on the measures of stress, anxiety, depression. It contradicts with the previous studies done in this area.

Results of table 3 shows that there exist a significant difference between the diabetic males on the measures of quality of life and its sub scales physical symptoms, physical wellbeing, psychological wellbeing and existential well-being. Obtained means and t-values shows that diabetic males shows poor quality of life as compared to non-diabetic males. Results of table 4 shows that there exist a significant difference between the diabetic males and females on the measures of quality of life and its sub scales physical symptoms and existential well-being. Obtained means and t-values shows that diabetic females shows poor quality of life as compared to non-diabetic females. The results are similar to the findings of Goldney et al. (2004) which states that individuals with diabetes experienced an impact with a large effect size on every dimension of the Short Form Health-Related Quality-of-Life Questionnaire (SF-36) as compared with those who suffered diabetes.[16] Further similar findings were reported by Anaforoglu et al. (2010) which states that diabetic patients are more prone to have dropin QOL as compared to general population.[18]

The second objective was to study gender differences between diabetic and non-diabetic individuals on the measures of stress, anxiety, depression and quality of life. Results of table 5 shows that there exists a statistically significant difference between the means of diabetic males and females. Obtained means and t values shows that diabetic males are more stressed and depressed as compared to diabetic females. No such difference was found on the measures of anxiety. Misra & Lager (2009) which supports the present findings that significant gender differences existed in acceptance of the disease, perceived difficulty in self-management behaviours, glycemic control which accounts for stress and depression.[19] Results of table 6 shows that there exists no statistically significant gender differences on the measures of quality of life and its subscales except on the measures of physical well-being and psychological wellbeing. Obtained means and t-values shows that diabetic males shows more physical well-being as compared to diabetic females, whereas diabetic males shows less psychological well-being as compared to diabetic females. The present results are similar to findings of Misra & Lager (2009) which reveals that gender variations exists in quality of life among diabetic patient.[19]

Third objective was to study relationship of stress, anxiety and depression with quality of life. Result table 7 shows correlation of stress, anxiety and depression with quality of life. Anxiety shows highest significant negative correlation with quality of life of diabetic patients. The present finding is in the line of previous study reported by Tan et al. (2015) which reveals that family history of DAS was found to be strongly associated with anxiety at (10.2%; $p < 0.001$). Regression analysis indicates that probability of anxiety is strongest in overall quality of life among diabetic patients.

Conclusion

Diabetic male's shows significant differences as compared non-diabetic males on measures of stress, depression and quality of life where as no such differences exists among females. On the measures of quality of lifediabetic females significantly differ from non-diabetic females, males do not show any such differences. Among diabetic patients males are significantly more stressed, depressed and have poor quality of life as compared to females. No such gender differences were found on measure of anxiety. A negative correlation was found between anxiety and quality of life among diabetic patients, but no statistically significant relation exists. Among stress, anxiety and depression probability of anxiety is strongest in overall quality of life among diabetic patients.

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Original Article

Alexithymia and Attachment Patterns in Alcohol & Substance Dependence

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Abstract

Introduction: *Clinicians who work with alcohol or substance dependent persons intuitively know that the latter experience difficulties in forming therapeutic alliances and regulating emotions. They are difficult to engage in treatment and prone to repeated relapses. The present study aimed to study the nature of alexithymia and attachment patterns in this group. Inadequate functioning in these fundamental domains has the potential to exacerbate their clinical symptoms and hamper treatment.* ***Method:*** *A total of 100 persons, of which 50 were diagnosed with alcohol or substance dependence and 50 were healthy normal controls, completed preliminary screening measures, Toronto Alexithymia Scale and Experiences in Close Relationships Inventory. Information was collected over two sessions after a minimum of two weeks of abstinence. The two groups were matched for age (mean age= 32.88 ± 9.70 years) and sex (38 male and 12 female).* ***Results:*** *Data were analyzed using t- test, Pearson's correlation and Regression. The findings indicate that alcohol and substance dependent persons are likely to be characterized by significantly greater emotion regulation difficulties and insecure attachment styles as compared to normal, healthy controls. Attachment avoidance was associated with all dimensions of alexithymia for the addicted group, as was anxious attachment, with the exception of externally oriented thinking. Insecure attachment predicted difficulties in identifying and describing feelings while the avoidant style in particular, predicted externally oriented thinking in addicts.* ***Conclusions:*** *Constricted symbolic thinking and narrow emotional vocabulary can make treatment through widely used 'talk therapy' modalities difficult for addicted persons. The findings thus, have implications for screening this group for these features and tailoring treatment approaches to improve outcomes.*

Keywords*: Alexithymia, Attachment Styles, Emotion Regulation, Addiction*

Introduction

The ability to recognize what one is feeling and its expression, is one of the most fundamental aspects of human behavior. And yet, there are those that are unable to do just that. 'Alexithymia' is a term used to describe a specific disturbance in emotional processing that is manifested clinically by difficulties in identifying and verbalizing feelings and in elaborating fantasies as well as an associated tendency to focus on and amplify the somatic sensations accompanying emotional arousal (from Greek: a = lack, lexis = word, thymos = emotion)[1]. Relatedly, attachment to primary caregivers in childhood is one of the primary developmental pathways of emotion regulation in adults[2]. Attachment theory hypothesizes that close physical and emotional proximity to a loved one (usually mother) is essential for secure attachment to develop

in infancy and manifest in adult relationships[3]. Emotions take centre stage in attachment theory in two ways: proximity seeking behaviour of infants during experiences of emotional distress and development of healthy emotion regulation abilities in children through the sensitive responding of primary caregivers.[3,4] Specific developmental interactions with significant others in early childhood give rise to 'chronic' patterns and systems of relational expectations, emotions and behavior which have been termed as attachment styles. These in-turn, influence one's reliance on a particular strategy of affect regulation.[5,6]

According to the dimensional model of adult attachment put forth by Brennan, Clark & Shaver,[7] attachment style can be measured by an individual's position along the two dimensions of attachment-related anxiety and attachment- related avoidance. People who feature higher along the avoidant dimension are likely to distrust others and not rely on them. On the other hand, individuals with high scores on the anxiety dimension tend to worry that their relationship partners will not be available to them in times of need and will not be adequately responsive or attentive. Consequently, they tend to attempt to gain attention and reassurance from others. A secure adult scores low on both these dimensions and relies on strategies such as instrumental problem solving, interdependence and a focus on sustaining intimacy and support in relationships.[8]

Alexithymia was initially recognized as being associated with psychosomatic disorders[9-10] but is now recognized to be a risk factor for addictive processes as well[11, 12]. Infact, it has also been shown to correlate with other psychiatric conditions within the alcohol and substance dependence group itself such as depression, suicidal ideation and attempts, self-mutilation and dissociation.[13,15] High levels of alcohol or drug consumption have been further associated with insecurity in relationship attachment styles,[16] indicating an inverse relationship between addiction and healthy interpersonal attachment.[17] The general relationship between alexithymia and attachment patterns as well as its effect on a person's interpersonal interactions has been outlined by various studies.[18,19] However,the association between the two with respect to addiction in particular, as well as the relationship between certain attachment styles and specific features of alexithymia, have not been investigated despite their evident clinical manifestations. In clinical practice, most experience addicts as difficult to engage in treatment. The therapeutic alliance, if formed, is often fragile because of clients' difficulty in expressing their emotions vividly and authentically in sessions and therapists' own negative countertransference reactions to their style of conversation. Instead of attributing these aspects to 'characteristics of the disease of addiction' and leaving them unaddressed in therapy, it may be more useful for clinicians to understand these dynamics and take them into account while engaging with clients therapeutically. Their prevalence and manifestation in the Indian context has remained largely unexplored so far, leading to therapy selection and delivery being determined by the clinician's own orientation instead of its suitability to the client's attachment and emotion regulation profiles. The focus of treatment is largely the drinking or drugging behavior which is the most apparent deviation from healthy functioning. In practice, disturbances in such basic aspects of human functioning as emotion regulation has the potential to seriously complicate the clinical picture and reduce treatment effectiveness. Confirmation and increased awareness of these associations on the other hand, would provide direction for the development of appropriately focused treatment interventions or modifications in the existing modalities so as to improve treatment outcomes and lower significantly high relapse rates in this population.

Keeping these issues in view, the present study was designed to understand the nature of and relationship between alexithymia and attachment patterns in persons with alcohol and substance dependence. It was hypothesized that addicted patients would differ from normal- healthy controls on both aspects, with clear associations emerging between emotion regulation difficulties and specific styles of attachment.

Material & Methods

Participants: A total of 100 participants were recruited for the study. The addicted group consisted of 50 persons from a private rehabilitation center located in New Delhi, meeting the DSM-IV TR (APA, 2000) criteria for alcohol/substance/ poly-

substance dependence and co-occurring nicotine dependence (as diagnosed by a psychiatrist). Patients diagnosed with any other co-morbid psychiatric disorder or having less than two week's duration of continuous abstinence were excluded. The normal-control group comprised 50 subjects with no history of alcohol/substance dependence (except nicotine), significant head injury, neurological disease, terminal illness or psychiatric illness. Daily consumers of alcohol, users of alcohol in quantities greater than 60 ml at each instance and persons who had used substances other than nicotine experimentally more than once in their lifetime were excluded from this group. Both groups were matched for age (Mean age: 32.88 ± 9.70 years) and sex (38 males and 12 females per group). The addict group had acquired mean education of 14.40 ± 2.04 years while normals had education of 14.86 ± 1.77 years.

Measures

i. A Socio-demographic Data Sheet was prepared to elicit information regarding age, sex, marital status, number of years of education and occupation.
ii. A Substance Use Form was developed for this study to collect details of the various substances used by participants, age of initiation for each, the effects after use, presence of tolerance, nature of treatment sought and past abstinence attempts.
iii. Michigan Alcohol Screening Test- MAST[20] one of the oldest alcohol screening tests available, was used to gauge alcohol problems over a person's lifetime.
iv. Drug Abuse Screening Test- DAST[21] which is a 20 item self- report/semi- structured interview was employed to indicate low, moderate, substantial or severe level of drug abuse.
v. Toronto Alexithymia Scale(TAS-20-H)[22] was used to screen for the prevalence of alexithymia in both groups. 20 items yield total scores ranging from 20 to 100, indicating a total alexithymia score and three factors scores for Difficulty in identifying feelings, Difficulty in describing feelings, and Externally oriented thinking.
vi. Experience in Close Relationships Questionnaire[7] is a 36- item self- report attachment measure which has one subscale each for attachment, attachment-related anxiety and attachment-related avoidance. A secure adult is low on both of these dimensions.

Procedure

After subjects filled out an informed consent form, preliminary screening information was gathered in one session using the Socio-demographic Data Sheet, Substance Use Form, MAST and DAST. Those who met the inclusion and exclusion criteria for the study were selected and subsequently administered both the Hindi version of the Toronto Alexithymia Scale (TAS-20-H) and Experiences in Close Relationships Questionnaire (ECR) after a maximum gap of one week.

All the data were collected from participants after a minimum duration of two weeks of abstinence from alcohol or other substances to avoid withdrawal or detoxification related effects on results.

Results

The t-test results indicate that alcohol and substance dependent persons were characterized by a significantly higher degree of alexithymia as compared to normal, healthy controls (Table 1). The large effect sizes ($d > 1$ for total alexithymia and Factors 1 and 2) show that they seemed to experience substantially greater difficulty in identifying and describing their emotions across a wide range of contexts. They were also more significantly externally oriented in their cognitive style (Factor 3) even though the effect size for this Factor was comparatively smaller at $d = 0.75$.

The substance dependent group also fell on comparatively higher ends of the anxiety and avoidance attachment continuums, indicating greater insecurity in relationships as compared to healthy controls (Table 1). The effect size was again large for both ($d > 1$), showing that the difference between the two groups on the aspect of attachment security was very substantial.

Analysis using Person's correlation indicates that for both groups, total alexithymia was strongly and positively associated with attachment-related avoidance in relationships for both groups (Table 2). Attachment anxiety was also significantly related to total alexithymia but this held true only for the

Table-1: Difference between Alcohol and Substance Dependent Persons and Normals with respect to Alexithymia Sub- Factors and Attachment Pattern Dimensions (N= 100).

Variables	Addicts		Normals		*t*	*p*	*d*
	Mean	SD	Mean	SD			
Alex- Total	57.76	10.24	42.68	11.47	6.94	.001	1.39
Alex Factor 1							
Difficulty Identifying Feelings	20.68	5.04	14.34	3.83	7.08	.001	1.45
Alex Factor 2							
Difficulty Describing Feelings	16.48	4.40	11.92	3.10	5.96	.001	1.22
Alex Factor 3							
Externally Oriented Thinking	20.54	5.12	16.34	6.06	3.74	.001	0.75
Attachment Anxiety	3.86	1.27	2.72	.82	5.28	.001	1.14
Attachment Avoidance	3.51	1.17	2.26	.91	5.91	.001	1.15

Note: d = effect size; Alex = Alexithymia

Table-2: Correlations between Alexithymia and Attachment Patterns in Alcohol and Substance Dependent Persons and Normal (N = 100)

S. No.	Variables Pair	Addicts		Normals	
		r	*p*	*r*	*p*
1.	Total Alexithymia- Anxiety	.34	.02*	.26	.07
2.	Total Alexithymia- Avoidance	.56	.001**	.38	.007**
3.	Alexithymia Factor 1- Anxiety	.28	.05	.31	.03*
4.	Alexithymia Factor 1- Avoidance	.33	.02*	.23	.10
5.	Alexithymia Factor 2- Anxiety	.34	.02*	.19	.18
6.	Alexithymia Factor 2- Avoidance	.50	.001**	.28	.05
7.	Alexithymia Factor 3- Anxiety	.11	.45	.20	.17
8.	Alexithymia Factor 3- Avoidance	.35	.01*	.43	.002**

***p < .0, *p < .05*

addicted group. Among the three Factors of alexithymia, difficulty in identifying feelings (Factor 1), was significantly and positively correlated with attachment related anxiety for the normal group and attachment avoidance for the substance dependent group. Difficulty describing feelings (Factor 2) was significantly related to both anxiety and avoidance in the addicted group. This association was not seen for the normal group. Externally oriented thinking (Factor 3) showed a significant positive relationship with attachment- related avoidance for both groups. This factor was not significantly related to attachment anxiety for either group.

The correlational findings inspired further analysis to see if attachment styles would predict alexithymia scores in the addicted group. Multiple regression analysis was carried out to predict alexithymia domains on TAS-20-H from the known attachment styles on ECR.

It was found that both anxiety and avoidance were significant predictors of total alexithymia, difficulty identifying feelings and difficulty describing feelings. For externally oriented thinking, only the avoidant attachment style emerged as a significant predictor of Factor 3 scores (Table 3).

Disucussion

The findings confirm that alcohol and substance dependent persons are characterized by pervasive difficulties in emotion expression and regulation, as compared to normal, healthy controls. They are far more likely to be unable to identify their own feelings clearly and to express them coherently. The two groups also differ markedly in their cognitive style, with addicts reporting more externally oriented thinking. This feature (also known as 'pensee operatoire'), has traditionally been thought to reflect a preference for the external details of everyday life rather than thought content related to feelings, fantasies and aspects of a person's inner experience.[10]

Addicted persons reported to be more insecurely

Table-3: Summary of regression analysis for Attachment Styles predicting Alexithymia for Addicts (N = 50)

Alexithymia	Attachment	B	SE B	β	R^2	F	P
Total Alexithymia	Anxiety	2.906	.918	.266	.444	38.699	.002**
	Avoidance	5.499	.910	.507			.000***
Alex Factor 1:							
Difficulty Identifying	Anxiety	1.460	.416	.322	.336	24.562	.001**
Feelings	Avoidance	1.633	.413	.363			.000***
Alexi Factor 2:							
Difficulty Describing	Anxiety	.967	.323	.264	.389	30.883	.003**
Feelings	Avoidance	1.684	.320	.463			.000***
Alex Factor 3:							
Externally	Anxiety	.446	.484	.090	.244	15.650	.359
Oriented Thinking	Avoidance	2.197	.479	.448			.000***

Note: B = Unstandardized Beta, *SE* = Standard Error, R^2 = Standardized Beta, Alex = Alexithymia; ***p < .001, **p < .01.

attached (avoidant or anxious) than healthy controls, which is likely to lead to less than ideal psycho-social functioning across several contexts. Attachment anxiety manifests as 'excessive care-seeking in relationships, separation-protest and an almost perpetual fear of loss'.[23] They are more likely to use 'hyper activating' strategies for regulating emotions such as sustaining or exaggerating undesirable emotions, overemphasizing helplessness and intensifying attempts to gain reassurance. Avoidantly attached individuals prefer not to rely on others and experience discomfort in opening up to others, probably due to fear of rejection. They use 'deactivating' emotion regulation strategies instead, such as inhibition of emotional experience and emphasizing own self- reliance while dismissing other people's need for support and intimacy.[3,24]

The management of emotions in later life is influenced by the style of attachment developed during early childhood. Several important associations between alexithymia features and specific attachment styles emerged in this study. It was found that broadly, persons (whether substance dependent or normal) who are avoidantly attached also have greater degree of alexithymia. The anxious style demonstrated a similar significant relationship for the addicted group only.

For the non- clinical sample, a difficulty in identifying feelings was accompanied by attachment anxiety. For the addicted group, this alexithymic feature was significantly related to attachment avoidance instead. This may be explained by the different emotion regulation strategies that characterize the two distinct attachment styles. Attachment anxiety can lead to difficulties in identifying emotions by virtue of emotion amplification as a regulation strategy.[25] However, support for this is provided by the present study for the non- clinical group only. Attachment avoidance can perpetuate an externally oriented cognitive style to facilitate regulation by minimization of emotions.

Attachment insecurity, irrespective of anxious or avoidant, was related to a difficulty in describing feelings for the addicted group. Attachment research shows that the capacity to put one's feelings into words is a development function that may have been interrupted or failed to develop as a result a neglect or indifference on the part of the early caregiver to provide appropriate feedback.[17,26] In adult relationships, intimacy is influenced by healthy, two-way communication and sharing of feelings and experiences. Impaired ability for articulating how one is feeling about another or the relationship itself is expected to hinder a sense of connection. Discomfort with closeness, as seen in avoidant individuals, would make such sharing unlikely and infrequent. As a regulation strategy, this would help in keeping the attachment system deactivated by maintaining social and emotional distance from others and protecting from the ever present threat of rejection.[27] The clinging and over dependent behaviour of the anxiously attached individual, although apparently contrasting to the avoidant style, would lead to similar interpersonal distancing by making authentic sharing of emotions unlikely, for the fear of consequent abandonment.

Lending support to earlier studies, both styles of attachment insecurity predicted total alexithymia

as well as difficulties in identifying and describing feelings in the addicted group. Both are characterized by the failure of proximity- seeking to relieve distress, a strategy that is predominantly employed by securely attached individuals and demands skills in tuning in with own and others' feelings.[3] Alexithymia can be viewed as a deactivating regulation strategy, wherein insecurely attached individuals avoid focusing on their threat- evoking internal feelings by emphasizing the external, non-threatening aspects of the environment. As a self-protective attempt, this possibly allows them to engage with others, but on a superficial and perceived 'safe' level. This is more likely to manifest in externally oriented thinking for avoidantly attached addicts rather than anxious ones. Consistent with this idea, it is the avoidant style that predicted externally oriented thinking in this study rather than the anxious style. Substances may serve as close substitutes for the gratification derived from interpersonal interactions, as has been proposed by Flores[17] earlier or as external affect regulators.

Attaching to substances can be less threatening and challenging than negotiating the ever changing dynamics of relationships. Unfortunately, this would also translate into reduced opportunities for disconfirmation of these distrustful beliefs, as one would insulate against corrective attachment experiences as well. Much required social support in coping with addictive diseases may be avoided and substances would ultimately be used as the sole resource for coping and regulation, despite the negative consequences, thus perpetuating the addictive cycle.

Since the data were collected after a minimum of two weeks of abstinence, these findings cannot be attributed to withdrawal symptoms or residual substance effects. They help explain to a large extent, the often unexpressive verbal language used by addicts in therapeutic sessions and the difficulties experienced by therapists in forming stable alliances with them.

However, since this study does not determine causation, there is a possibility that alexithymia could be a direct or indirect consequence of chronic substance dependence problems rather than a direct manifestation of attachment insecurity. It could also possibly stem from learning histories in being raised in dysfunctional families. Therefore, it is difficult to determine whether alexithymia is an antecedent of substance abuse or a consequence of the disorder or recent abstinence without longitudinal studies.

Another limitation is that the concept of alexithymia is heavily influenced by Western philosophy and thought. Almost all alexithymia and attachment research has been carried out in western contexts so far. There is an inherent value judgment in this perspective that verbal expression of emotions is healthy and mature. This does not necessarily conform to norms in other cultural settings. Although specific data from India is unavailable, researchers investigating the expression of emotions and psychiatric illness in other Eastern cultures [28,29]have stressed that verbal expression of affect is uncommon and that psychic distress is more commonly expressed through either somatization or highly intellectual verbal interchanges. Nevertheless, these findings are still important as far as the way the psychopathology of addictive disorders is viewed and their treatment is traditionally designed and delivered.

Conclusions and Implications for Treatment

There is some earlier research to show that alexithymia is negatively related to therapy outcome and even when psychological or psychosomatic symptoms improve, alexithymia tends to remain constant over the course of therapy[30]. However, some recent evidence is emerging that alexithymia may be more amenable to certain therapeutic interventions and less stable over therapy than traditionally thought.[31,32] This implies that for therapy to be effective, a diagnosis of alexithymia may need to be considered at intake and require a departure from the traditional psychotherapeutic modalities. Customized approaches that either directly address these issues in sessions or therapeutic modalities that bypass these deficits and require less direct verbal self- expression and cognitive strategies may be more useful. Secure, corrective therapeutic experiences for insecurely attached clients may help to modify their maladaptive attachment patterns. Some researchers have even argued that it makes sense to differentiate alcoholic inpatients on the basis of degree of the attachment system and resultantly, use different treatment approaches.[33,34] Client-therapist matching may be quite beneficial for such clients to reduce treatment drop-outs and prevent

recurrent relapses.

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Original Article

Community care in Alzheimer's Dementia and Late Life Depression: Caregiver's perspective of Burden of Care and Quality of Life

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Abstract

Introduction : *Quality of Life (QoL) is a multi-dimensional concept that includes domains related to physical, mental, emotional, and social functioning. It goes beyond direct measures of population health, and focuses on the impact of health status on various domains of life. Family plays a major role in providing care to persons suffering from dementia due to Alzheimer's disease (AD). The process of care giving can be stressful for those involved in the process, commonly referred to as burden of care. Chronic diseases like AD and late life depressive disorders (LLD), even in their milder forms put a considerable burden on family caregivers who take the sole responsibility of care giving in the community. Only few studies have been reported comparing care givers of AD and LLD patients on QoL and burden of care in this part of country.* ***Aims:*** *The aim of the study was planned to: 1. Assess the QoL and Care Burden of caregivers of persons living with AD and LLD. 2. Find out the differences in pattern of QoL and burden of care between caregivers of patients of AD and LLD.* ***Material and Method:*** *Sixty people aged between 60-80 years age (30 AD and 30 LLD) and their caregivers were selected by purposive sampling for the study. Informed consent was obtained from all participants or their family member. Assessment was carried out using. QoL scale (WHOQOL-BREF) and Burden Assessment Schedule on the caregivers.* ***Results:*** *Caregivers reported high level of burden and poor QoL in both the study groups. We also found that care givers of AD reported significantly higher level of burden and poor QoL than the caregivers of LLD.*

Key words*: Caregivers, Alzheimer's Dementia, Quality of life, Burden, Depression.*

Introduction

Consequent to socioeconomic developments in the past decades, the world population is ageing rapidly. In 2009, around the globe the number of older adults aged above 60 years surpassed 700 million which is bound to increase in coming years.[1] This rapid increase in the greying population has posed serious challenges to the existing health care delivery system.

Depression is a common problem among older adults. Depression in late life (LLD) may get overlooked because unusual presentation. Depressed mood may not be core manifestation at this age, rather physical inactivity, unwillingness to talk about feeling may be prominent.[2]

AD is another common mental syndrome in the elderly, that has become one of the leading causes of disability, burden for the society and family. This trend deserves more and more attention from the governments and public awareness worldwide especially in the developing countries where nearly 80 per cent of the world's older population is expected to live by 2050.[3] However due to meagre health care resources in these countries, the families

of these patients have to bear the major share of burden of care.

AD mainly affects older adults, although there is a growing awareness of cases that start before the age of 65. After age 65, the likelihood of developing dementia roughly doubles every five years.[4]

AD in elderly strikes with doubled adversity. On one hand, the symptoms and skill deficits make it difficult for the person to perfom many social roles, work and independent living opportunities.[5] On the other, societal reaction to severe mental illness results in stigma and discrimination that unjustly impede the person with psychiatric disability from attaining work, affiliation, and other independent living opportunities. This also affects the care givers adversely.

In this scenario both the developing as well as developed countries need to pay more attention to AD and health cares for the elderly.

According to Alzheimer's disease International's estimates in the World Alzheimer's Report 2009, there are 35.6 million people living with dementia worldwide in 2010, it will increase to 65.7 million by 2030 and 115.4 million by 2050. Nearly two-thirds live in low and middle income countries, where the sharpest increases in numbers are set to occur.[6]

A number of studies found that the caregivers' age, physical health, purpose in life and financial status were predictors of good QoL,[7] and other studies reported social support network led to improved mental and physical health and spiritual well-being.[8,9] Level of education, health facilities, in-home, occupational therapy for caregivers help the caregivers,[10] psycho education groups, modify their home to support the daily functions of persons with dementia and improve their QoL.[11] In a meta-analysis, Brodaty et al.[12] showed that such interventions, especially those that involved the patients with AD, reduced the caregivers' psychological distress, improved the caregivers' knowledge and patients' mood, and delayed the patients' admittance to nursing homes. QoL was also improved when caregivers used respite services or were able to find free time for their own needs.[13,14]

Research has also identified several factors that worsen the QoL of caregivers, such as strained finances, poor family functioning, difficult patient behaviour, and problems in the caregivers' life or psychological state.[15,16] QoL is also affected by the amount of time caregivers spend caring for family members with AD and by overall family functioning.[6,17-18] Caregivers' QoL is also affected by the behavioural and psychological problems of the patients with AD.[19]

Despite many studies from the developed countries, the studies addressing QoL and burden of care issues in relation to elderly patients with AD and LLD are sparse from developing countries. This study was planned keeping this lacuna in consideration.

Material and Methods

This cross sectional study was carried out in the geriatric psychiatry outdoor services of the department of psychiatry of the Institute of Mental Health, Pt BD Sharma University of Health Sciences, Rohtak. The older adults presenting with LLD or AD syndrome were purposely sampled for this study. Keeping in view the workload and other duties of the researcher, every third patient aged 60 years or above was screened for inclusion and exclusion criteria of the study. The assessment for study was carried out if their consented to participate. If the patients were not able to give consent then the family members were approached for consent.

Inclusion Criteria

I. Diagnosed as depressive episode or dementia due to Alzheimer's disease (ICD-10)
II. Aged 60 years or more
III. Presence of caregivers who are living with patient from at least last 6 months
IV. Written consent to participate in study

Exclusion Criteria

I. Any other psychiatric or physical co morbidity
II. Any other family member having psychiatric or physical illness

Assessment

The clinical and socio-demographic assessment was carried out on a specially designed semi structured assessment schedule. The routinely prescribed investigations were also carried out. If

there was any doubt about diagnosis, opinion from a neurologist / physician was asked for. Following diagnosis and consent assessment was carried out on the following tools.

Quality of Life

WHOQOL BREF[20] is a short version of WHOQOL-100. It has been developed and field-tested in centres all over the world including New Delhi and Chennai. The scale contains a total of 26 questions to provide a broad and comprehensive assessment; the item from the 24 facts contained in the WHOQOL-100 has been included.

The WHOQOL-BREF scale assesses four domains namely, Physical, Psychological, Social Relationship and Environment. The Hindi version of WHOQOL-BREF Saxena et al.,[21] was used for this study. WHOQOL BREF is 5 point rating scale from 1 is 'Never' to 5 means 'always'. The higher scores show better quality of life.

Burden Assessment Schedule

A 40-item Burden Assessment Schedule developed by Thara et al[22] which measures subjective caregiver burden to each caregiver. This questionnaire measures the degree of burden in 9 areas, they are Impact on marital relationship, Physical and Mental Health, External Support, Caregiver's Routines, Support of patient, Taking responsibility, other relations, Patient's behaviour, Care Givers Strategy.

Four of the questions are exclusively for caregiver spouses; the schedule uses a 3-point scale for each question and scores 1 for 'not at all', 2 for 'some extent' and 3 for 'very much'. Thus the maximum score in each area of burden is 12 with higher scores indicating high degree of burden.

Analysis

Frequencies and percentages were used for the description of variables and student's t test (two tailed) was used for comparing two groups.

Results

Maximum participants in both the groups are between 70 to 79 years age group.Males and illiterate subjects were also higher in the both study groups. Tables 1 and 2 also show socio demographic profile of the patients and participants. 66.66% participants were from rural background, 68.33% of them were coming from joint family background and most of the participants monthly family income is 15000 or less than that (Table 1).

Table 2 shows socio demographic profile of participants. Most of them (31.66 %) were in age group of 40 to 49 years age group. About 68% participants are male, seventy percent of them acquiring 10 or more formal education. 90% participants are married, 37.56 % of them doing household works and 71.67 are children of the patients.

Burden of the caregivers among both the groups (as depicted in the Table 3). The participants reported high level of burden in all the nine components. Though not significant, the spouse related burden among caregivers of LLD was found to be higher. Caregivers of AD reported significantly higher burden in other all domains.

Table 4 shows QoL of caregivers of AD and LLD. QoL is poor in both the groups of caregivers. Caregivers of LLD were having better QoL in comparison to AD caregivers.

Discussion

This is the study that has tried to assess the level of burden among caregivers of elderly patients with AD and LLD in tertiary care hospital.Care givers often fail to identify both in its early stages due to their insidious onset and slow progression. The memory problems and behaviour problems common in the early and intermediate stages of AD are often attributed to normal effects of aging in our culture. People also have poor understanding about depressive symptoms in late age.

This study examined the burden of care and QoL among caregivers of individuals with AD and LLD. The analysis revealed that the all domains of burden of care except 'spouse' explained the caregivers' burden in both the groups. The caregivers of AD patients had significantly higher level of burden. These results are consistent with the findings of Conde-Sala et al.[23] who reported that care-recipient factors were more significant predictors of caregiver burden than caregiver or care giving related factors.

Study reveals that older adults with LLD and similarly in AD, illness increase dependency on caregivers which reduces the QoL of both caregivers and older adults. The finding are

Table-1: Socio Demographic Profile of Patients.

Variable		Dementia (N = 30) n (%)	Depression (N = 30)n (%)
Age in years	60 – 69	6 (20)	13 (43.34)
	70 – 79	16 (53.33)	12 (40)
	80 – 89	3 (10)	5 (16.67)
	> 90	5 (16.67)	5 (16.67)
Sex	Male	21 (70)	16 (53.33)
	Female	9 (30)	14 (46.67)
Education	Illiterate	18 (60)	18 (60)
	5th	7 (23.33)	7 (23.33)
	10th	3 (10)	4 (13.33)
	12th	0	1 (3.33)
	Higher	2 (6.67)	0
Marital status	Married	14 (46.67)	19 (63.33)
	Widow/Widower	16 (53.33)	11 (36.67)
Occupation	Agriculture	5 (16.67)	3 (10)
	Business	1 (10)	0
	Retired	8 (23.67)	3 (10)
	Household Works	16 (53.33)	23 (76.67)
	Other	0	1 (3.33)
Domicile*	Urban	8 (26.67)	10 (33.33)
	Semi Urban	1 (3.33)	1 (3.33)
	Rural	21 (70)	19 (63.33)
Type of *Family	Joint	20 (66.67)	21 (70)
	Nuclear	3 (10)	3 (10)
	Extended	7 (23.33)	6 (20)
Family *monthly Income	<5000	10 (33.33)	10 (33.33)
	5001 – 10000	4 (13.33)	6 (20)
	10001 – 15000	10 (33.33)	14 (46.67)
	15001 – 20000	6 (20)	0

*These variables pertain to the caregivers of both groups also.

Table-2: Socio Demographic Profile of Care givers

Variable		Dementia (N = 30) n (%)	Depression (N = 30) n (%)
Age in years	20 – 29	5 (16.67)	4 (13.33)
	30 – 39	7 (23.33)	9 (30)
	40 – 49	11 (36.67)	8 (26.67)
	50 – 59	4 (13.33)	0
	60 – 69	3 (10)	5 (16.67)
	70 – 79	0	4 (13.33)
Sex	Male	21 (70)	20 (66.67)
	Female	9 (30)	10 (3.33)
Education	Illiterate	3 (10)	2 (6.67)
	5th	6 (20)	7 (23.33)
	10th	10 (33.33)	8 (26.67)
	12th	5 (16.67)	6 (20)
	Higher	5 (16.67)	6 (20)
	Professional	1 (3.33)	3 (10)
Marital status	Married	26 (86.67)	28 (93.34)
	Unmarried	4 (13.33)	1 (3.33)
	Widow/Widower	0	1 (3.33)
Occupation	Service	6 (20)	6 (20)
	Agriculture	6 (20)	7 (23.33)
	Business	4 13.33)	0
	Retired	1 (3.33)	1 (3.33)
	Household Works	9 (30)	13 (43.33)
	Other	4 13.33)	3 (10)
Relation With Patient	Spouse	2 (6.67)	7 (23.33)
	Siblings	1 (3.33)	2 (6.67)
	Children	23 (76.67)	20 (66.67)
	Grand Children	2 (6.67)	1 (3.33)
	Other	2 (6.67)	0

Table-3: Burden among care givers

Variables	Dementia		Depression		t value	P Value
	Mean	Sd	Mean	Sd		
Spouse	3.1	2.36	3.56	3.26	0.63	0.529
Physical and Mental Health	13.96	1.84	11.96	2.23	3.77	0.000
External	12.8	1.03	9.5	1.54	9.71	0.000
Caregivers	9.3	1.317	8.1	1.26	3.59	0.001
Support	7.33	1.39	6.3	1.57	2.68	0.009
Responsibility	9.93	1.14	7.43	1.75	6.53	0.000
other	6.8	0.92	6.06	1.52	2.24	0.028
Patient's behaviour	9.9	1.37	8.56	1.56	3.50	0.001
Care givers strategies	9.46	1.13	7.66	1.44	5.35	0.000

Table-4: Quality of life of care givers

Variables	Dementia		Depression		t value	P Value
	Mean	Sd	Mean	Sd		
Physical	19.56	2.59	22.53	3.60	3.65	0.001
Psychological	16.03	2.47	20.26	2.88	6.10	0.000
Social	7.46	2.12	10.4	2.66	4.71	0.000
Environment	21.16	3.75	29.06	5.67	6.36	0.000

consistent with observations of other researchers. [24,25] Care givers of AD reported significantly higher level of care burden. Findings also shows female caregivers experience a greater caregiver burden than male caregivers[26,27] and caregivers who live with their care-recipients or who are spouses having a higher burden.[23,26,28] This was not unexpected, as those who live with a care-recipient tend to be a spouse or a family member, provide more hours of care giving, feel more responsible for care giving tasks as part of their familial duties and experience the greater physical and emotional closeness of the care-recipients.[29] In addition, the findings indicate that our society still imposes the caring role on women in terms of a family responsibility.[24] However, in both groups, we had more number of children of the patients as caregivers in our sample hence this study arrived at a finding which is different from these two. It might be because of the cultural factors, particularly the joint family system. In comparison with the west, joint and extended families are more common in India where older adults are still respected as decision makers or approvers in various kinds of social situations. Generally at this age the older adults in this culture are not expected to be physically sufficient to take care of an ill family member. Possibly due to this reason we had lesser number of spouses as caregiver in the sample. Another fact which explains high proportion of children as care giver in our sample is the fact that 45% of the patients in both groups were widowed; hence age of the caregiver is less likely to be predictor of caregivers' relationship in our culture. Hence on the basis of available data it won't be wise to comment on differential effect of age on the perceived burden of care. In other studies also, caregivers' age was not a predictor of caregiver burden.[26,27] However, the effect of caregiver's age and other socio-demographic factors on caregiver burden should be explored further.

The quality of life assement also revealed some remarkablefacts. The care givers of the older adults with LLD had better QoL than the thier AD group counterparts.The reasons for this can be manifolds The older adults with AD usually have more demands on the caregivers on all aspectsa especially activities of daily life. Due to poor cognitve functions the older adults with AD are unable to perform these activities as independently as the older adults with late life depression. Therefore the AD care givers face more problems with privacy, embrassment, anger[30] and many time early symptoms of burnout among caregivers when they are untrained and not aware of the care needs of the patients This puts more demands on the caregivers for time , finacial resources , compromising leisure activities too. The findings in the Table 3 reflect the same which is

consistent with those observed by.[31] The sociodemographic factors of the caregivers being similar in both groups the data on burden posed by the care of older adults with AD seems to be the most significant factor accounting for the poor quality of life in AD caregiver group.

The study has some limitation which restricts the generalisability of the findings.The sample is small and the findings need to be replicated in longitudinal studies. The findings from current study still give a message that caregivers of both AD and LLD patients experience a high level of burden and poor quality of life. Keeping in view the enourmous magnitude of elderly population in India, the findings suggests a need to reach the community for geriatric services which are still in an infantile stage in the country. Our country is already short of trained manpower for health care. In this scenario it would better to sensitise general physicians, and other practioners including community nurses towards health issues of the elderly.

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Original Article

A Study of Awareness towards Intellectual Disability among College Students

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Abstract

Background: *Intellectual disability has many causes like chromosomal abnormalities, genetic metabolic disorders, infections and head injury. In Indian society these barriers are primarily rooted in religious beliefs, cultural norms, and misinformation or a lack of information regarding disabilities in general. The current scenario in India is that most individuals with intellectual disability are not formally identified and almost all the identified cases have to face exclusion from the society.* ***Aim:*** *To evaluate awareness towards the conditions of individuals with intellectual disability.* ***Methodology:*** *The study was a college based cross sectional study which comprised of 96 female participants. Tools used for the study were Socio-demographic data sheet, General Health Questionnaire- 12, and NIHM GEM Questionnaire. Statistical analysis of quantitative data was done using Statistical Package of Social Sciences SPSS for Windows version 16.0.* ***Result:*** *It was found that 75 percent of the participants reported misconceptions regarding the etiology, management and conditions of intellectual disability.* ***Conclusion:*** *Level of awareness towards intellectual disability among college students is very low.*

Keywords: *Intellectual disability, Eitiology, Students, Misinformations, Misconception*

Introduction

Intellectual disability means a significant sub-average general intellectual functioning, co-existing with deficits in adaptive behaviours like communication, self-care, social skills and functional academics. Traditional Indian concepts were moving around the social control systems where, disabilities have been considered punishments for sins committed in a previous life by an individual or their family members.[1] In some cases, families regard their children as "cursed" and a burden that they must deal with, which at times leads to the neglect and rejection of the child; the child might even be hidden from the community as the family fears they might be rejected by the community.[2]

The rigid structure of the societies in India is one of the significant barriers due to which an individual with intellectual disability is not included in the mainstream of society. Also the existing prejudice and stereotypes is due to lack of information which makes the conditions of an individual worst. At present, individuals with intellectual disabilities (ID) are seen by the majority of people in India as fundamentally "flawed" and perceived to have diminished capabilities, thereby placing them at the bottom of the social structure regardless of their caste identity.[3]

The individuals with intellectual disability face multi-dimensional barriers in the way of their management along with the disability. But knowledge and awareness can help individuals with intellectual disability to find some management of their conditions. Indian government and various NGOs (non-governmental organizations) are

working in this area. Since 1990's the government has been developing policies to address the needs of individuals with intellectual disability and to better include them in society. These policy initiatives included an amendment to the Indian Constitution to include education as a fundamental right for all children from the ages of 6 to 14 years, including children with a disability, and the Rehabilitation Council Act in 1992,[4] to regulate the quality of training of rehabilitation professionals. Further, the National Trust Act of 1999 was introduced to protect the interests of persons with cerebral palsy, autism, mental disability and multiple disabilities.[5] The most significant of these reforms was the Persons with Disabilities Act (PWDA) of 1995 which advanced the equal rights and opportunities for all individuals with disabilities. More specifically, individuals with ID were guaranteed free education, special job allotments, and various other resources to assure their inclusion within the society. Additionally, the PWDA created a Central Coordination Committee (CCC) whose role was to manage the funding and implementation of these laws, and generally oversee disability related issues.[6] The National Policy, released in February 2006 emphasised that persons with disabilities are valuable human resource for the country and sought to create an environment that provides them equal opportunities, protection of their rights and full participation in society.[7]

Around the globe policies and services for this population are being introduced to assert their rights and tackle barriers to their inclusion.[8] UN convention also has been passed in 2007 by the signature of 160 states including India for "standard Rules on the Education of opportunities for Person with Disabilities." However, where lack of awareness, negative community attitudes and stigmatizing beliefs prevail, attempts at greater community integration may well be met with resistance. Current Indian acts and policies for people with disabilities (including ID) aim to amplify their social inclusion, independence and empowerment.

In many countries including India the principle of inclusion for people with ID is accepted and the existing acts are giving prominence to the same. However, among both the general population (and service providers) it is often viewed as impractical and unachievable, and there is often a concern that inclusion may have negative consequences for those without disabilities, particularly in school and work settings. Understanding the public awareness to intellectual disability has important implications in the likely success of inclusion policies especially with regards to developing countries like India. Despite all this efforts the level of understanding and misconceptions among the general population are persisting in a rigid manner and it need to be addressed. Present study was planned to evaluate the understanding of the college students regarding the intellectual disability.

Aim: The aim of the study was to evaluate the awareness about the individuals with intellectual disability.

Methodology

Research design: It was a college based cross sectional study. The subjects were recruited for the study by random sampling technique.

Sample: Sample consisted of total 96 female participants, perusing their graduation from a government degree college of Ranchi District of Jharkhand.

Inclusion criteria

- Students attending college regularly.
- Only female participants were selected.
- Studying in Graduation courses.
- Students who gave consent for participating in the study.

Tools Used

- Socio-demographic data sheet
  It included various socio-demographic variables like age in years, years of education, domicile, number of family members, etc.
- General Health Qustionnaire-12[9]
  Goldberg and Williams (1988) developed it. It is used to screen physical and mental health problems in the subjects and it consists of twelve items.
- NIHM GEM Questionnaire

Peshawaria R et al[10] developed the scale to measure level of awareness among parents, family members and general public about intellectual disability. The scale measures misinformation and misconceptions held by general community with reference to the social cultural conditions prevalent

in India. The questionnaire has 30 items divided into 3 sections namely general information, etiology and management. The items are stated in the form of a statement and the respondent is expected to indicate whether he/she agrees with the statement or not. There are 11 items in general information, 9 items on etiology and 10 items on management aspect.

Procedure

Total 100 samples of students studying in graduation were randomly selected from the college. Only female participants were selected. Participants suited for inclusion criteria and exclusion criteria were taken up for the study. Participants were explained about the study and then consent was sought. Necessary socio-demographic details were collected and then the General Health Questionnaire-12 was administered to rule out the presence of any physical and mental health problem. Then NIHM GEM Questionnaire was administered on the participants.

Results

Study was conducted on 100 college attending female students. Four of them were excluded from the analysis who scored 3 or more on the GHQ12. The final sample for the study was 96. Mean age of the participants was 21.96 $\pm$ 1.72 years ranging between 19-25 years. Table one shows maximum (65.6%) participants of the study were Hindus, followed by Sarana, Islam, and Christian respectively. 65.6% of the participants were residing in urban or semi urban area and more than half (52.1%) of them were staying in a nuclear family.

Table-1: Socio Demographic variables

Variable		Frequency	Percentage
Religion	Hindu	63	65.6
	Islam	10	10.4
	Sarana	15	15.6
	Christian	8	8.3
Domicile	Urban	46	47.9
	Rural	33	34.4
	Semi urban	17	17.7
Family Type	Nuclear	50	52.1
	Joint	46	47.9

Table-2 shows that out of 96 participants only 24 participants had no misinformation and misconception towards the conditions of individuals with intellectual disability. 75% participants showed some or the other kind of misinformation and misconception towards the conditions of individuals with intellectual disability.

Table-2: Participants with misconception

Total No. of cases	No. of cases with misconceptions	No. of cases without misconceptions
96	72 (75%)	24 (25%)

Table 3 indicates participants had deferent kind of misinformation and misconception regarding the conditions of the individuals with intellectual disability. Finding of the study shows that participants understanding about mental retardation its cure and treatment methods.

Discussion

Findings of the present study indicate that one third participants had misinformation and

Table-3: Misconceptions among participants (n = 72)

Sl. No.	Misconceptions	No. of cases
1	Mentally retarded persons are able to manage themselves to some degree.	32
2	Mental retardation is mental illness	37
3	Mentally retarded persons can be fully cured.	55
4	As the mentally retarded child grows up he would gradually become normal.	24
5	Mental retardation is due to fate and karma	12
6	A mentally retarded child is born due to the sins of parents	11
7	Mental retardation is due to black magic or spells	6
8	Mental retardation is caused as an effect of Lunar eclipse at the time of pregnancy or birth of the child	28
9	Medicines only can cure mental retardation	9
10	Marriage can cure a mentally retarded person	13
11	Traditional healers, poojaries can cure mentally retarded persons	6
12	The only solution to the problem of mentally retarded person is to put him in a residential school/ hostel	15
13	Love alone will not benefit a mentally retarded individual	45

misconceptions regarding conditions of individuals with intellectual disability. These participants had misinformation regarding general information for intellectual disability. They had poor knowledge regarding etiology of intellectual disability and also had misconceptions and stereotypical views regarding causes of intellectual disability. They further showed misinformation and misconceptions about how the conditions of an individual with intellectual disability could be managed.

Findings shows that participants had a misinformation that intellectual disabled persons are not able to manage their needs to some extent and are even not able to look after their activities of daily living. Study also found that participants believed intellectual disability to be a kind of mental illness and it can be cured either with treatment or with age. These findings show poor level of understanding among the college students regarding ID. These findings are similar to those reported by a study from UK conducted by Mencap.[11]

Participants had superstitions like a child with intellectual disability is due to fate or karma and sins of parents. It was observed in the findings that lack of knowledge of individuals about ID reflected in negative attitude and prejudice. Similar findings were reported from the western countries.[12] Also stigmatizing beliefs were reported by the participants about the black magic and spells as one of the factors of intellectual disability. This finding is also similar to reports from other studies in developed countries.[13,14] Nature and natural calamities have a religious place in Indian culture and it was reflected in the finding of the study where participants reported that lunar eclipse at the time of pregnancy or birth of the child causes a child to born with ID. Concept of past life and reincarnation/rebirth is also deep-rooted in Indian culture and many rituals are performed by people to remove the bad spirit/evils from the society and family. This shows poor understanding of the natural cycle. ID is also believed to be a result of past sin of individual or his/her parents. These findings were also reported by Hubert.[15]

College going students are a representation of community thus the present study is representing all the living strata (urban, rural and semi-urban) of a state capital. Existence of the policy or law for ID is a strong indicator in Indian perspective but the darker part is poor level of knowledge and understanding that put hurdles in the implementation of the policies and rehabilitation plans. Systematic awareness programs are needed to improve the level of knowledge for promotion of health and achieve the goals of national policy for persons with disability.

Conclusion

The study concludes that college students had misconceptions towards the etiology and management of intellectual disability. They also donot have any understanding about possible management of individual with intellectual disability. This information could be incorporated in the education systems to improve the efficacy of the national policies and programs for persons with special needs.

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Original Article

Electroconvulsive use in children and adolescents – a 5 year retrospective review from a tertiary general hospital

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Abstract

Background*: There is little knowledge about the use of electroconvulsive therapy (ECT) in child and adolescents. Electroconvulsive therapy (ECT) is one of safest and effective procedure for various psychiatric illness even in children and adolescent population.The present study examined the pattern of use of Electroconvulsive therapy in child and adolescent population in an urban center.* ***Method****: All records of ECT procedure in patients less than 18 year of age in the past 5 years were reviewed. Detailed observations were obtained on various parameters of clinical details, indications, co-morbid conditions, complications, etc from the ECT records.* ***Results:*** *This study showed that 26 pediatric and 138 adolescent patients received 1675 ECTs for psychotic disorder (major indication) and affective disorders. Few patients were having seizure disorder and intellectual impairments.* ***Conclusions****: ECT use was found to be safe, acceptable and effective in various psychiatric illnesses in child and adolescent patients.*

Key words*: Electroconvulsive therapy, Children, Adolescents, ECT.*

Introduction

Electroconvulsive therapy (ECT) has been a safe and effective modality of treatment for various psychiatric disorders in adult as well as geriatric patients. However, its use in the child and adolescent age group still remains slightly controversial and minimal in some centers.[1] Historically in 1940, Bour Heuyer performed this procedure on teenagers in France with a variety of psychiatric conditions[2] whereas Lauretta Bender in 1947, has demonstrated marked improvement in patients of childhood schizophrenia with the use of ECT.[3] Since then there have been various case reports and case series whichhave demonstrated the effectiveness as well as safety of ECT use in children and adolescents.[4] Studies have shown that ECT can be effective inaffective disorders, suicidality and catatonia in adolescents.[5] Although the evidence for adolescent onset schizophrenia is slightly less, there are various case series and case reports point towards effectiveness of the therapy in these patients.[6]

Studies also indicate the successful use of this modality in children with autism spectrum disorders or Tourette's syndrome demonstrating self-injurious behaviour.[7] However despite this knowledge the use of this treatment modality in child and adolescent age group still remains sparse and limited to situations where medications have failed to elicit the desired response and side effects are intolerable.[8] There is a dearth of systematic, prospective studies detailing the risks and benefits of the use of this treatment in children and adolescentsand most of the publications in this field remain in the form of case reports or case series.[1] In 2004, the American Academy of Child and Adolescent Psychiatristslaid down practice parameters on ECT to provide practical aspects and guidance for the use of ECT in child and adolescent

populations.[8] However according to a large survey most of the child and adolescent psychiatrists have very little knowledge, training, orexperience in use of ECT in minors.[9] The present study is a retrospective chart review aimed to establish the pattern of use of ECT among pediatric (age < 12 years) and adolescent (age 13-19 years of age) in a tertiary hospital in an Indian metro city over a 5 year period thereby adding to the existing database on safety and effectiveness of this procedure in the given age group.

Materials and Methods

In the present study, the data of pediatric (age < 12 years) and adolescent patients (age 13 to 19 years) who received ECT at a tertiary care center and teaching hospital of an Indian metro city between years 2010 and 2014 was collected following an approval from institutional ethics committee. At the hospital where this study was conducted there is a standard operating procedure for administration of modified ECTs to the pediatric and adolescent patients. The decision to administer ECT in this age group is finalized after the independent review of the case by 3 senior psychiatrists. The legal guardian of the patient is given complete information about the need and benefits of the procedure and risks involved in the same and the treatment isundertaken only after obtaining their informed consent. They may also be allowed to witness an ECT if needed to reduce their fears. All routine baseline investigations are ordered and the pre-ECT fitness is reviewed by senior anesthetist. A baseline memory assessment is done in every adolescent patient priorto the ECT which is repeated following the procedure at appropriate intervals. Anesthesia in form of propofol and succinylcholine is administered for peripheral muscle relaxation by a qualified anesthesiologist. After giving 100% oxygen ventilation in all the patients the ECT is administered using brief pulse ECT machine (Medicaid Systems, Chandigarh). Considering the lower seizure threshold in pediatric population the dose of electrical stimulus is kept minimal. At the given institute, the right sided unilateral ECT with current strength six times as much as the seizure threshold is preferred in pediatric and adolescent population considering the better cognitive outcome of this technique over bitemporal and bifrontal ECTs. Vitals monitoring of the patient in form of blood pressure, heart rateand pulse oximetry is done throughout the procedure and continued for 1 hour after it. Side effects or adverse outcomes if any are documented and managed appropriately. Every patient is given 3 ECTs in first week and the frequency is reduced in subsequent weeks to minimize the cognitive side effects. The improvement of the patient is monitored using standardized instruments and the number of treatments given is determined on the basis of the same. The particulars concerning the patient such as demographic profile, history, diagnosis, medications received, number of ECTs given and after effects are recorded during the treatment and these records are duly preserved. In thecurrent study the data was extracted from these ECT records and was entered in the case record forms. Since this aretrospective chart review no patients were interviewed during the course of the study. Seizure duration and seizure strength were not included in the study as the data was unclear in various old records and some data were missing. The data obtained was entered into tabulated excel sheet and then it was systematically analyzed on the basis of descriptive statistics and percentages.

Results

During this study, it was observed that total 12 pediatric patients (age < 12years) and 215 adolescents (13 to19 years) suffering from various psychiatric illnesses received ECT between 2010-2014. Among pediatric patients (n=12), 10 were males. Minimum age who received ECTs was 7. The mean age was 10.35 (SD 1.72). Majority of patients were diagnosed with intellectual impairment with behavior problems (n=5). This was followed by schizophrenia (n=3), major depressive disorder (n=2), bipolar mood disorder (n=1). The main indications for ECT were behavioral problems (n=4) and psychosis (n=4) which were not amenable tomedications. One of the children had catatonic features which improved well after first 6 ECTs. He received 10 ECTs inall. The mean number of ECTs received per patient was 10.3 (SD 3.39). It was noteworthy that 4 of the patients had comorbid seizure disorder and were on regular anticonvulsant medications. Prolonged seizure was however not observed in any of the patients. In the adolescent

age group (n=215), 120 (55.81%) were males. The mean age of patients was 17.06 (SD 1.95). Among these patients most had the diagnosis of schizophrenia (n=133) which was followed by affective disorders (n=54), intellectual impairment with psychosis (n=12), substance induced psychosis (n=9), catatonia (n=4) and delirium (n=1). 110 patients (51.16%) received less than 8 ECTs, 10 patients were either on maintenance ECTs orreceived more than one course of ECT treatment. Maximum number of ECTs given to patient was 65 who had schizophrenia. The mean number of ECTs received per patient in this age group was found to be 10.02 (SD 6.84). One of the patients who had poliomyelitis was given inj. midazolam as succinylcholine was contraindicated in him. 30 patients had comorbid substance consumption (alcohol, benzodiazepines, cannabis, inhalant, opium, tobacco, toluene). Seizure disorder (n=13), intellectual impairment (n=13), hypertension (n=1), juvenile diabetes (n=1), pneumonitis (n=1), poliomyelitis (n=1), extra pulmonary tuberculosis (n=1), anemia (n=1) and Marfan's syndrome were the other comorbidities noted. However, despite these coexisting conditions no serious complications were noted in any of these patients after the completion of the treatment. In both the groups of patients no fatalities were noted during the course of treatment.

Discussion

Our study replicates the findings of a 20 year review of ECT in adolescents which deems ECT to be a safe procedure for adolescent psychiatric patients.[10] In the present study ECT was safely used in pediatric and adolescent age group even in the cases with comorbid neurological conditions such as seizure disorder, poliomyelitis, Marfan's syndrome. Hypertension, diabetes and pneumonitis were among the systemic comorbidities found in these patients. The patients undergoing the procedure often have adverse effects such as headache, confusion, lethargy however these are transient and fully amenable to treatment.[8] Decline in memory was noted in a few adolescent patients (n=5) which was transient and short lived. Although long term follow up of these patients was not the part of this review, studies have failed to find any long term adverse impact of ECT on social functioning or social achievement in pediatric or adolescent patients.[11] No fatalities were observed because of use of ECT in our findings as has been noted in various case studies and reviews. One can thus conclude that ECT is a safe procedure in the given age group. It is known to us from the literature that affective disorder is the most common indication for administering ECT in the pediatric and adolescent age group. The effectiveness of this procedure has been found to be higher in the affective disorders as compared to those in the psychotic spectrum.[12] However this finding contrasts with theobservation in our study where psychotic disorders such as schizophrenia was the most common diagnosis in thepatients receiving ECT. In the pediatric age group, intellectual impairment with behavioral disturbances or psychosiswas the most common reason for the use of ECT. This indicates that ECT is considered by the treating psychiatrists as an effective treatment for treating psychosis and behavioral disturbances. It might as well demonstrate preference pattern of the patients in which patients with affective disorders are less likely to give consent for the procedure ascompared to other patients. One among the 12 pediatric patients who received ECT showed catatonic features. Catatonia which is highly prevalent in psychotic disorders in the pediatric age group is an under-diagnosed condition in these patients which shows a good response to ECT.[13-14] A common belief that ECT might damage the developing brain is not backed by evidence. There are no significant structural or histopathological alterations in brain tissue that have been demonstrated till date due to the useof this procedure.[15] To add to this evidence suggests the neuroprotective role of ECT just like antidepressants.[16] This evidence coupled with the fact that untreated pediatric mental health problems can cause a severe damage to thedeveloping brain,[17] strongly advocate the importance of the use of ECT in this age group for treatment of various disorders.

Irrespective of its multiple advantages and evidence of safety ECT still remains an unpopular treatment modality in the child and adolescent age group. There appear to be several reasons behind this which include poortraining of mental health professionals in the procedure.[7] A sizeable chunk of knowledge about mental health problems of people originates from media. A rather misleading media portrayal of ECT in the films and print media

has been found to make the guardians hesitant about the use of ECT.[17-18] Even in many parts of the world the use of ECT is banned by law. The bill which curtails the use of ECT in minors has been recently approved by Indian parliament aswell.[19] This course of law appears to be maneuvered by prevailing views of psychiatrists who prefer medications, hospitalization, intensive psychotherapy over ECT and not as much based on existing objective evidence regarding its effectiveness and safety.

Conclusions

From the present study, the authors wish to add to the existing sparse database on child and adolescent ECT thereby advocating the safety and effectiveness of the procedure. It is important that psychiatrists are open towards the use of ECT when needed as an effective treatment in children and adolescents.

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Psychomicrobiology

Dengue and Chikunguniya: The psychiatric correlates

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DENGUE VIRAL DISEASE

The prevalence of dengue fever (DF) has risen exponentially around the world in recent years. The tropics and subtropics account for the maximum number of cases.[1] Dengue is caused by infection with any of 4 related viruses of the genus Flavivirus, dengue viruses (DENV) 1, 2, 3, or 4 transmitted by mosquitoes. Infection with one serotype does not protect against the others and consecutive infections with different serotypes put people at greater risk for dengue hemorraghic fever (DHF) and dengue shock syndrome (DSS).[2,3] Prompt recognition and early supportive treatment forms the mainstay of treatment. The most effective protective measures are those that avoid mosquito bites.

Epidemiology

Dengue is caused by infection with any of 4 related positive-sense, single-stranded RNA viruses of the genus *Flavivirus*, dengue viruses (DENV) 1, 2, 3, or 4. The genome contains three structural proteins molecules (C, prM and E) and seven other types of protein molecules (NS1, NS2a, NS2b, NS3, NS4a, NS4b, NS5).[2] It is an arbovirus and transmitted by bite of infected mosquitoes *Aedes aegypti* and *Aedes albopictus* which are found throughout the world.[4] Dengue is endemic throughout the tropics and subtropics and is a leading cause of febrile illness. In India, every year during the period of July-November a surge in cases has been observed. The World Health Organization (WHO) estimates that 50 to 100 million infections occur yearly, including 500,000 DHF cases and 22,000 deaths, mostly among children.[5] Symptoms of infection usually begin 4 - 7 days after the mosquito bite and typically last 3 - 10 days.[6]

Clinical presentation

About 80 % of cases are asymptomatic. Symptomatic cases commonly present as non specific febrile illness. 5 % of cases end up with severe illness, and in a small proportion it is life-threatening.[7] The incubation period varies between 3 to 14 days. The characteristic symptoms of dengue are sudden-onset fever, headache (typically located behind the eyes), muscle and joint pains, and a rash. The alternative name for dengue, "breakbone fever", comes from the associated muscle and joint pains.[7,8] Dengue has 3 phases : febrile, critical, and convalescent. Fever lasts for 2–7 days and can be biphasic. Other signs and symptoms may include macular or maculopapular rash; and minor hemorrhagic manifestations, including petechiae, ecchymosis, purpura, epistaxis, bleeding gums, hematuria, or a positive tourniquet test result. In few cases, during the critical phase there is plasma leakage from the blood vessels resulting in fluid accumulation. There is decreased blood supply to organs resulting in dysfunction.[9] Shock (dengue shock syndrome) and hemorrhage (dengue hemorrhagic fever) occur in less than 5% of all cases of dengue, however those who have previously been infected with other serotypes of dengue virus ("secondary infection") are at an increased risk. The recovery phase is characterised by resorption of fluid into circulation. A desquamating maculopapular rash appears. There can be a state of fluid overload due to resorption of fluid.[10]

Psychiatric manifestations in dengue

A small percentage of people who develop dengue develop neuropsychiatric complications (encephalitis, seizures, meningoencephalitis, encephalopathy, personality disorder, and altered level of consciousness) during and after the disease.[11] Very few case reports of psychiatric disorders in dengue have been reported. Amongst the reported, mania is the most common psychiatric disorder reported.[1,12,13,14] A case report from India reported psychosis in a patient of dengue.[15] In a study done in North India, out of 953 confirmed dengue cases, 110 were diagnosed with identifiable psychiatric symptoms. During acute phase, 90.3% patients had thanatophobia, 80% patients had anxiety and associated symptoms and one fifth patients experienced panic attacks. During the recovery phase of illness, all the psychiatric symptoms reduced in frequency and severity.[16] In another study from North India, a case of late onset mania in a 61 year old male secondary to dengue fever was reported.[1] A case report from Delhi reported a 21-year-old male who after an acute dengue infection, developed an episode of classical mania.[14] The etiology of these neuropsychiatric complications have been reported to be intracranial haemorrhage, cerebral oedema, hyponatremia and cerebral anoxia.[17]

Diagnosis

The diagnosis of dengue is typically made clinically.[7] However, the nonspecific symptoms makes it difficult to distinguish between other infections such as chikunguniya, malaria, viral hemorrhagic fever, Zika fever etc. A probable diagnosis is based on the findings of fever plus two of the following: nausea and vomiting, rash, generalized pains, low white blood cell count, positive tourniquet test, or any warning sign in someone who lives in an endemic area. The tourniquet involves the application of a blood pressure cuff at between the diastolic and systolic pressure for five minutes, followed by the counting of any petechial hemorrhages; a higher number makes a diagnosis of dengue more likely with the cut off being more than 10 to 20 per 1 inch^2 (6.25 cm^2).[8,9] Other findings suggestive of dengue fever are leucopenia, thrombocytopenia and deranged liver function tests. Laboratory confirmation during first 5 days of fever can be done by detecting DENV genomic sequences with RT-PCR or DENV non-structural protein 1 (NS1) antigen by immunoassay. Later in the illness (e"4 days after fever onset), IgM anti-DENV can be detected with ELISA.[18,8]

Treatment

The main modality of treatment is maintenance of adequate hydration and symptomatic treatment. Patients must avoid aspirin (acetylsalicylic acid) because of their anticoagulant properties. acetaminophen should be given for controlling fever. Febrile patients should avoid mosquito bites to reduce risk of further transmission. For those who develop severe dengue, close observation and frequent monitoring in an intensive care unit setting may be required. Prophylactic platelet transfusions in dengue patients are not beneficial and may contribute to fluid overload.[9]

CHIKUNGUNIYA

Chikungunya fever is caused by Chikungunya virus which is an arbovirus and it belongs to the Alphavirus genus of the Togaviridae family. It is transmitted to humans by Aedesaegyptimosquito.[19,20] CHIKV often causes large outbreaks in areas where the virus is circulating. The symptoms are mostly nonspecific such as fever, headache and rash. A very intense arthralgia occurs that can remain for a long period after the acute phase of the disease. However, recently, psychiatric symptoms have been described in patients with chikungunya fever.

Epidemiology

Chikungunya virus (CHIKV), is a positive-sense single-stranded RNA virus of genus *alphavirus* of the *Togaviridae* family. The virus is transmitted from human to human by the bites of *Aedes aegypti* and *Aedes albopictus* mosquitoes.[19] Chikungunya occurs in Africa, India and Southeast Asia. It is primarily found in urban /peri-urban areas.

Clinical manifestations

Chikunguniya is transmitted by the bite of Aedes mosquitoes. The incubation period ranges from 3 to 7 days. Only 3-28% of cases remain asymptomatic and rest develop symptoms. Common symptoms include sudden onset with high fever, joint

pain, and maculopapaular rash. Fever is biphasic and lasts upto a week. Fever is followed by joint pains and stiffness. Arthralgia is severe and debilitating often resulting in immobility. Usually multiple joints are involved and are bilateral and symmetrical. the pain usually persists for weeks to months. The rash is maculopapular in nature and affects trunk and extremities.[21]

Psychiatric manifestations in chikunguniya

Chikunguniya is characterised by high grade fever and severe joint pains. It can have serious neurological complications such as encephalopathy, neuropathy, myelopathy etc.[22] Psychiatric complications are rare but there have been some case reports in the literature. A study showed 57% of patients of chikunguniya fever showed psychological symptoms.[23] In another study done in confirmed cases of chikunguniya, 25% patients were diagnosed with depressive disorder, 15% patients had Generalized Anxiety Disorder (GAD), 10% patients GAD with Panic attacks, 5% patients phobic disorder (claustrophobia), 15% patients Somatoform Disorder and 15% Neurasthenia (Fatigue Syndrome).[22] In a study from Brazil, twenty patients without previous history of psychiatric disease suffered alterations in their mood and anxiety during the acute phase of CHIKV infection that lasted for up to one year after the onset of the disease. They presented more anxiety, depressive and hopelessness symptoms than members of the control group.[24] These studies clearly show patients of chikunguniya also suffer from psychiatric complications along with other well studies complications.

Diagnosis

The diagnosis of chikunguniya is made on the basis of clinical symptoms and epidemiological criteria. A history of fever with severe joint pain would lead to a strong suspicion of chikungunya. Epidemiological criteria consist of whether the individual has travelled to and endemic area. However, the diagnosis can be confused with other mosquito-borne diseases such as dengue and malaria. The laboratory findings include decreased platelet count, decreased lymphocyte counts and abnormal liver function tests.[25,26] Serological tests such as chikunguniya specific IgM Elisa can be done. They are detected usually 5 days after the onset of fever. Other tests that can be done are RT PCR and viral isolation.[26]

Treatment

Currently, no specific treatment for chikungunya is available. Supportive care is the mainstay of treatment as no specific tretamnet is available. It includes symptomatic treatment of fever and joint swelling by the use of nonsteroidal anti-inflammatory drugssuch as naproxen, non-aspirin analgesics such as paracetamol (acetaminophen) and fluids. Aspirin is not recommended due to the increased risk of bleeding.[27,28]

Conclusion

Dengue and chikunguniya are the emerging infectious diseases in many parts of the world. Every year millions of people are affected by these deadly disease allover. Due to the nonspecific nature of the symptoms an early diagnosis is difficult to make. With increasing number of case reports, the psychiatric complications can no longer be ignored. The psychiatric manifestations need attention as they tend to get neglected. Timely recognition and treatment can help these individuals to recover quickly and effectively.

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Psychophysiotherapy

Physical Therapy Interventions in Autism Spectrum Disorders

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Introduction

Autism spectrum disorder (ASD), as an umbrella term, refers to a range of life long neurodevelopmental disorders that include the diagnoses of Autism, Asperger syndrome, and Pervasive developmental disorder not otherwise specified (PDD-NOS).[1] ASD is mainly characterised by impairments in social interaction, verbal and non-verbal communication, and a restricted repertoire of activities and interests.[2,3] In addition to these characteristics, individuals with ASD may also experience delays or deficits in the development of motor behaviours and difficulties with balance, postural stability, gait, joint flexibility, movement and speed.[4] Current estimates indicate that more than 80% of children with ASD exhibit co-occurring sensory processing problems and hyper- or hypo-reactivity to sensory input is now a diagnostic criterion for ASD in the DSM-5.[5] Diagnostic manuals like ICD10 and DSM5 consider ASD indicators to be present by the age of 36 months.[1,6,7] Presenting symptoms depends upon the severity of the ASD, and the intellectual abilities of the child and the presence of co-occurring diagnoses, such as ADHD, motor co-ordination difficulties, specific learning difficulties (e.g. dyslexia), or atypical sensory perceptions.[8] Behaviours of this group are self stimulatory, stereotyped, persist for long periods of time, and appear autonomous from social reinforcement.[9,10] Intellectual disability is present in a large proportion of individuals.[11] The prevalence of ASD is constantly rising and estimated as 1 in 88 with male to female ratio of 4:1.[3,12,14] Autism is now recognized as the most common neurological disorder affecting children and one of the most common developmental disabilities; ASD is more prevalent in the paediatric population than cancer, diabetes, spina bifida, or Down syndrome.[13]

Clinical features

Clinical characteristics of ASD make 'triad of impairments'[1,7] with the behaviours being discrepant from the individual's mental age and onset during early childhood.[2,11,14] These are :

1. Impairment in social functioning – impaired, delayed or atypical social development, cognitive problems such as difficulties in understanding other people, thinking flexibly or planning ahead, difficulty with the eye contact and understanding of gestures; difficulty in sharing interests; narrow and intense interests.
2. Impairments in language and communication – impaired and deviant language and communication, difficulties with, or no, verbal language; echolalia (i.e., repetition of words spoken to them); delayed development of receptive and expressive language.
3. Impairments in thoughts and behaviour – rigidity of thought and presence of repetitive behaviour or restricted repertoire of activities called as stereotypic behaviour, and includes self stimulatory behaviours like repetitive movements, rocking, twirling, or spinning objects or self, gazing at lights that persists for long periods of time and appears

autonomous from social reinforcement, and impoverished social imagination.[15,16]

In addition to these, Children and young people in autism spectrum face many other problems like physical and motor impairments, sensory processing problems including hypersensitivity or aversion to bright lights, loud noises or strong smells, functional difficulties and psychological problems[16] — such as anxiety, depression and convulsions on a day to day basis which are specifically addressed by physical therapy.

Physical and Mental Impairments in Autism

Children with ASD often achieve early gross motor milestones (sitting and walking) within normal timelines, but tend to fall behind their peer groups in achieving more refined and sophisticated gross motor skills. Skills, such as handling a ball (rolling, catching, throwing, targeting, dribbling), bike riding and hopping are more difficult for these children[1]. They sometimes have low endurance and/or strength; therefore, they get tired quickly with physical activity and have a difficult time keeping up with the activities of their peers.[1]

The definition of ASD highlights the conventional clinical focus on the social, communicative and behavioral elements, with little regard to physical involvement.[14] Previous reports specifically suggest that many children with ASD demonstrate postural,[17] motor,[18] and functional delays[19] involving atypical and delayed motor mile- stones achievements such as asymmetry, oral-motor problems, repetitive motor movements, dyspraxia,[19] motor coordination,[20] movement preparation reaction, and motor milestone delays.[18] Recent studies found various motor aspects to be lacking in children with ASD, including hypotonia (51%), motor apraxia (34%), toe-walking (19%), and gross motor delays (9%).[21] Motor deficits which are mostly overlooked might escalate with progressive age,[22] regress into a set of chronic disorders, and could become increasingly pervasive with age.[23]

Children with ASD also exhibit co-occurring sensory processing problems like hyper- or hypo reactivity to sensory input. Children exhibiting sensory hyper reactivity may respond negatively to common sensory stimuli, including sounds, touch or movement. Their responses reflect lower arousals (self calm); hypo reactive children appear non-responsive to sensory stimuli and seek intense stimulation to increase their arousal that may manifest as restricted, repetitive patterns of behaviour (sensory seeking). Sensory processing problems in ASD are believed to be an underlying factor related to behavioural and/or functional performance problems.[5]

Moreover, it has been suggested that decreased physical activity, unusual dietary patterns and the use of antipsychotic prescription drugs can lead to weight gain in patients with autism.[24] This can put them at increased risk for numerous health problems, both in childhood and as adults, including diabetes, cardiovascular disease, bone and joint problems, and some highly co-morbid conditions such as gastrointestinal problems as well as depression and anxiety.[24]

In addition to physical problems, autistic children also suffers from psychological problems including depression, anxiety, convulsions, social isolations leading to poor physical health and significant psychiatric, social, and cognitive disability. Psychological problems like limited motor functioning, low motivation, difficulty in planning, anxiety, depression and difficulty in self-monitoring challenges physical activity participation. Increased auditory, visual, and tactile stimuli may too prove challenging for affected individuals.

As a result, specific skill training programmes to overcome these symptoms are necessary. These skills will impact a child's overall participation in community activities, These areas are improved using various techniques, strategies and practices during each session.[14]

Physiological Basis for Physical Therapy Treatment in ASD

Exercise programmes are used as interventions for a variety of developmental and psychiatric disorders,[26] with overall positive effects on reducing atypical behaviours.[27] Physical therapy has the potential to improve the quality of life of autistic people through two routes — by improving physical health and by alleviating psychological and social disability. It can help a child with autism learn a variety of age-appropriate motor skills, gain strength and endurance and improve balance and coordination. Specific goal oriented physical therapy training helps in developing skills which impact a

child's overall participation in community activities, and their ability to interact positively with their peers will affect their overall development.[14]

There is speculation that aerobic exercise physiologically modulates stereotypic behaviours of autism through the release of specific neurotransmitters[26] and such speculation has generated interest in the application of physical exercise as an intervention for stereotypic behaviours of autism.[28] Others have suggested that increased amounts of physical exertion and the resulting fatigue lead to decreases in stereotypical behaviours like rocking, spinning objects or self and gazing at lights.[1]

Exercise improves psychological behaviour by reducing anxiety, depression, and negative mood and by improving self-esteem, cognitive functions and alleviating symptoms such as social withdrawal. Even though exercise itself might act as a stressor, it has been demonstrated that it reduces the harmful effects of other stressors when performed at moderate intensities. Mechanisms involved are release of neurotransmitters, neurogenesis, and cerebral blood flow alteration.[21]

Aerobic exercises, including jogging, swimming, cycling, walking and dancing, have been proved to reduce anxiety and depression. These improvements in mood are proposed to be caused by exercise-induced increase in blood circulation to the brain and by an influence on the hypothalamic-pituitary-adrenal axis and, thus, on the physiologic reactivity to stress.[16] Hypothalamic-pituitary-adrenal axis communicates with several regions of the brain, including the limbic system, which controls motivation and mood; the amygdala, which generates fear in response to stress; and the hippocampus, which plays an important part in memory formation as well as in mood motivation.[10]

Therefore, early intervention programs applied from the first few months of life are crucial for this group. If implemented appropriately, the addition of physical activity to an autism intervention program can help overcome many of these challenges and improve one's overall quality of life.[14]

Establishing Physical Therapy Intervention Layout

Physical therapy services aims at improving children's participation and reducing their developmental and functional obstacles, in order to enable them to be included in their respective peer groups. Strategies are incorporated for movement initiation, achieving developmental goals and reducing anxiety and encouraging self-regulation which facilitates motor learning. The intervention program is focused on following physical and psychological goals:

Physical goals

(a) Facilitate acquisition of lacking motor abilities in static as well as dynamic situations.
(b) Facilitate acquisition of skills that enhance independent functioning in the peer group, family, and society.
(c) Reduce the physical constraints presented by ASD.

Psychological goals

(a) elevating mood, easing stress thereby promoting wellbeing.
(b) Raising self esteem and confidence.
(c) Motivating the patients and promoting self management.
(d) Reducing social isolation.
(e) Reducing depression, anxiety.
(f) Improving quality of life.

Intervention Program

It is divided into 2 sessions: Individualized therapeutic sessions and Group therapeutic sessions

A. Individualized therapeutic sessions

The individualized interventions are designed to meet the specific needs of each individual with ASD, by organizing the treatment and its parts in a manner that reduces anxiety and encourages self-regulation (such as sensory-motor regulation), which facilitates motor learning. The program meets these goals through:

- Teaching tools that assist the child in planning and organizing within his peer group, his family, and his society.
- Encouraging function-oriented movement rather than stereotypic movement.
- Teaching tools that assist the child cope with spatial orientation issues.
- Treating motor impairments like
  - muscle imbalances, tightness, contractures and deformities, Addressing malalignments in the musculoskeletal system such as chest wall deformities, and foot and ankle

misalignments
- Balance and coordination
- Muscle strength and flexibility
- Developing fitness programs for children with autism;
- Improving gross motor skills and functional Mobility/Motor Planning
- Strengthening – building muscle for support and endurance
- Improving posture and gait in various daily situations.
- Improving movement patterns in different surroundings

- Improving functional independence in daily situations.
- Improving cardio-vascular endurance and improving respiratory control
- Ergonomic adaptation of the child's surroundings.
- Adaptation of assistive devices to reduce spatial insecurity and enhance spatial organization.
- Enhancement of educational and attentive abilities through sensory integration therapies (using sensory suits, weighted vests, trampolines).
- Improving sleep - sleep disorders are common in patients. Exercise can help them get into normal sleep routine.
- Advice on weight management.

The therapy session comprises a series of activities, beginning with activities of a more passive nature (sensory orgnizing, tone changing), proceeding to assisted active participation (arranging the room), and to a more active part of the session at a higher level of engagement (align ment, muscle strengthening, performing new functional tasks), ending within a functional context and a fixed, structured closing ceremony.

B. Group therapeutic sessions

Group sessions are conducted according to the specific needs of children, according to their performance level and the behavioural challenges they present. Group interventions:

(a) Enhances the child's motivation for movement through peer observation and imitation.
(b) Assist autistic children in meeting basic demands of interaction with peers (taking turns, patience, acceptance and acknowledgement of the needs and pace of others).
(c) Assist child in acquiring imitational skills which comprises a crucial part in learning and social acceptance and integration for all children.
(d) Challenging the child to typical performance within regular daily surroundings such as playground.

Intervention Programs for ASD

Chanias et al. conducted a meta-analysis to determine the effects of exercise on the physical fitness of individuals with intellectual disability and found improvements in muscular and cardiovascular endurance, strength and flexibility.[29] Folkins and Sime reviewed studies involving physical fitness and mental health for both disabled and non-disabled populations, and reported general psychological improvement for children with intellectual disabilities.[30] Intervention programs for ASD are divided into motor interventions, sensory interventions, cognitive interventions, psychological and occupational therapy interventions.

1. Motor interventions for individuals with ASD

All these exercises improves bone structure and strength, muscle flexibility, joint range of motion, heart and lung efficiency, muscle strength and endurance. It also improves the sense of well being, reduces anxiety, assists in weight control, reduces risk of several chronic diseases (e.g. high blood pressure, osteoporosis). Exercises include:

- **Arm Cycling**

This activity simulates bicycling but is done with the arms instead of the legs. Participants may use stationary indoor equipment called "erogmeters" or specially designed arm-driven cycles for outdoor cycling. When cycling outdoors, wearing a helmet is recommended.

- **Chair Aerobics**

This exercise combines upper body movements and stretches designed to increase flexibility and cardiovascular endurance. These are performed in a seated position; usually done to music.

- **Dancing**

This exercise is done to music so the tempo of

the music determines the speed of movement and the intensity. A specific heart rate zone should be predetermined. Correct body alignment, breathing intensity and range of motion must be carefully considered.

- **Exercise Bands**

This involves the use of various resistance level elastic thera bands for resistance training and stretching. All stretching should be slow. Precaution should be taken not to release the band when it is in a stretched position.

- **Jogging**

The act of fast walking or running at a steady pace - can be done inside in place, on a treadmill, or on a track; it can also be done outdoors.

- **Leg Cycling**

This activity is on a mobile vehicle (2 or 3 wheel) or on stationary equipment. Indoor equipment often has mechanical or electronic programs for controlling resistance. When leg cycling outdoors, wearing a helmet is recommended.

- **Rowing**

Rowing is a total body exercise in a seated position using stationary equipment. It involves repetitive pulling by both arms against a resistance, coordinated with straightening and bending of both legs.

- **Walking and Stair Climbing**

Vigorous walking is a convenient exercise that can be done anywhere with or without an assistance .stair climbing can be done on specific exercise equipment which simulates stair climbing or on actual stairs.

- **Swimming and water exercises**

Water should be 80° F. Focus exercise on one area at a time with repeated motions, gradually increasing speed and duration. Devices like aquavest, weights, Styrofoam dumbbells/exercise equipment, special gloves, etc should be used. Water resistance is less intense and can produce the same cardio-vascular effect as exercise on land.

- **Weights Training**

This exercise can involve the use of free weights or exercise machines that provide resistance. Load increases strength; repetition increases endurance. The level of resistance and the number of repetitions of each exercise can be varied to produce the desired results.

Evidence based benefits of motor interventions

The benefits of exercise in typical populations have been well documented in the literature[26]. Gabler-Halle et al review focused on the effects of aerobic exercise on psychological variables and found various degrees of relationships between increased aerobic exercise and positive changes in intellectual functioning, behaviour, and self-concept.[37]

Further studies have reported

- The most common behavioral improvement associated with exercise was reduced stereo-typy or self-stimulatory behavior, which was reported in many studies[31,33,34]
- Reduced aggression[31]
- Reduced self-injury[34]
- Reduced classroom disruptive behaviours[33]
- Improvement in physical fitness associated with increases in exercise (e.g., improved endurance, strength, flexibility, and aerobic fitness)[32,36]
- Improvements in academics.

This included:

- ➢ Increased amount of time spent with academics (on-task behavior)[.35,38]
- ➢ Increased responses to academic demands and questions.[38]
- ➢ Increased correctness or accuracy to academic demands.[38]

- Improvements in vocabulary following exercise and number of aggressive episodes decreased.[32]

Some of the studies including above exercise behaviours and their outcomes are summarized in table 1.

2. Sensory interventions

As explained earlier, children with ASD also exhibit hyper- or hyporeactivity to sensory input and respond negatively to common sensory stimuli, including sounds, touch or movement. Hyperactive children reflect lower arousals (self calm) including

Table-1: summarizing various exercise behaviours and their outcomes.

Citations	Exercise behaviours	Outcomes
Allison[31]	Jog for 20 min on an outdoor track	Number of aggressive episodes decreased
Best J.F. & Jones[32]	Swim and water aerobics for 30 min.	Improvements in gross-motor behavior while in the water were reported.
Celiberti[33] Elliot[34]	Jog for 6 min on the lawn in front of school	Stereotypy decreased from 60% in baseline To 40% following exercise
Reid[35]	Jog for 20 min on a treadmill and slowly riding a stationary bike.	Maladaptive behavior (aggression, self-injury, property destruction) and stereotypy (e.g., body rocking) was significantly less following exercise
	Muscle toning and stretchingtechniques including, arm circles, toe touches, leg bicycling, and sit-ups.	On-task behavior improved, off-task behavior decreased, self-stimulation decreased, inappropriate vocalizations decreased
Yilmaz[36]	Swim and engage in a variety of movements within the water.	Improvements in flexibility, strength, and balance were reported, stereotypy (swinging, and spinning) decreased immediately following swim sessions

distress, avoidance, and hypervigilance[39] Children who are hyporeactive appear nonresponsive to sensory stimuli [40] and seek intense stimulation to increase their arousal that may manifest as restricted, repetitive patterns of behaviour (sensory seeking). Sensory processing problems in ASD are believed to be an underlying factor related to behavioural and/or functional performance problems therefore interventions that use sensory modalities to support self-regulation, promote optimal arousal, improve behavioural organization, and lower over reactivity are often recommended.

Sensory interventions can be differentiated as:[5]

i. Sensory Integration Therapy (SIT), a clinic-based, child-centred intervention originally developed by Ayres[41] that provides play-based activities with enhanced sensation to elicit and reinforce the child adaptive responses. The goal of SIT is to increase the child's ability to integrate sensory information, using gross motor activities that stimulate the vestibular and somato sensory systems thereby demonstrating more organized and adaptive behaviours, including increased joint attention, social skill, motor planning, and perceptual skill.[42] Traditional SIT is provided in a clinic with specially designed equipment (e.g. swings, therapy balls, inner tubes, trampolines, and climbing walls) that can provide vestibular and proprioceptive challenges embedded in playful, goal-directed activities.

ii. Sensory-Based Interventions (SBI)[5], are adult-directed sensory modalities, require less engagement of the child and are intended to fit into the child's daily routine. SBIs activate somatosensory and vestibular systems and are believed to promote behavioral regulation. Techniques include brushing, massage, swinging, bouncing on a therapy ball, or wearing a vest

Both SIT and SBI interventions are based on the hypothesis that the efficiency with which the child's nervous system interprets and uses sensory information can be enhanced through systematic application of sensation to promote change in arousal state.[43] They are based on neuroscience models[44] and clinical observations supporting that certain types of sensory input, for example, deep touch and rocking, are calming and organizing, and that rhythmic application of touch (e.g. brushing) or vestibular sensation (e.g. linear swinging) has an organizing effect that promotes self-regulation.[45]

3. Cognitive remediation therapy[47]

The cognitive remediation (CR) is a new treatment is to improve cognitive function, coping and compensation abilities and as a matter of fact, psychosocial function. This program is implemented on an individual basis, using mainly paper and pencil tasks. Tasks of progressive complexity are given at the subject's own pace. Support is provided where learner cannot accomplish, while assistance is removed where competence has been achieved.[47]

CRT comprises three modules, delivered in the following order: cognitive flexibility, memory and planning

(a) The cognitive flexibility module targets to approach flexibility in thinking and information maintenance, The mission is to push the patient to pay attention to every stimuli, to request the subject to recognize what the present set is and to show the subject if their performance speed is suitable. Suggested tasks include bisecting lines, manipulation of shapes, numbers and letters, Card Games; Sorting of coins, Chip sorting; manual exercises.

(b) The working memory module emphasizes on variables like sequencing, attention, multitasking, and delayed visual and verbal memory information.[48] Suggested tasks: Multiple visual search, Copying symbols, Delayed Answers, Sequential search; Sequence of tokens, etc.

(c) Planning Module aims goal-oriented, self-ordered, manipulation and formation, meaning the implementation of the practiced processes.[48] Suggested tasks: Divided attention, Serial Search, Sequencing, Construction of cubic, Verbal Analogies, Understanding Superposed Figures, etc.

4. Psychological therapy

Psychological treatment is recommended to all children with ASD for improving unusual levels of fear, stress, or anxiety; difficulty in socialising and unusual behaviours. Psychologists use a range of techniques including behavioural strategies, skills training, and emotional regulation to help children with ASD cope better in their everyday lives. Psychologists:

- use behavioural interventions to reduce specific behaviours that are undesirable while simultaneously promoting new behaviours and skills that are desirable;
- provide social skill development using behavioural strategies such as role-plays, and social stories to improve interaction and communication skills including making eye contact, using appropriate greetings, developing listening and turn-taking skills.
- develop children's awareness of their difficulties and emotions and to increase understanding of social cues and conventional behaviour.
- work with parents, other carers, and professionals such as teachers to provide them with strategies to assist the child function better in the home, school, and other environments.
- work with children who have ASD, as well as with their families and other carers, to teach them how ASD-related anxiety can be monitored and reduced.
- Assist children throughout development, as children with ASD often experience difficulties with transitions such the first year of school or entry into adolescence.

5. Occupational therapy

Occupational therapists can assist children with difficulties in play, managing transitions, self-care, or school-work tasks such as concentrating and writing, or has sensory and coordination difficulties. Occupational therapists specialise in enhancing children's development and skill acquisition and, when necessary, designing support programs that allow children to use their skills and strengths optimally. Occupational therapy sessions for a young child might involve:

- Developing play skills that include social interaction, sharing, and taking turns.
- Modelling and support for parents who are learning to interact and play with their child.
- Teaching self-care activities like toileting, bathing, and feeding; engaging in activities to improve the child's fine and gross motor skills.

Conclusion

Various physical therapy interventions including motor interventions, sensory interventions, cognitive rehabilitation therapy have been proved effective in improvements in stereotypic or self stimulatory behaviours, reduced aggression or self injuries, improvements in academics, improved physical fitness (e.g., increased endurance or strength), or increased exercise behaviour (e.g., spent more time engaged in exercise). Also, various physical exercises helps in managing anxiety levels and improving depression in children with ASD. In

addition, sensory interventions therapy for children with ASD demonstrates positive effects on the child's various atypical behaviours.

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Psychophysiotherapy

Role of Physiotherapy in improving Psychosomatic Health of Elderly

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Introduction

India is in a phase of demographic transition. As per the 1991 census, the population of the elderly in India was 57 million as compared to 20 million in 1951.There has been a sharp increase in the number of elderly persons[1]with nearly 104 million elderly persons (aged 60 years or above) in India as per the 2011 census. The global demographic trend tells us that the proportion of older persons in the population of a country has increased. Due to economic well-being, better healthcare system, good medicines, etc. there is substantial reduction in mortality in the society along with the increase in proportion of elderly[2]. However, as average life expectancy continues to increase and the proportions of general population over age 65, over75, and 85 grow rapidly, all statistics indicate an increasing prevalence of diseases, disability, and depression[3] along with profound social, economic and political implications for a country.[2]

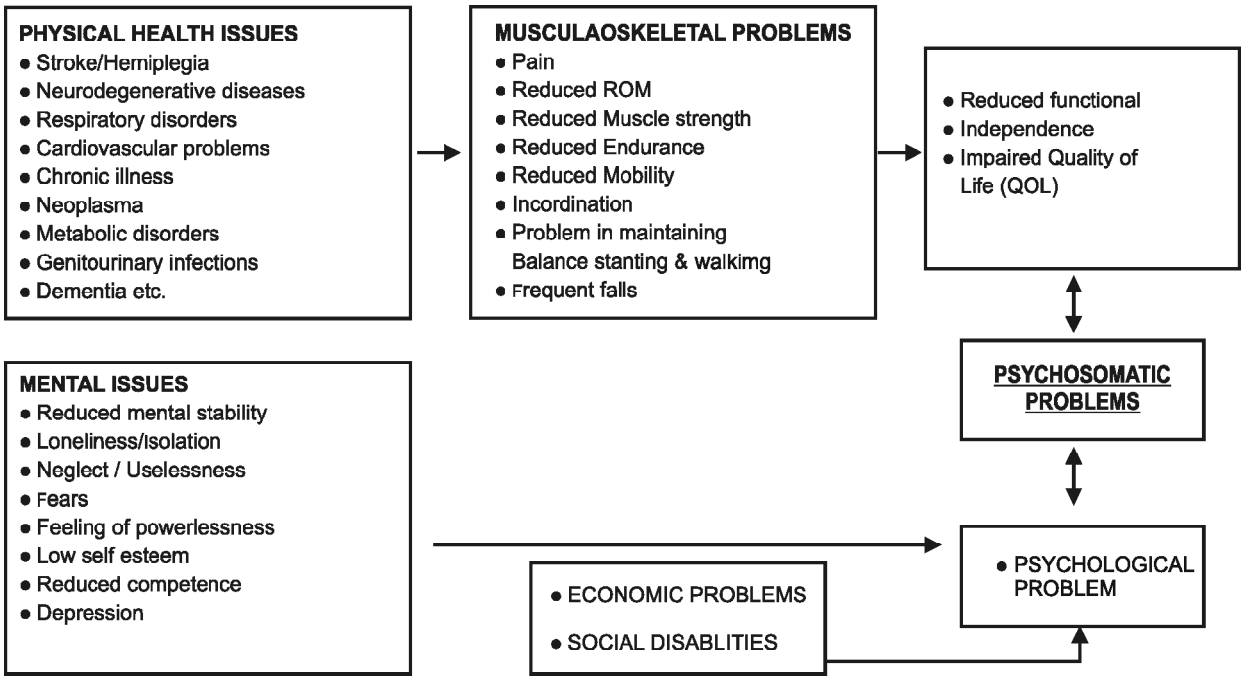
Problems of the Elderly

The rapid urbanization and societal modernization has brought in its wake a breakdown in family values and the framework of family support, economic insecurity, social isolation, and elderly abuse leading to a host of psychological illnesses.[4] Elderly people are highly prone to mental morbidities due to ageing of the brain, problems associated with physical health, cerebral pathology and various socio-economic factors.[5] The socio-economic problems of the elderly are aggravated by factors such as the lack of social security and inadequate facilities for health care, rehabilitation, and recreation. Also, in most of the developing countries, pension and social security is restricted to those who have worked in the public sector or the organized sector of industry.[6]

Elderly people may suffer from dual health problems, both communicable as well as non-communicable diseases compounded by impairment of special sensory functions like vision and hearing. They are also prone to various mental problems. The chronic illnesses usually include hypertension, coronary heart disease, and cancer. According to Government of India statistics, cardiovascular disorders account for one-third of elderly mortality. Respiratory disorders account for 10% mortality while infections including tuberculosis account for another 10%. Neoplasm accounts for 6% and accidents, poisoning, and violence constitute less than 4% of elderly mortality with more or less similar rates for nutritional, metabolic, gastrointestinal, and genito-urinary infections.[1]

Social and economic insecurity like poverty and associated conditions of unemployment, low educational level, deprivation and homelessness are all strong markers for mental illness. In addition, older people are more likely to experience events such as bereavement, a drop in socioeconomic status with retirement, change of environment, like moving into assisted living, illness or loss of a loved one, or alcohol or substance abuse.[3] The mental disorders that are frequently encountered include dementia and mood disorders. Other disorders include neurotic and personality disorders, drug and alcohol abuse, delirium, and mental psychosis.[5] All of these factors can result in isolation, loss of independence, loneliness and psychological distress in older people.[3]

Psychological problems in elderly are Dementia, Delirium, Paranoid disorders, Hypochondriasis, Anxiety disorders, Depression etc. The general



classification for old age mental disorders from Roth (1955) and in Slater and Roth (1969) Clinical Psychiatry, Chapter 10, divided psychiatric features into five categories: 1. Affective Disorder 2. Late paraphrenia 3. Acute or sub-acute delirious state 4. Senile dementia 5. Arteriosclerotic psychosis.

Depression decreases an individual's quality of life and increases dependence on others. People with depression suffer from impairment of all major areas of functioning, for instance, personal care, family responsibilities, social and occupational capabilities. Elderly people tend to be less healthy physically, and are more socially withdrawn. They are less satisfied with the manner in which they handle their problems and social life[7]. Geriatric population with depression are at a higher risk for chronic diseases like coronary heart disease (CHD), cancer, diabetes mellitus and hypertension[8].

How Mental problems in Elderly are unique

Depressive symptomatology in the older adult is unique. Older adults report more somatic or physical symptoms rather than depressed mood, which is the most prominent feature of depression in younger persons. Older adults are likely to accept their "unhappiness" and direct inquiry about their mood may lead only to such replies as "No, I have nothing to be depressed about." Apathy and withdrawal are common, feelings of guilt are less common, loss of self-esteem is prominent, inability to concentrate, with resulting memory impairment and other cognitive dysfunction is common[9]. It is also observed that the elderly are more involved in the stigma related to depression.[10,11] It is therefore likely that the elders declare less frequently than nonelderly people even when they are suffering, compared with young adults, older patients tend to present less emotional symptoms of depression, such as sadness, worthlessness/guilt, worry, and fear, and are less accurate at identifying depressive symptoms overall[12].Problems faced while treating elderly include lack of comprehension among elderly, lack of confidence, disorientation, reduced energy levels, dizziness, fear of walking etc. Therefore, evaluation and treatment principles should be subjective as per the patient's condition.

Role of Physiotherapy

Increasing evidence suggests that physical activity can prevent some aspects of mental illness in older people such as depression, dementia and Alzheimer's disease[13]. Exercise has been studied as an alternative treatment for depression and has an influence on psychological well-being among older people. Cross-sectional studies among older people show that a higher level of physical activity is associated with a lower prevalence of depressive symptoms[14], and that it is positively related to mental

health and well-being.

Physiological effects

Helmich et al concluded that there is growing evidence that exercise can be used as a preventive and rehabilitative intervention in the treatment of depressive disorders. Exercise has been supposed to acting on depression with a variety of neuro-biological effects, such as increase of endorphin and monoamine levels or reduction in the levels of cortisol in the brain.[15] Exercise induces physiological changes that make it a potentially powerful agent for use as a therapeutic method of intervention in many health disorders such as diabetes, stroke, certain cancers, coronary heart disease and/or obesity. It seems that neurobiological health and functioning depends on the physical activity level of each person. The observed behavioural and biological influence of exercise training on depressive disorders suggests that it induces the same neurobiological alterations as antidepressant drug treatment by elevating the levels of serotonin, increasing central nor-epinephrine neurotrans-mission, altering the hypothalamic adrenocortical system and raising endorphin concentrations. Furthermore, exercise stimulates the growth of new nerve cells and the induction of the release of proteins and peptides that improve the health and survival of nerve cells like BDNF, VEGF, IGF-1 and VGF[15].Therefore, exercise has been shown to improve subjective quality of life in physical domains in depressed patients,[16,17] with higher doses of physical activity associated with larger improvements both in mental and physical domains of QOL. According to World Confederation for Physical Therapy (WCPT),[18] older adults engaged in regular physical activity demonstrate improved balance, strength, coordination and motor control, flexibility, endurance. As a result, physical activity can reduce the risk of falls – a major cause of disability among older people. Regular exercise in older adults has many positive effects on cardiovascular health, including increasing cardiac output, maximum heart rate, endurance, and arterial blood flow, and decreasing heart rate, blood pressure, and risk of heart disease.[11] One study found that after eight months of regular training, a group of 85 year old had increased walking speed and increased maximal oxygen uptake and decreased blood pressure. This resulted in reduced health risk and improved independence.[19] Physical activity has been shown to improve mental health and cognitive function in older adults and contributes to the management of disorders, such as depression and anxiety. Active lifestyles often provide older persons with regular occasions to make new friendships, maintain social networks, and interact with other people of all ages.[20] Research has indicated that increased levels of physical activity reduces the risk of Alzheimer's disease. Exercise, along with cognitively stimulating activities, can reduce some of the symptoms of the disease.[21] The goals in treating depression and other mental problems in elderly persons include resolution of symptoms, prevention of relapse and recurrence, and improvement of functional capacity. Because elderly persons often overuse health services before their illness is recognized; early recognition and timely treatment becomes a necessary element of the management of mental problems. Treatment depends on severity and duration of symptoms, chances of relapse, and associated co-morbidities. For sub-threshold symptoms and mild to moderate depression, psychological interventions including cognitive behaviour therapy, interpersonal therapy should be preferred. Antidepressant drugs need to be considered if symptoms are moderate to severe and/or high intensity psychological interventions are not effective. Elderly persons are more prone to side effects of antidepressant drugs even at lower doses; a careful monitoring and motivation is often needed while treating these patients with antidepressants. Electroconvulsive therapy is particularly useful where depression is life threatening or in response to multiple drug therapy and psychological interventions is inadequate. In addition, regular counselling, guided self-help, physical exercise programs, management of sleep patterns, relaxation techniques and vitamin B based supplements should be considered throughout the course of disease. Participation in regular exercise programmes lead to older adults having higher levels of functional capabilities, greater indepen-dence, and improved quality of life[22]. Elderly adults can, with an appropriate exercise programme, be helped to achieve levels of activity that will bring health benefits, and the decline in overall function that might normally be expected with age can be substantially retarded.[10] Mura et al[12] carried out a systemic review

on physical activity in depressed elderly and concluded physical activity combined with antidepressants in depressed patients resistant to antidepressant drugs therapy should be regarded with attention, considering the low cost, the benefits on global health, and the acceptable risk on old patients. Following is the list of researches they included for the study.

Goals and Aims

- Improve physical functioning
- Improve mental stability
- Maximum possible restoration of physical independence
- Maximum possible restoration of mental wellness
- Improve Quality of Life

Exercise prescription for Elderly

- Stretching and ROM exercises for maintaining muscle flexibility
- Strengthening exercises/ Resistance training
- Use of PNF techniques for Muscle Re-education
- Aerobic exercises
- Hydrotherapy
- Relaxation techniques
- Group exercises
- Balance training
- Walking/ Jogging
- Use of assistive devices
- Gait training

As pain is one of the chief complaints in elderly, various Electrotherapeutic modalities like TENS, IFT, US etc can also be prescribed for the same.

WHO Recommendations for older adults more than 65 years and above age group

The recommendations in order to improve cardio respiratory and muscular fitness, bone and functional health, reduce the risk of NCDs, depression and cognitive decline are:

1. Older adults should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity.
2. Aerobic activity should be performed in bouts of at least 10 minutes duration.
3. For additional health benefits, older adults should increase their moderate intensity aerobic physical activity to 300 minutes per week, or engage in 150 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity activity.
4. Older adults, with poor mobility, should perform physical activity to enhance balance and prevent falls on 3 or more days per week.
5. Muscle-strengthening activities, involving major muscle groups, should be done on 2 or more days a week.

Conclusion

As mental and physical problems of the elderly can be improved with the help of various physiotherapeutic principles, awareness among elderly should be created along with regular training programs and research on preventive and promotional aspects of mental health. The burden of depression among the geriatric population of developing countries should be addressed as a priority, before it becomes a public health menace.

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Commentary

Demonitisation and Resilience of Indian society for change

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Demonitisation, withdrawing the usage of Rs 500 and Rs 1000 currency notes from the circulation was brought into action from 9th November (midnight 8th November) subsequent to Prime Minister's announcement in India. The change was experienced by all the citizens living in India as well as those Indians living abroad. The new reform measure helped in a drive against corruption and making India digital. A few case illustrations are cited as examples of vulnerable /predisposed individuals. Efforts by mental health professionals should be to make public resilient so that the inconveniences experienced at short term be overcome so that long term gains be appreciated.

Demonitisation, a policy by which a government legally can withdraw the currency notes from circulation has been witnessed by India on two prior occasions in 1946 and 1978. 8th November 2016, in an unscheduled television news Prime Minister Narender Modi made an announcement that Rs 500 and Rs 1000 notes would cease to function giving some time for the public to deposit or exchange these old currency notes.[1] Demonitisation is not a new concept and has been taken by various countries including United States of America, European Union, Australia, Pakistan, Zimbabwe in order to check on corruption and black money.

The announcements were made by the government that in this period of transition to new currency notes, hospitals and other essential services for example like petrol pumps, public transport, pharmacy would be accepting old currency notes so that the essential services remain unaffected.

The measures were taken to curb corruption and black money headings. The other measure was to move Indian economy from a cash driven economy to cash less clean economy. Indian public wholeheartedly supported the government"s decision despite the inconvenience of long lines they faced in withdrawing/exchanging/depositing their own money outside the banks. An opinion poll led by Prime Minister (PM) Narender Modi's official twitter reflected the view that the public supported PM drive against corruption despite the inconvenience caused to them over a short period.

On the eve of the new year, December 2016, PM focused on how the reform measures would be taken by the government at various levels to help the weakened sections of the society. Since the "note bandhi", crores of banned old currency were deposited in the banks enabling them to give loans at lower interest rates. PM Modi appreciated the strengths of patience depicted by the public to fight against corruption and black money.[2]

The stock markets also witnessed fall in sensex though over a period of time, the markets could restore themselves with the other measures announced by the government and also the economy reviving itself.[3] A survey conducted by the State Bank of India showed that two thirds of small businesses were hit by note ban. Construction sector and roadside vendors suffered the most.[4] However, the digital transactions were on increase with even the roadside vegetable vendors shifting to online transactions like Paytm. Another announcement that came from the income tax department was that the

cash deposits above two lakhs in the period following demonitisation from 9th November to 30th December, 2016 would be scrutinized if the tax payer income doesn't match with the deposit.[5]

Public was aware of the announcements made by the government from time to time following Demonitisation. Indian population could also track the news through local news channels both television and radio sets those were broad-casting news in the local languages throughout the length and breadth of the country. Bank officials also assisted the public by working late in their official hours, taking pains to provide every citizen with new currency so that daily functioning of the individuals was not hampered. Senior citizens were provided with bank services on a priority basis everywhere. The offices also provided their employees with short leaves so that the employees could manage their bank accounts at ease, thus helping the public with timely solutions. How the Indian public tided over the crisis period has set a new benchmark of India barring rare untoward incidents. Until the circulation of new currency notes was optimized, what helped was the immense support and hard work of the bank officials, online and digital transactions, resource management, patience and awareness of Indian masses.

In post demonitisation period, stress was experienced by a vulnerable individual who were already predisposed with prior stressful experiences and the current experience acted as a trigger. A few such cases of acute stress reaction, depressive disorders were noted in the outpatient clinic of the Department of Psychiatry, Delhi, who were provided with appropriate management including medications, counseling services and Yoga. Highlighted below are the two illustrations.

Case illustration[1]

Mr. A, 28 year old male, Graduate belonging to low socioeconomic status, living in a joint family semiskilled worker, currently not working for 2 month, had come to Department of Psychiatry, Guru Teg Bahadur (GTB) Hospital, with his mother with chief complaints of anhedonia, low mood, headache, sleep and appetite disturbances since 1½ month and increased for past 15 days . Patient reported that since demonitisation, he lost his job and fell in a financial crunch. Since he was the sole earning member of the family, regular argument with wife over financial crisis resulted in marital discord and his wife left him. He started reporting headache which was non specific in location and origin and present throughout day, relieved only for couple of hours after taking pain medication. He reported easy fatigability and inability to concentrate. He would get irritated easily and pick up fights on trivial issues. He would have difficulty in initiating and maintaining sleep and would walk around the house, worrying regarding his job loss and financial issues. He would feel that there is nothing positive in the future and he is worthless. No significant past or family history or of substance use was present. Premorbid personality was well adjusted. His general physical examination was normal, Blood Pressure was recorded to be slightly high and Body Mass Index (BMI) in obese category. His mental state examination revealed gaze avoidance, psychomotor retardation, decreased speech and depressed affect. Thinking revealed decreased self esteem, ideas of hopelessness, helplessness, worthlessness. Patient was provisionally diagnosed to be suffering from Moderate Depressive Disorder, with Obesity according to ICD10. A frequent monitoring of patient's blood pressure was advised and a referral to medicine department was done.

Routine blood investigations including baseline haemogram, lipid profile, blood sugar, kidney function test, lipid profile, thyroid investigations were normal. A chart was prepared that was individually tailored for the patient in which activity was assigned on an hourly basis to the patient, mother was asked to bring the patient for Yoga daily, go for morning walks, avoid excessive tea, follow sleep hygiene . He was prescribed Sertraline 50mg/day as the medication.

He was prescribed diet chart by the dietician for obesity. Gradually, he showed improvement in mood , cognition (could concentrate in work, positive thoughts of being capable of handling his life and managing it) and biological functions over next six weeks. His self esteem was restored and decided to shift to a new place with a new job in which he got selected and would follow up over monthly visits. Efforts were being made by the family to restore the marital harmony.

Case illustration 2

A retired government school teacher, income

tax payee and filing returns all throughout his career, married, living with his wife was brought by his daughter with complaints of sadness of mood headache, worrisome thoughts which were mostly related to filing of income tax in July, 2017 with lack of sleep and appetite, all noticed over past two months. He had difficulty in initiation of sleep, would get up early morning, and would worry over trivial daily hassles like whether maid would come for work.

Although he acknowledged that he had been filing his returns every year but was worried as how he would get appointment with the chartered accountant to check his filing of returns, inspite of the fact that his cash deposits did not cross any unreasonable limits in the demonitisation phase. He said that he had done nothing unlawful but still was anxious. He had past history of depressive episode seven years back which responded to Mirtazapine 7.5 mg/day. His daughter shifted him from his own house and brought both her parents to her house providing them with a change of setting, but still noticed her father to be sitting idle, not showing any significant change in the symptoms. Previously, he was engaged in reading newspaper or listening to news but had declined interest over past two months. On mental state examination, help seeking attitude with sadness of mood, depressive cognitions, worries, was present; there were no suicidal ideas, and insight was present. He was diagnosed as Recurrent depressive disorder, ICD10 and was restarted on Mirtazapine 7.5 mg/day in view of previous good response. He was advised to attend regular yoga sessions, sleep hygiene and balanced diet was explained .The second case illustration showed how trivial issue of tax related announcement in the news could act as a trigger in a vulnerable elderly population leading to faulty cognitions (indecisiveness, helplessness, isolation). These faulty cognitions were challenged in the subsequent visits, replaced with positive cognitions (instilling hope, capable of managing life, improving self esteem).

India, with demonitisation has made an effort to counter black money and encourage digital transactions. New policies and new measures bringing about reforms by the government are needed for a country like India. Timely advisories, efforts by Reserve bank, governmental and non governmental agencies, media, numerous officials and public cooperation helps in moving towards the desired goal. Still more efforts are being required to coordinate and network the activities of various sectors so that the common man can derive the benefits and be apprised from time to time in their individual sector.

Resilience is a concept that focuses on the population at large that can withstand any change, capable of handling a circumstance and adapt in a mature manner, be flexible with healthy coping skills. The long term benefits like lowering of interest rates in bank loans, lowering the tax rates for small businesses, relief measures for other vulnerable sections like farmers, senior citizens or pregnant patients, girl child, etcetera, clean transparent image globally that would enable more investments from across the globe can be appreciated if the inconveniences at short periods are overcome by the citizens. Mental health professionals should engage themselves in making the population resilient, as one of the main aims of National Mental Health Programme is to promote positive mental health.

Conclusion

Demonitisation is a nation wide change affecting all sections of Indian population. Hence it becomes very important to keep in view its affect on society, not only an individual basis but also on masses. A thin line exists between disorder and maladaptive functioning. Such stressful situations can lead to obliteration of this line. Disadvantaged and vulnerable individuals are pedisposed to stressful situations like demonitisation and at such time, the role of mental health professionals become even more imperative for better coping of an individual.

So, from this perspective also, positive mental health for all should remain as the priority for all health professionals who should work towards achieving it.

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Drug Review

Valbenazine: A new drug for Tardive Dyskinesia

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Introduction

Long standing exposure to antipsychotic drugs has been known to precipitate hyperkinetic movement disorders like tardive dyskinesia (TD) in patients.[1] Tardive dyskinesia is described as a group of rapid, repetitive, stereotypic involuntary movements particularly involving the oro-facial muscles, tongue, trunk and extremities.[1,2] They can be choreiform, athetoid or rhythmic in nature.[2] According to DSM IV TR, TD develops during exposure to a neuroleptic (atleast 3 months or 1 month if aged more than 60 years) or within 4 weeks of withdrawal from a neuroleptic medication (or within 8 weeks in case of depot preparation).[2] Other medications besides neuroleptics that are known to cause TD are metoclopramide, tricyclic antidepressants (e.g., amoxapine), serotonin reuptake or serotonin norepinephrine reuptake inhibitors (duloxetine, citalopram), lithium and calcium channel blockers, such as cinnarizine and flunarizine.[1] TD is often a disabling condition having limited improvement and poor tolerability with currently available drugs like tetrabenazine. To overcome these hurdles, FDA has recently approved Valbenzine (VBZ) as the first drug to treat adults with TD.[3] VBZ is a novel centrally acting monoamine depleting agent with once a day dosing schedule.[4] Valbenazine is a L-valine (2R, 3R, 11bR)-1, 3, 4, 6, 7, 11b-hexahydro-9,10-dimethoxy-3-(2-methy-lpropyl)-2H-benzo (a)quinolizin-2-yl ester with molecular formula $C_{38}H_{54}N_2O_{10}S_2$.[4] The chemical structure[4] is as follows:

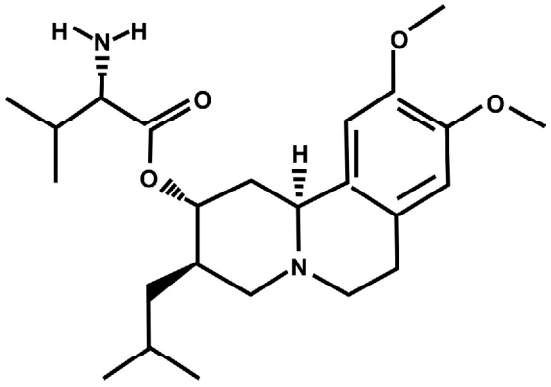

Figure 1: Chemical structure of Valbenazine

Mechanism of Action

The mechanism of action of VBZ in TD is still unclear. However, it is hypothesized to act through reversible inhibition of vesicular monoamine transporter 2 (VMAT2).[4] VMAT2 is located on the pre-synaptic membrane and is responsible for the transport of monoamines from cytosol to the synaptic cleft. Inhibition of VMAT2 leads to exposure of the monoamines to the monoamine oxidase enzyme and subsequent depletion of monoamine concentration in the synaptic cleft.[4]

Pharmacokinetics and Pharmacodynamics

VBZ selectively binds with VMAT2 located in CNS with no affinity for peripherally located VMAT1.[4,5] VBZ and its active metabolite, (+)-dihydrotetrabenazine (DHTBZ) too bind with VMAT2 with slow cleavage.[4,5] They both have no affinity for dopaminergic, serotonergic, adrenergic, histaminergic or muscarinic receptors.[4,5]

VBZ is rapidly absorbed after oral administration, reaches maximum plasma concentration within 30 mins to an hour and reaches steady state concentration within a weak. VBZ and its active metabolite both have a half-life of 15-22 hours, therefore necessitating once a day dosing. Once absorbed, VBZ is extensively metabolised by hydrolysis to its active metabolite and finally in liver by oxidative metabolism to other metabolites. Metabolites are excreted through urine (60%) and faeces (30%); only 2% of the unchanged VBZ is eliminated through urine and faeces.[5]

Clinical trials on use of Valbenazine in Tardive Dyskinesia

Valbenazine has shown favourable results in both Phase II and III trials in patients with moderate to severe TD. KINECT 2 study was conducted in subjects with schizophrenia, schizoaffective or mood disorders suffering from moderate-severe TD to assess the safety and efficacy of VBZ.[6] Once daily doses of VBZ 25-75mg was given to the subjects as compared to placebo in the control week. At the end of 6 weeks, there was statistically significant improvement in Abnormal Involuntary Movement Scale (AIMS) score from baseline in the VBZ group as compared to placebo. The responder rate (>50% improvement from baseline) was reported by 49% in the valbenazine ITT cohort in comparison with 18% in the placebo group. There were no serious adverse events reported either. KINECT 3, a multi centric,phase III, 6-week, randomized, double-blind, placebo-controlled trial in patients with schizophrenia, schizoaffective or mood disorders suffering from moderate-severe TD further evaluated the safety, efficacy and tolerability of VBZ.[7] 225 patients were randomly given VBZ 40mg/day, VBZ 80mg/day or placebo in a 1:1:1 ratio. There was significant improvement in AIMS scores with VBZ 80mg/day as compared to placebo. Also VBZ was well-tolerated and did not de-stabilise the baseline psychiatric condition of the patient.

Dosage and administration

VBZ is available as 40 mg capsule which can be taken with or without food. The recommended daily dosage is 40-80 mg/day. The initial dose is 40 mg/day which can be increased to 80 m/day after a week. However 40 mg/day can be sufficient depending on response and tolerability.[4,5]

Adverse events

The most frequently encountered adverse events observed in randomized controlled trials of VBZ are as follows:[5]

1. Somnolence-Drowsiness, lethargy and fatigue has been reported in nearly 10% patients on VBZ.
2. Anti-cholinergic side effects-Dry mouth, constipation, blurred vision, urinary retention etc occurred in 4-5% subjects.
3. Disorder of balance-Dizziness, fall, abnormal gait was reported in < 4% patients.
4. Akathisia-Seen in 2% patients
5. Gastro-intestinal disorders-Nausea, vomiting was reported in nearly 3% patients.
6. Rare incidence of increased serum prolactin levels, increased alkaline phosphatase levels, raised bilirubin (<1%) was also reported.
7. QT prolongation- VBZ can prolong QT interval, particularly when used in patients already taking strong CYP3A4 or CYP2D6 inhibiters. In such situations, dose reduction of VBZ should be considered. Also, VBZ should be avoided in patients with congenital Long QT syndrome and arrhythmias due to QT prolongation.

Drug interactions

1. Monoamine Oxidase Inhibitors (MAOIs) : MAOIs like isocarboxazid, phenelzine, selegiline when given along with VBZ can lead to life-threatening conditions like Serotonin syndrome. Therefore their co-administration should be avoided.[5]
2. Strong CYP3A4 Inhibitors : Drugs like itraconazole, ketoconazole, clarithromycin can increase the serum concentrations of VBZ; dose reduction is recommended in such situations.[5]
3. Strong CYP3A4 Inducers : Strong inducers like rifampin, carbamazepine, phenytoin can reduce the efficacy of VBZ and therefore should not be prescribed in patients already on strong CYP3A4 inducers.[5]
4. Strong CYP2D6 Inhibitors : Paroxetine, fluoxetine, quinidine etc. can cause accumulation of VBZ in the body and increase the risk of dose-dependent adverse events; dose needs to be adjusted when co-administered with strong

CYP2D6 inhibitors.[5]

5. Digoxin : VBZ causes increase in the serum digoxin level and may precipitate toxicity; therefore close monitoring of serum digoxin levels is advised when both drugs are used concurrently.[5]

Use in special populations

1. Pregnancy and lactation: There is no available data regarding the safety of VBZ in pregnancy and lactation. Animal studies report the risk of fetal harm and stillbirth. Also, there is report of expression of VB in breastmilk in lactating rats. Therefore, it is not recommended to use VBZ in these conditions.[5]
2. Hepatic impairment : In moderate to severe hepatic impairment (Child Pugh score 7 to 15), dose reduction is advisable.[5]
3. Renal impairment: Dose reduction is not needed in mild to moderate renal impairment since VBZ has minimal renal clearance. However it is not recommended in severe renal impairment.[5]
4. Geriatric patients : No dose modification is required in elderly patients.[5]
5. Paediatric patients : VBZ is not recommended in paediatric population till now.[5]

Conclusion

Valbenazine has showed promising results alleviating the distressing symptoms of TD in the studies conducted so far. Single daily dosage and better tolerability has made it more advantageous than earlier pharmacological options like tetra-benazine. However, long term trials assessing the safety and efficacy profiles are still pending for VBZ. Further research is therefore needed to understand the long term effects of VBZ.

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Drug Review

Brivaracetam : A new antiepileptic

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Introduction

Brivaracetam is a third-generation antiepileptic racetam derivative, structurally related to leviteracetam. It is a high affinity synaptic vesicle protein 2A ligand that was approved in Feb 2016 by the U.S. Food and Drug Administration (FDA) as an add-on treatment to other medications to treat partial onset seizures in patients age 16 years and older with epilepsy.[1,2] Brivaracetam is available in three formulations, including film-coated tablets, oral solution and solution for injection/infusion.

Mechanism of action

It is a racetam derivative and a 4-n-propyl analogue of levetiracetam.[3] Although the exact mechanism of action of brivaracetam is unknown, its anticonvulsant effects are believed to be due to its highly selective affinity for synaptic vesicle protein 2A (SV2A) in the brain.[3,4] The SV2A glycoprotein is a protein-coding gene implicated in synaptic signal transduction.[4] It is believed to play a role in the regulation of neurotransmission by stimulating vesicle fusion and maintaining a reserve of secretory vesicles.[4] Studies in SV2A-deficient animals have demonstrated an increased propensity for seizures.[5] Brivaracetam is seen to have a 15 to 30-fold increased affinity for the same molecular target, namely the SV2A ligand than its congener levetiracetam.[5]

Chemical Structure and Pharmakokinetics

The chemical name of brivaracetam is (2S)-2-[(4R)-2-oxo-4-propyltetrahy dro-1H-pyrrol1-yl] butanamide (Figure 1). Brivaracetam exhibits linear and time-independent pharmacokinetics at its approved doses. It is freely soluble in water, ethanol, methanol, and glacial acetic acid.[6] The drug experiences near-complete absorption after oral administration and is weakly plasma protein bound.[6] Brivaracetam is primarily metabolized by hydrolysis of the amide moiety to form the corresponding carboxylic acid metabolite, and secondarily by hydroxylation on the propyl side chain to form the hydroxy metabolite, reaction being metabolized mainly by CYP2C19. Genetic polymorphisms in CYP2C19 may cause production of the metabolite to be decreased. Poor metabolizers or patients taking concurrent CYP2C19 inhibitors may require dose reduction. Finally, brivaracetam is excreted primarily in the urine within 72 hours of intake.[6]

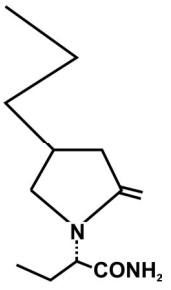

Fig-1.

Therapeutic Indications

It is approved as adjunctive therapy for the treatment of partial-onset seizures in adolescents and adults with epilepsy. In multinational, phase III studies in adults and adolescents (aged > 16 years), oral brivaracetam as adjunctive therapy to other antiepileptic drugs (AEDs) was generally associated with significant median percent reductions over placebo in seizure frequency and significant

improvements in the proportion of patients achieving > 50% reduction in seizure frequency compared with placebo.[7]

Efficacy studies

Several randomized controlled trials have been undertaken with mostly favourable results, supporting the augmentation of ongoing antiepileptic drugs with brivaracetam.

In a meta-analysis of six randomized, placebo-controlled single or double-blind add-on trials involving 2,399 patients, 45% of levetiracetam-naïve patients responded to brivaracetam and 19% to placebo, suggesting a 25% real response rate that was not attributable to placebo. It was determined that brivaracetam was found to be more effective than placebo in reducing seizure frequency by 50% or more when added to concomitant AEDs in patients with refractory partial epilepsy.[3,12]

Another meta-analysis including five randomized, double-blind, placebo-controlled, assessed the efficacy and safety of different doses (20,50,100,150) of brivaracetam compared with placebo as adjunctive therapy for adults with partial-onset epilepsy.It concluded that the use of brivaracetam at doses > 5 mg/day resulted in statistically significant reduction in seizure frequency with respect to the 50% responder rate and reasonable tolerance by the patients.[13]

Dosage and dose equivalents

It is recommended to start brivaracetam at 50 mg twice daily (100 mg per day) and gradual dose escalation is not required.[6] Dose may be adjusted according to the individual tolerability. The injectable form may be used when oral administration is temporarily not feasible, the injection being administered at the same dosage and same frequency as brivaracetam tablets and oral solution.[3,6]

Available dosage: oral tablet -10 mg, 25 mg, 50 mg, 75 mg, and 100 mg; oral solution -10 mg/mL; intravenous (IV) injection (50 mg/mL).

Table-1: highlights some of the randomised controlled trails.

Trial	Type of design	Number of patients	Dose range	Median percentage reduction	Side effects
Ryvlin et al[8]	Randomized, double blind, placebo controlled	298	20-100mg/day	30.0% for BRV 20 mg/d 26.8% for BRV 50 mg/d 32.5% for BRV 100 mg/d	headache, somnolence, dizziness, and fatigue
Biotin et al[9]	Randomized, double blind, placebo controlled	298	5-50/mg/day	20.0% for BRV 5 mg/d 22.5% for BRV 20 mg/d 30.5% for BRV 50 mg/d	Somnolence, dizziness, fatigue, influenza, insomnia, nasopharyngitis, vomiting, diarrhea, urinary tract infection, and nausea.
Kwan P et al[10]	Randomized, double blind, placebo controlled	323	20-150 mg / day	30.3% in BRV groups with partial seizures 44.4% in BRV groups with generalized seizures	Headache, somnolence and dizziness
Klein P et al[11]	Randomized, double blind, placebo controlled	760	100-200 mg/day	22.8% for BRV 100 mg/d 23.2% for BRV 200 mg/d	Somnolence, dizziness, fatigue

Adverse effects

The most common side effects of brivaracetam

include sleepiness, dizziness, feeling tired, nausea and vomiting.[6] Others include disturbances in gait and coordination, such as vertigo, ataxia, and nystagmus.[6] Brivaracetam is also associated with psychiatric adverse events, including depression, anxiety, aggression, anger, agitation, irritability, and psychotic symptoms, such as paranoia and acute psychosis.

Individuals taking brivaracetam should also be warned of possible suicidal behaviour and ideation.

Drug–drug interactions

Due to the potential for CYP2C19 induction, when administered with rifamficin, the plasma concentration of brivaracetam is decreased and hence its dose may need to be doubled in patients such patients.[6]

Coadministration with carbamazepine may increase exposure to its active metabolite, carbamazepine-epoxide, which may give rise to tolerability issues, in which case , the dose of carbamazepine may be reduced.[6]

Since brivaracetam raises the concentration of phenytoin, levels of later should be monitored on addition of the former.[6]

No additional therapeutic benefit is seen on coadministration with levetitacetam.[6]

Special populations

Renal and Hepatic Impairment

No dose adjustment is required in patients with impaired renal function , but in patients with end stage renal disease, no data is available, hence it is not recommended. In hepatic impairment , starting dose is reduced to 25 mg twice daily and the recommended maximum dose is 75 mg twice daily.[6]

Pregnancy and lactation

Brivaracetam is in pregnancy category C, and there are currently no well-controlled studies in pregnant women.There is no data available on lactation.[6]

Pediatric and Geriatric Use

In patients younger than 16, the safety and efficacy of brivaracetam has not been established. Also, although adequate data in elderly is also lacking, we should start at lower doses, giving due consideration to the hepatic and renal function, as well as other drug therapies.[6]

Contraindication

The only contraindication to brivaracetam is hypersensitivity to brivaracetam or any of the inactive ingredients in it.

Conclusion

Brivaracetam is a novel AED being used for partial onset seizures in adults and adolescents 16 years of age and older. This medication has shown promise in patients with epilepsy whose seizures persist despite adequate treatment. Brivaracetam is well tolerated with minimal side effects which has led to its recent FDA approval. But further post marketing surveillance or phase IV trials need to be done in order to know more about the performance of the drug in pragmatic scenarios, and to study the long-term risks and benefits of using the drug and to discover any rare side effects.

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Forensic Psychiatry

Mental Health Care Act: Boon or Bane

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Introduction

Since time immemorial, mental health has always taken a backseat in health care. Depression is recognized as one of the major causes for morbidity and this year' WHO health theme of "Depression, let's talk", shows that the need for active intervention in the arena of mental health is now being considered at forefront. In the early twentieth century, custodian care was prime and human rights of people with mental illness were rarely thought of. Indian lunacy Act 1912 was mainly targeted to safeguard community against risk involved with people suffering from mental illness. During the colonial rule, a number of asylum or the so called mental hospitals were opened to cater for the needs of British soldiers or Britishers with mental illness inhabiting India. Persons with mental illness were shunned, stigmatized, shamed, isolated and kept away from the society. Large scale violation of human rights during Second World War resulted in worldwide outcry which led to campaigns to recognize and uphold rights of all groups of persons. The newly formed United Nation Organization rose to the need of time and the Universal Declaration of Human Rights was adopted by the UN General Assembly in 1948. Deinstitutionalization and rehabilitation in community was targeted. India followed the trend and Mental Health Act 1987(MHA) came into picture which helped to a certain extent towards community based care rather than asylum and institutionalization but had its own drawbacks. India signed the United Nations Conventions on the Rights of Persons with Disabilities (UNCRPD) in September 2007. The purpose of the UNCRPD is to promote, protect and ensure full and equal enjoyment of all human rights and fundamental freedom by all persons with disability (PWD) and to promote respect for their inherent dignity. Government of India decided to revise disabilities laws in the country toeing to the lines laid by UNCRPD. Hence, amendment of MHA 1987 was initiated with the help of Indian law society, Pune. Finally, the revised draft was passed and approved by President of India on 7 th April 2017 and to is now known as Mental Health Care Act. It contains 16 chapters and 126 sections.

PROS and CONS of the New Act:

Redefinition of mental illness in this act

"Mental illness" means a substantial disorder of thinking, mood, perception, orientation or memory that grossly impairs judgment, behavior, capacity to recognize reality or ability to meet the ordinary demands of life, mental conditions associated with the abuse of alcohol and drugs, but does not include mental retardation which is a condition of arrested or incomplete development of mind of a person, specially characterised by subnormality of intelligence. It is postulated that inclusion of disorders associated with substance will be appreciated as it will avoid the confusion in their categorization and will help in improving the services rendered to such patients.[1] However, the over inclusive definition of mental illness may bring the non-severe mental illness under this law, which may increase the stigma toward the mental illness.[2]

Capacity to make decisions, Advance Directives and Nominated representative

This act gives patients with mental illness the right to make decisions regarding their requirements and can also to decide on their own treatment. This

was earlier given not much importance and ground reality was much different than what was an idealistic approach.

There is a new feature of Advance Directive incorporated in this act which has its roots from the West. An advance directive is a mandate that specifies a person's preferences for treatment, should she/he lose the capacity to make treatment decisions in the future.[3] Patient can iterate in advance regarding own wishes as to how and what kind of treatment he / she should / should not be given when he / she becomes ill.This act empowers patient to appoint by his own choice a person known as nominated representative, who will act on his behalf when he is unable to take decisions due to mental illness.

While on one hand this feature is a very positive change in granting autonomy to patients with mental illness and decreasing coercion, increasing treatment collaboration, motivation, and adherence, and helping to avoid conflict over treatment and medical issues which earlier might have been not so easy in practice, there is a negative side to this too. In the West mental illness might not be that much stigmatized and people on their free will consult a mental health care professional but in a country like India where mental illness still faces stigma problems, proactive role of patients is almost minimal.

As such advance directives are seen as yet another wedge between family and the patients in the name of transplanting individual rights as understood in the West. The great premium put on individual autonomy in the Western societies is at wide variance with the concept of familial interdependence in the East, where collective goals and rights of family are culturally considered at par with individual rights.[4] Also in a country like India where camp approach initiated by Dr. Vidyasagar in which family was the key management for patient with mental illness and such practice still being followed in centres like NIMHANS, family act as best supporting source. Presence of family is also considered to be one of the factors responsible for a good prognosis in patients with severe mental illness. These directives and nominated representative might reduce bonding & cohesiveness in the family. Sarin and Sarin et al.,[5,3] have reviewed advance directives and concludes that they do not work as expected even in the West from where it has originated. This concept has a popular appeal in the society but has no scientific evidence to back it up. A recent Cochrane meta analysis refuted the use of advance directive in people with severe mental illness due to lack of supporting data.[6] In randomized controlled trial with those who had given advance directives and to that receiving standard treatment no difference in hospital admissions & compliance with treatment were noted though those with advance directives had needed less use of social workers time and were less violent.[7,8] Thara and Ramesh Kumar[9] have reported that in an Indian setting patients may understand the concept and participate in decision making process about planning treatment for a future eventuality. Many reviewers of the act have raised the concern that patient might remain untreated or ineffectively treated due to the advance directive as it makes treating physician legally binding to follow through even if its not the right choice but this will be without prejudice to psychiatrist.

Rights of persons with mental illness and Duties of the Government

Rehabilitation Services

Half way homes, sheltered accommodation, supported accommodation, rehabilitation services, support services of carers and family members of person with mental illness are also targeted to be established. These services are highly deficient in our country and their absence is one of the major lacunae in the management of persons with mental illness.

Awareness towards Stigmatization

In this act government has been given responsibility to create awareness and to give wide publicity through public media specially regarding stigmatization due to mental illness and to plan, design and implement programmes for promotion of mental health and prevention of mental illnesses. It has also been entrusted with periodic sensitization & training of appropriate Government police officers on issues under this Act.

Increase in human resource

Government has also been directed to increase human resource requirement for mental health services. They have been advised to increase the

number within a period of ten years as per international guidelines and to formulate plans, develop and implement educational and training programmes to achieve that number. It also would provide for training all professionals for basic and emergency mental health care.

These provisions in the act appear very luring and proactive but with the existent large gap between needs and services for mental health, especially in country like India, will it be successful? Presently, most of the mental health care is institution based with almost negligible community support services. The total number of psychiatrists in India was projected to be 15,400 in 2020 from 1500 in 1990.[10] This Act targets to fill up these gaps and build up on community support services but for a country like India to meet such a huge target with meager mental health resources seems like an impossible task.

Basic Human Rights

Special emphasis has been given on their basic human rights which had been for so long ignored or discriminated. All persons with mental illness have the right to live in, not separated from society, right to live with dignity in a safe and hygienic condition with adequate provisions for education, privacy, recreation and treatment. They will be considered similar to anybody who is having any physical illness. This was earlier ignored and discriminated. With this legally binding provision, it will enable them to achieve and live with integrity and dignity in the society which was so lacking earlier. All persons with mental illness will have right to free legal aid and also right to access their medical information record.

Accessibility to mental health

This act gives every person without discrimination right to access affordable mental health care which will be made available compulsorily by the government with easy accessibility even at remote corners. The governments are mandated by the bill to provide essential psychotropic medications free of cost. The insurance companies will have to consider mental illness at par with physical illnesses, and will not be allowed to include mental illness as one of the exclusion criteria. These measures have been hailed as progressive and 'pro poor' by Gopikumar.[11]

Inclusion of General Hospital Psychiatry Units (GHPU) as Mental Health Establishments(MHE)

This act has led to the inclusion of all general hospital psychiatry units under this. In this, all government hospitals will have to register as Mental health Establishment without which they cannot continue their services.General hospital psychiatry movement has been described as one of the great success stories post-independence scene in Psychiatry.[12] It is also referred to as slow and silent change, but in many ways a major revolution in the whole approach to psychiatric treatment in our life time.[13] Already when under MHA 1987 any mental health establishment had to take compulsory licensing to run their facility, this included a lengthy process of applying and getting approval of license with a lot of paperwork. This had led to discouraging a lot of private set up from establishing nursing hospitals for mental care as it would include taking license and going through a tedious process of establishment.Licensing provisions are always perceived as a major hurdle in establishment of services, which are already precariously scarce in our country.[14] Licensing requirement under the MHA1987 has already harmed the private general hospital psychiatry because both corporate and charitable hospitals stopped having psychiatry beds as it invited licensing and visit by members of the visitor board which were perceived as harassing.[12]

Already existing government general hospitals with GHPU would be burdened with requirement of registration as MHE. Chaddha et al commented that a number of people with non-severe mental illness avail services to these GHPU without any adverse stigma. If these services are not available in their vicinity but at a remote and secluded place, the stigma attached even to minor psychiatric illnesses would get accentuated. Psychiatry is considered a branch of medicine and if GHPU's are not encouraged it might get cut off from mainstream medical system.[2] This Act now requires all medical colleges to register as MHE which may prove cumbersome and would accentuate the associated stigma.[15] Non Governmental organization & human activists have criticised non inclusion of GHPU under any law & this provision in this Act might be welcomed.[12] But some have opined that

as it will bring GHPU under regular monitoring exemption of GHPU from the purview of MHCA will encourage all the general hospital to establish psychiatric indoor units making these widely available.[14,15] As GHPU are always open to public scrutiny, the question of violation of human rights and their exploitation would not arise.[15]

Antony also holds the view that definition of MHE should include only the places where the patients are treated without presence of by standers.[16]

Mental health Review Boards

This act provides for constitution of mental health review commission and boards for reviewing on advance directives, treatment and also to advise the government on protection of rights of mentally ill person. Mental Health Review Board, which has only one psychiatrist among all members, board is vested with vast powers to take decisions in respect of mental health care and also has the authority to regulate the professional conduct of psychiatrists.[16] Moreover, Mental Health Authorities both at central and state levels have been assigned duties to set norms and standards, to register and to keep a close eye on functioning of the MHE. In both these authorities, there are only two or three psychiatrists among more than twenty official and non official members. These panels having very few mental health experts can affect the decision making and henceforth affect the mental health care. In the absence of experts, crucial decisions in the field of mental health in the hands of non-experts might not be a right approach especially in terms of advance directives, treatment and admission & discharge process where decisions are mainly based on careful evaluation and mental status examination done by a qualified psychiatrist.[14]

Involuntary Admission and ECT

All involuntary admissions in Mental Health Establishments, now termed as supported admission, whenever challenged by the patient, will undergo a review by panels of Mental Health Review Commission, which is constituted by very few mental health experts. Admission or discharge has to be approved independently by two practitioner one of which is a psychiatrist and other a medical health practitioner, which can again have an effect on the conclusion as there might not always be a consensus.

A welcomed aspect of this act was reduction in the basic formalities during the first 72 hours in case of emergencies. It has been posited that where there is danger to patient's health or the patient is violent or suicidal, any Registered Medical Practitioner (and above) can give any appropriate treatment (except ECT) in any setting including home or community for the first 72 h (120 h for the northeast). The emergency treatment can include transportation of a patient to a mental health facility. This was absent in the previous law causing transportation of a disturbed patient, except on a court order, illegal.

Electroconvulsive therapy since long has been a controversial topic with most of the public opinion formed by the media portrayal and movies showing it to be a very inhumane act. MHCA banned direct ECT, which has been speculated to affect services especially in a country like India where human resources like anesthetist in remote set up is scarce. Research has also shown that the risk of muscular and skeletal injuries with direct ECT may be overstated. The risk of injury can potentially be modified by administering a sedative drug (diazepam) before the procedure as Diazepam acts as a muscle relaxant.[17,18]

Also ECT has been restricted in minors. It can be given only after approval from the review commission which again shows lack of evidence based decision & also, made by those who understand very less the usefulness of ECT. Research shows ECT being a life saving procedure specially in patient with catatonia, this might be more in line with the sentiments than with actual evidence based science.[19,20] Psychiatrists point out that there is no evidence that ECT has more side effects in minors than adults. It is also important to know that children and adolescent often present with catatonic features where ECT is the treatment of choice, and being an emergency, running around for permission might turn out to be harmful for the patient.

The psychiatrists argue that the fuzzy logic of dainty looks and politically correct perceptions of a medical treatment being more important, than its safety and benefits, will ultimately work against patients' interests.

Andrade et al.,[21] have published a well argued

statement regarding unmodified ECT in the context of the proposed prohibition. Therefore, the prohibition of ECT to the children and adolescents as per this Act has been criticized.[22]

Decriminalization of Suicide

Earlier any suicide attempt was penalized under section 309 Indian Penal Code. This act led to decriminalization of suicide attempt. It has been suggested that any person who attempts to commit suicide shall be presumed unless proven otherwise to have severe stress and shall not be tried and punished under the said code on taking such a serious action of trying to take own life must have been under severe stress so as to commit it. Decriminalization has also been considered as positive amendment and will also decrease stigma and might actually encourage people to consider help before going for such a serious act.

Increased paper works in psychiatric treatment

It is a unanimous note that no one likes paper work but with this act requiring elaborate regulatory and appellate provisions of admissions, discharge and management issues in MHE will constitute a lot of clerical and paper works and the treating psychiatrist will have to deal with in this respect in day to day functioning. Various provisions like advance directive, nominated representatives and requirement of approval from the Board for taking many of the treatment decisions will also involve lot of paper documentation. As a result a psychiatrist may not be willing to take up such cases requiring paper works and formalities and this would end up affecting the person with mental illness.[15]

Conclusion

This Act so far has collected mixed reviews with split opinions among mental health professionals. It has been quoted that this act emphasizes more on independence and autonomy of patients which is desirable and reduces risk of exploitation but on the other hand due to long set of procedures for care can cause delay in treatment. Health being a state subject, how this Act will impact, especially in terms of development of resources in a developing country with limited funds and that too in field of mental health remain a question. The next few years with the implementation of this act will decide the future of mental health in India.

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Case Report

Management of Psychogenic Polydipsia with clozapine: a case report

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Introduction

Psychogenic polydipsia (PPD) (compulsive water-drinking) is characterized by excessive water-drinking. It can be defined as an impulsive behaviour related to the excessive intake of water (4–20 litre per day), without any evidence of organic disease. It is described as excessive thirst and water intake in absence of physiological stimuli to drink.[1]

Most patients with this disorder have serious psychiatric disturbances, occurring with a prevalence of 6–20%, often requiring chronic institutionalization, and the majority are women.[1]

Approximately 80% of psychiatric patients who manifest psychogenic polydipsia suffer from schizophrenia. Psychogenic polydipsia is characterized by a delayed onset; polydipsia often emerges several years following the first psychotic episode and is correlated with measures of increased cognitive dysfunction and greater severity of psychotic illness.[2]

As patients with polydipsia associated with schizophrenia have significantly increased rates of mortality, identifying and managing psychogenic polydipsia in the clinical setting is important.

The primary condition of polydipsia is associated with two related phenomena of polyuria and water intoxication. Polydipsia and the development of associated medical complications may be characterized as a three-stage process (i) Simple polydipsia with accompanying polyuria (ii) Water intoxication which occurs after 5-10 years of polydipsia (iii) Physical complications, including irreversible brain damage secondary to ingestion of fluids in large quantities which develop several years after water intoxication.

As per available literature, typical antipsychotics have exacerbated polydipsia while clozapine has been associated with its improvement. Use of risperidone and other atypical antipsychotics remains controversial in this regard.

Till date as per our best knowledge, very few cases of psychogenic polydipsia had been reported from India. These reported cases of psychogenic polydipsia were suffering from psychiatric illness i.e., schizophrenia, bipolar disorder[3,4] and depression.[5] In these cases, due to excessive water intake, either there were abnormal serum sodium levels or changes in kidneys in imaging. None of them required clozapine for treatment; they were kept on either fluid restriction or antipsychotic (Risperidone) and its combination with other somatic treatment.

We present a case of a 27 year old male patient with schizophrenia of 8 years who had polydipsia since 2 years. We were able to detect and treat the patient with clozapine in the phase of simple polydipsia before development of hyponatremia and any detectable changes in renal system, thus averting a potentially life threatening stage of water intoxication and its sequelae.

Case Report

A 27 year old unmarried male, presented with complaints of muttering to self, laughing without reason, suspiciousness towards others, hearing of voices and disorganized behaviour since 8 years. He was treated with risperidone, haloperidol and olanzapine in adequate doses and duration without any significant improvement. Over the past two years he had started drinking water around 20-25 litres in a day that was needed for the use of the

entire family. He would drink 4-5 glasses of water after every 5 minutes even during the winter season. Though the patient never claimed to have a craving for drinking water, his family was very distressed with his behaviour. So on some occasions they would seclude him in a room to restrict his water intake with one mug full of water (2.5 litres). But patient would keep on asking for more water and when no one would provide water to him, he would void urine and drink it. When asked from patient about reason of excessive drinking, he would say "pyaas lagati hain, dar lagta hain kyunki ling mein tanaav aata rahta hain, agar paani peeyo toh tanaav nhi aata" (he said he felt thirsty, fearful and would get penile reaction, if did not drink water continuously) and then he would not elaborate it further.

The patient was thoroughly investigated to rule out organic aetiology. Haemogram, renal and liver function tests, fasting and post prandial blood sugars, lipid profile, ultrasound for kidney and brain neuroimaging were normal. Serum antidiuretic hormone levels, serum and urine osmolarity were done to rule out diabetes insipidus which came out to be within normal limits. A review of patient's medical history and treatment history was done to look for drug induced polydipsia which came out uneventful. Despite drinking 20-25 litres of water/ day the patient had no central nervous system sequelae.

At the end of the investigations, all possible organic factors were excluded. We concluded that this was PPD, without water intoxication or subintoxication. The patient also fulfilled the ICD-10 criteria for Schizophrenia. Patient was treated with risperidone up to 12mg per day, olanzapine up to 20mg per day and haloperidol up to 20mg per day for adequate duration without any improvement in psychopatholgy.

Hence, the diagnosis was revised to Treatment Resistant Schizophrenia (TRS) and he was started on Clozapine 25 mg per day and which was increased gradually upto 150 mg per day. Patient's psychotic symptoms started improving and his excessive water drinking behaviour improved completely in next 3 months. Currently patient is maintaining well since last 6 months on clozapine 150 mg per day without any episode of excessive water intake and has also started working.

Discussion

Most patients of psychogenic polydipsia often require chronic institutionalization and need multi-disciplinary care but the index patient fortunately could be managed in outpatient setting without need of intensive care from other disciplines.[1]

Available literature reports that patients suffering from polydipsia are found to be in middle age and are woman contrary to this case report.[1]

Some patients of previously reported cases also found to suffer from hyponatremia leading to seizures and neurological changes and also change in levels of antidiuretic hormone. Psychogenic polydipsia has also been found to be associated with hypothalamic pituitary changes.[2] No such complications and changes in serum levels of sodium, antidiuretic hormone and neuroimaging was found in this index patient.

Clozapine was previously reported to be effective in polydipsia with fluid restriction. [2,6], while in this index patient Clozapine was effective without fluid restriction. Rather family members reported that an attempt of fluid restriction in this index patient led to worsening of disorganized behaviour. In the index case, the PPD was part of psychopathology of TRS and once the core psychopathology of schizophrenia started improving with clozapine, his compulsive drinking behaviour also improved. Hence, it can be inferred that clozapine should be started in the beginning to treat PPD in cases of TRS to prevent further biochemical and neurological complications and better recovery.

Conclusion

Clozapine is a good and effective molecule to treat PPD along with the other psychopathology of TRS and it needs to be started in the beginning of PPD to prevent further biochemical and neurological complications in cases of TRS.

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Case Report

Catatonia: a rare presentation of obsessive compulsive disorder

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Introduction

Catatonia is a neuropsychiatric disorder. It can be associated with both medical and psychiatric illness. In psychiatric illness, it occurs most often in patients with mood disorders.[1] Of the psychiatric conditions, catatonia or catatonic signs have seldom been documented in association with obsessive compulsive disorder (OCD). Only few isolated cases of same have been reported.[2-5] DSM 5 has introduced changes in catatonia, now it can be used as specifier for all 10 principal mental disorder diagnoses including OCD. But for the standard classificatory system followed in India, ICD 10, catatonia presenting as catatonia is still an orphan nosological entity. Here we present a case of OCD presenting with catatonic symptoms.

Case history

A 26 years old male was brought to psychiatry OPD by his relatives with history of standing in a fixed posture for long duration since 8 months. Patient had developed skin ulceration in both feet with maggot infestation of right foot. The illness progressed insidiously during the period of 8 months leading to development of mutism, negativism and odd posturing. According to family members, the patient has been preoccupied with the idea of dirt and contamination along with excessive concern for cleanliness since last 10 years. These symptoms increased 3 years back following the death of his new born child. Around one and half year back, following separation from his wife, his condition worsened further, besides thoughts of contamination, he also started to experience doubts regarding all his trivial actions associated with repeated checking. There was marked anxiety and restlessness when prevented from repetitive checking or cleaning behaviour. He believed these thoughts as unwarranted, but would not be able to resist them and would remain excessively preoccupied most of the day leading to loss of his job. 8 months back following perusal of divorce from wife; he also developed a belief that some serious harm will happen to his family if he would not stand near the gate. Patient started to stand at the gate for nearly 6-8 hours in a day and would not budge on any assurance by the family members. Over few days, he also developed complete mutism, negativism and posturing to the extent that he developed ulcers in foot and his oral intake reduced markedly. In this situation, patient was brought to the hospital.

Physical examination revealed skin ulceration in both the feet. Investigations including haemogram, liver function test, kidney function test, thyroid profile, Vitamin B12 and NCCT Head were normal. Bush Francis Catatonia Rating scale (BFCRS) score on day 1 was 11. All catatonic signs improved within two days of Injection Lorazepam 2mg intramuscular given thrice daily and BFCRS score reduced to 2 on day 2.

Subsequent interviews revealed sad affect, obsessive doubts, magical thinking, checking compulsion and absent insight with no depressive cognition or delusions or hallucinations. Yale Brown Obsessive Compulsive Scale (Y-BOCS) score was 34. According to DSM 5, lifetime diagnosis of Obsessive Compulsive disorder with poor insight with catatonia as specifier was made. Patient was started on tablet Clomipramine (25 mg/d) and tablet Lorazepam (4 mg/d). Dose of clomipramine was

optimised to 150 mg/d and lorazepam was stopped over a week. His obsessive symptoms improved over 2 months and Y-BOCS score decrease to 19. Patient has been maintaining well on clomipramine in follow up for last 6 months.

Discussion

Index case raises two important issues. First, the rare presentation of catatonia in obsessive compulsive disorder pointing towards a connected neurobiological substratum and second, it highlights lacunae of current nosological status which fails to accommodate such entities.

In our case, we made a diagnosis according to DSM 5, as recent changes in DSM 5 allow use of catatonia as a specifier in all psychiatric disorders including OCD. However, diagnosing such entities with existing framework of ICD 10 is still a dilemma. This calls for need of including an additional category in upcoming ICD 11 to subsume catatonic features in background of all other psychiatric disorders besides organic disorders, schizophrenia and mood disorders.

Such rare presentations also suggest a need for reviewing the underlying biological basis. According to existing neurobiological evidences, occurrence of catatonia in patients of OCD is possible. Both share similar anatomical substrate and neuroanatomical circuitry. Frontal lobes have been found to be involved in both OCD and catatonia.[6] Dysfunction in GABA-ergic-mediated orbitofrontal cortical projections leading to dysfunction in the caudate and other basal ganglia regions has been suggested as one of the mechanisms for catatonia.[7] OCD is thought to involve dysfunction in the neuronal loop extending from the orbitofrontal cortex and cingulate gyrus to the striatum, globus pallidus, thalamus and back to the frontal cortex.[8] Such rare cases provide a window of opportunity for further neurobiological research in this area.

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Case Report

A case study of a five-year old boy with mild autism on face representation drawing

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Introduction

Autism spectrum disorders are characterized by impairments in the areas of the communication, social interaction and imagination. All individuals with autism have difficulties in social interaction such as use of eye contact, engaging in reciprocal interactions and responding to the emotional cues of others. Majority of children with autism show hyper and/or hypo-reactivity to sensory inputs or unusual interest in sensory aspects of the environment.[1] Basic impairments, such as lack of attention to others and failure to orient to name, often appear within the 1st year of life. By age 2 to 3, impairments are evident in social orienting, eye contact, joint attention, imitation, responses to the emotional displays of others, and face recognition.[2] Deficits related to face processing emerge at a very young age in children with autism spectrum disorders that may include difficulties in eye gaze, joint attention, and face recognition, perceiving emotions of the other person, poor memory for faces,[3,4] reduced face inversion effect[5] and reduced attention to the eye region.[6]

The prominent three cognitive theories underlying these deficits comprises the theory of mind, theory of executive dysfunction and weak central theory. First, theory of mind hypothesis states that individuals with autism are unable to mentalise, or fail to take into account others' mental states. Second is the theory of executive dysfunction in autism which states that autistic individuals show deficits for functions including initiating, sustaining, shifting and inhibition/stopping.[7] Third is the weak central coherence theory[8,9] which suggest that individuals with autism process things in a detail-focused or piecemeal way—processing the constituent parts, rather than the global whole. Indeed, many studies have reported that autistic individuals process faces in a more analytical, feature-based fashion[5,10] and attend to different features of a face[11] than do their non-autistic counterparts. Similarly, research has been gathered for the mirror-neuron system's role in the range of social-communicative deficits in autism that include not only those encompassed by theory of mind but also those that go beyond theory of mind—for example, face recognition, imitation, and empathy.[12]

Face processing deficits such as impairments in face recognition, perception of emotional expressions, reduced direct gaze and failure to benefit from gaze cues have been shown in numerous studies in autism.[13,14] Failure to give attention to faces is one of the earliest developmental signs of autism and may be detected within the first year of life.[15,16] Aberrant face processing may hence be a cause rather than a consequence of social impairments in ASD.[17] Children with autism have been reported to show normal recognition skills for nonsocial stimuli (e.g. buildings, objects), but impaired skills for social stimuli (i.e. faces) as compared to their peers.[18] More specifically, children with autism tend to fixate less on the eyes in a human face and more on the mouth region.[19] This autism-related face processing impairment does not appear to be due to problems with visual discrimination[19] or overall cognitive abilities.[20] It is also important to understand how face processing impairments relate to more general impairments in social processing.[19]

Amid this vast literature describing deficits in face processing and face recognition in autism, for instance,[11,21-23] only two studies have studied face

drawing.[24-25] Using a drawing task, the current study tried to study how a young child with autism draws a human face. In the study autistic child's performance was compared to that of an age-matched typically developing child.

Case Study

P.N., is a right-handed male, age 5 years, 1 month old. He was born full-term by the cesarean delivery and all his developmental milestones were age appropriate except speech. In his infancy, he resisted being hugged, did frequent hand flapping, and head banging behaviors to express his demands. During the first two years of life, he showed difficulties in capacities for relating with people including minimal facial expression, poor eye contact, no social smiling and marked echolalia. P.N. was administered the Childhood Autism Rating Scale (CARS) to ascertain the severity of autism. He received a total score of 34. He clearly met diagnostic criteria of mild autism based on CARS. He experienced expressive language delay but showed special interest in pictures of animals and then drawings. At the age of 5 years he had difficulty playing with other children "on their terms" and often plays his "own games".

Face Drawing task

To assess face mental representation, P.N. was asked to draw a face, without any further directions. While the child was drawing, the choice of the facial features represented and its position in the order of the drawings was noted. P.N.'s face drawing was compared with that of a typically developing child of same age. The typically developing child had no history of behvioural, psychiatric,neurological or sensory disorders. Prior to inclusion, the purpose of the study was explained and informed consent was obtained from parents.

When asking the children to draw a face, both P.N. and the typically developing children drew the face, outline, eyes and mouth.

However, typically developing child drew eye details with pupils (Figure 2) compared to P.N. who represented eyes with simple circle (Figure 1). While the present task required drawing face, P.N.'s drawing also included elements that are not part of the face (such as other body parts) (Figure 1) whereas the typically developing children did not (Figure 2).

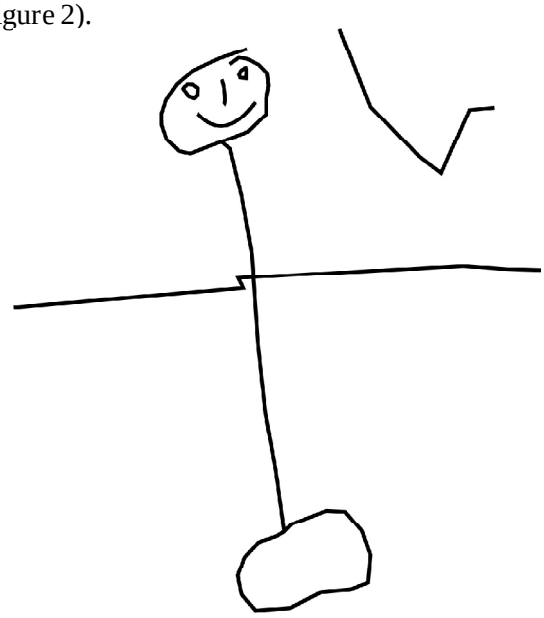

Fig. 1: P.N.'s face drawing

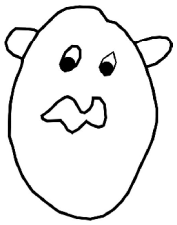

Fig. 2: Typically developing Child's face drawing

The order in which the different facial features were drawn revealed different strategy across the two children. Although both the children started their drawing with the outline, the order of representation of features varied. P.N. drew first outline followed by smile, eyes, nose and then neck, hands and other body parts whereas the typically developing child first drew outline followed by eyes, nose, smile and then ears.

Discussion

First, the results highlight a preserved overall configuration of face concept in P.N.'s drawing. Here, like typically developing child, the general face outline was drawn by P.N. first and then he drew smile and eyes above nose. Although the order of drawing internal features was slightly different, all the core features of the face were represented in the correct place,suggesting that the overall configuration of the face is preserved in child with autism's face concept. Our results are the second in the field

of autism research after[28] to report face drawing (not copying) in a child with autism.

The observation that P.N. was able to accurately draw a face in the right configuration is also consistent with a preserved global approach. However, he depicted other body parts external to the face suggesting greater attention to environmental context. These results could be interpreted as a tendency towards global processing[26] during drawing. These results are in contradiction to other studies which have shown the preference for local processing in the drawings of individuals with autism spectrum disorders.[27-28] Both P.N. and typically developing child's drawing reflected their intellectual realism that is they relied on the conceptual knowledge during face drawing. Luquet suggested that as children grow older they eventually attain the stage of visual realism in which they draw based on what they see.[30] P.N.'s depiction of non-face parts (even when asked to draw only a face) may be considered as a strategy to recognize people who are essential for their daily life without interacting with them.[27]

Eyes were drawn well with pupils by typically developing child while they were represented by a circle by the child with autism. This finding is consistent with the fact that individuals with autism have difficulty attending to the eye-region of faces, unlike typical controls[30,16] and/or attend selectively to the mouth region[10] and reinforces the fact that face scanning is atypical in children with autism, which may have a profound influence on their social functioning. As children's drawings reflect aspect of their working memory and representational thinking, the detailed description in the face (pupils and ears) shown by the typically developing child in his drawing supports the contention that a typically developing child have the ability to remember and represent more accurately a human face in their drawings as compared to atypical children.[34]

In summary, P.N.'s face drawing showed atypical face representation with preserved global coherence associated with poorly detailed eye drawing and the depiction of non-facial elements. Finally, the findings have implications for improving our understanding of the cognitive capacities of autistic children through the simple procedure of face drawings.

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Case Report

Paroxetine and Clonazepam for the management of hyperhidrosis in a case of alcohol use disorder

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Introduction

Excessive sweating, or hyperhidrosis is a recognized symptom in dermatologic and neurological settings but may be seen as a part of anxiety too.[1] It is a neglected symptom as many regard it as a physiological variant and is a prominent feature of both panic attacks and social anxiety.[2] It can be difficult to treat, as no systematic studies with medication use are available and anecdotal case reports suggest various drugs that may be useful.[3] Some reports show a response to SSRIs[4] and Gabapentin.[5] Hyperhidrosis can be associated with significantly impaired quality of life, even interfering with the ability to carry out professional responsibilities.[6] Hyperhidrosis can be so distressing that patients are willing to undergo surgery for its cure and management.[7] The present case report discusses a case of hyperhidrosis in a case of alcohol use disorder with anxiety that responded to Paroxetine and Clonazepam.

Case Report

A 26 year right-handed Hindi speaking Hindu married male hailing from Uttar Pradesh staying in Mumbai and educated till the 10th standard and working as a vegetable vendor was referred to the psychiatry out patient department to rule out psychogenic hyperhidrosis of the palms secondary to anxiety and stressful situations. On history taking he had chief complaints of excessive sweating in palms and soles, episodes of restlessness, tremulousness, palpitations which was there since the age of 14 years and increased since the past 2 years. He also had a history of alcohol consumption since the past 1 year with the last consumption being 3 days prior to his consultation and he would consume a bottle of local liquor (desi) per day.

The patient claims that ever since his childhood he was a shy child and low on confidence. In school, he would refrain from talking to others or participating in social and extracurricular activities like singing and stage performances though he wished to but his low confidence did not allow him to do so. He had very few friends and would not open up his feelings to either his siblings or his parents as a child and the same happened with his wife. He would think multiple times before talking to anyone and mostly end up remaining by himself most of the times.

Gradually the patient would become apprehensive about his day to day routine and chores. When faced with situations like witnessing a argument or fight in neighbourhood, a funeral procession or even a crowded place like a train, a market, or school exams the patient would develop symptoms of restlessness, sweating in the palms and soles, tremulousness, palpitations, occasionally breathlessness and feeling of impending doom. These episodes would fade of only when the patient moved away from site of stressor. The patient claims that the sweating in his palms was to such an extent that his exam papers at school would become moist and at times they tore off and the written matter became unclear due to moisture of his palms. Later during work, often the currency notes used to get damaged due to sweating of his palms. On one occasion, on witnessing physical violence in his village 2 years prior to consultation, the patient felt so restless that he left his important belongings at the site and ran home to relieve his anxiety. The patient also showed significant social anxiety in the form of sweating and tremulousness while talking to new people or addressing a gathering in school or work. He would

avoid social gatherings and meeting people as far as possible.

The patient's symptoms aggravated over last 2 years. He consulted many physicians in his home-town but was there was no relief and he was told it was due to mental tension or anxiety and that it shall persist. He spent Rs. 40000 on faith healers but to no relief.

Around a year back, owing to the decreasing sleep and heaviness in head for 2-3 months along with these symptoms, he resorted to alcohol on a friend's suggestion. He began the consumption with beer, felt pleasurable, light headed, more confident than ever and could sleep well.He began consuming beer often and within a month was consuming it on a daily basis 1-2 bottles a day. Within the next 3-4 months he shifted to country liquor and gradually consumption increased to an extent that the patient would remain under influence of alcohol even during the day.From a shy person, the patient underwent a personality change and started having frequent altercations with parents, wife, neighbours, suffered financial losses in work due to alcohol use.

He was sent to Mumbai by his father to his relative with whom he started selling vegetables, since about 2 months.He also decreased alcohol consumption by self to 3-5 times a week at night (one quarter of country liquor).

As per the patient since around 2-3 days prior to visiting us he was feeling extremely anxious in his crowded workplace and had extreme sweating in his hands which was causing lesions at the finger tips for which he presented to the casualty and was referred to psychiatry.

He has history suggestive of depressive features with low mood, ideas of helplessness and occasional death wishes mainly due to the distress caused by his anxiety features. He had no symptoms suggestive of OCD, mania, psychosis or other substance use.

There was no history suggestive of head injury, seizure or alcohol withdrawal features. There was no history suggestive of jaundice, hematemesis, malena and ascites.

There was a family history of alcohol use in the younger brother and no history suggestive of other mental illnesses in the patient's family. Birth and development history was unavailable at the time of assessment. He was educated till the 10th standard. He was married since 3 years had a one year old daughter. He was religious, believed in God with sleep and appetite being normal.

Premorbid personality evaluation suggested that he was introvert, shy, low on confidence and had poor self esteem being socially inhibited and anxious.

On examination, he was thin built, average groomed, excessive sweating over palms with reddening of fingertips (similar to maceration). Sweating on soles of feet and forehead and no signs of pallor, icterus, cyanosis, edema, lymphadenopathy and tremors was present. Systemic examination was normal.

The patient was conscious, cooperative, oriented to time place and person and maintained good eye to eye contact during the interview. Rapport was established and attention, both active and passive, were normal. Mood was conveyed as anxious and affect was congruent to mood. Speech was slow and no thought disorder abnormality was present. Ideas of helplessness were present. Concepts both simple and abstract were intact. Memory and judgement were fine with insight being grade 1 out of 6.

A diagnosis of social anxiety with hyperhidrosis and alcohol use disorder was established and he was started on Paroxetine controlled release at a dose of 12.5 mg per day with Clonazepam 0,25mg twice a day. In a week, he showed 30% improvement in anxiety symptoms and was less distressed in crowded places and in socialising with others than before. Episodes of restlessness and palpitations decreased, to once a week and sweating in palms and soles had also decreased. His skin lesions had healed he was also off alcohol without any treatment since the past 10 days as he was relieved of his symptoms. The dose of Paroxetine was increased to 25mg at night in a week and over the next 2 weeks he reported a 75%improvement in symptoms. The anxiety was absent and no further episodes of restlessness and palpitations, sweating in face of stressful situations were noted.The patient claimed a sense of well-being that he never had before in his life. The patient has continued the medication for 6 weeks and on last follow up has shown a 100% improvement.

Discussion

Anxiety has been reported to cause hyperhidrosis across various studies in the past.[8]

Sweating may occur due to the autonomic response in anxiety as well as alcohol withdrawal. In our case the sweating was due to anxiety and was excessive causing social and occupational dysfunction. Normally surgical treatments may be sought for hyperhidrosis when medical treatments do not work.[9] Considering the social anxiety component in our case, we decided to start the patient on Paroxetine and Clonazepam both of which have been used in various studies in the management of social anxiety disorder.[10-11]To the best of our knowledge this is the first case where Paroxetine has been used in the management of hyperhidrosis with social anxiety. This case shall serve as an example to guide physicians when they encounter.

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Book Review

Case Studies: Volume 2

Stephen M. Stahi and Thomas L. Schwartz

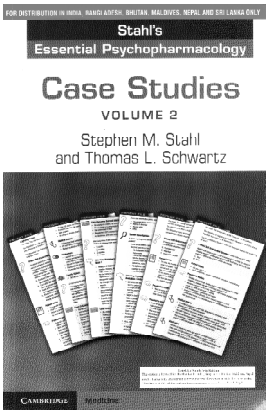
Mental disorders are highly prevalent in the community and are a significant cause of morbidity and mortality. Timely and appropriate intervention tends to reduce the overall consequences of these conditions. Along with scientific knowledge and awareness about pharmacology, what is required is the confidence and clinical acumen while treating a patient. Very few books are available that guide us in evaluating and managing clinical situations.

Case studies by Stephen Stahl is the second volume of a series of case studies in psychiatric disorders, adapted from real life situations and consisting of an overview of consultations and subsequent follow ups, helping us to understand which treatments tend to work and donot work in particular scenarios. The book has been authored by Stephen Stahl and Thomas M. Schwartz. Dr. Stephen Stahl, adjunct professor in the department of psychiatry, University of California has also authored other books like Stahl's Essential Psychopharmacology and Prescriber's guidelines. This book, like its prequel, shows how to apply the concepts of psychiatry and psychotherapy to actual patients in pragmatic settings.

The art of psychopharmacology is especially important when confronting situations where not much clinical evidence is available. Hence these books help us in expanding our practical knowledge and dealing with challenging patients with multiple comorbidities.

This book complements the other books of the author in the Essential Psychopharmacology series, adding the advantage of clinical experience to existing empirical research.

The identifying details of the patient are anonymized, but the outcomes are real, although often more than one case has been combined into a single case. The cases illustrate the chief complaints and other relevant details of history including family and personal history and goes on to discuss the outcome of the case including suggestions regarding



what could have been done better. Included in the case book, however, are many unique sections as well; for example, presenting what was on the author's mind at various points during the management of the case, and also questions along the way for reader to ask himself/herself in order to develop an action plan. It also consists of a "Two-minute tutorial," with background information, tables and figures from literature relevant to the case in hand as well as a take home message.

The case scenarios have a pre-test post-test pattern design, which will also helps one to assess the knowledge that is gained from a particular case discussion.

Additionally, these cases incorporate ideas from the recent changes in maintenance of certification standards by the American Board of Psychiatry and Neurology.

The book is among few of its kind, acting as a comprehensive guide, not only for psychiatrists, but also for general practitioners and helps in practical application of clinical knowledge. It also provides help in assessment and management of difficult cases where not much evidence base is available with regards to treatment recommendations.

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Forthcoming Events

International

- 4th MMF — Fourth Edition of the Maudsley Mediterranean Forum, 29 May - 01 June 2017. Palermo, Italy. Event website: http://www.unipa.it/A-Palermo-il-Mediterranean-Maudsley-Forum/
- III International Conference — Integration Of Psychotherapy In The Disintegrating World 02 - 04 June 2017 • Warsaw, Poland. Event website: http://conference.psip.org.pl/en/start-2/
- 13th World Congress of Biological Psychiatry, 18-22 June 2017,Copenhagen, Denmark. Event website: www.wfsbp.congress.org
- 3rd International Conference on Depression, Anxiety and Stress management, 21-22 June 2017, London, UK. Event website: http://stressmanagement.global-summit.com/
- Social And Cognitive Neuroscience of Thought. 24 June - 01 July 2017, Siena, Italy. Event website: http://www.nsas.it/courses-workshops/advanced-courses/neural-mapping-of-social-cognition/
- 4th International Conference on Neurodegenerative disorders and Stroke. 05 - 06 July 2017 , Frankfurt, Germany. Event website: http://stroke.cmesociety.com/
- Sleep and Cognition. 08 - 15 July 2017, Siena, Italy. Event website: http://www.nsas.it/courses-workshops/advanced-courses/sleep-and-cognition/
- WA Mental Health Conference and Awards 2017. 13 -14 July 2017, Perth, Australia. Event website: https://waamh.org.au/wa-mental-health-conference-and-awards-2017.aspx
- XXIInd Congress of the International Society of Rorschach and Projective Methods. 17 - 21 July 2017, Paris, France. Event website: http://www.rorschachparis2017.org/en
- International Conference on Drug and Addiction Research 2017. 20 - 21 July 2017, Lisbon, Portugal. Event website: http://addiction.cmesociety.com/
- Cognitive Decline and Aging. 01 - 08 September 2017, Siena, Italy. Event website: http://www.nsas.it/courses-workshops/advanced-courses/cognitive-decline-and-aging/
- WPA XVII World Congress of Psychiatry Berlin 2017. 08- 12 October 2017, Berlin, Germany. Event website: http://www.wpaberlin2017.com
- 2ND International Congress on Forensic Science and Psychology. 12-13 October 2017, LONDON UK. Event website: forensiccongress@psychiatrycongress.com
- National Borderline Personality Disorder (BPD) Conference 2017. 18 - 19 October 2017 , Perth, Australia. Event website: https://waamh.org.au/events/national-borderline-personality-disorder-bpd-conference-2017.aspx

Indian

- 13th Annual National Conference of Biological Psychiatry 2017. 19-20 August 2017, Chandigarh, India Event website: anciabp.com
- 34th National Conference on Mind-Body–Medicince. 1-4 September 2017, Mount Abu, Rajasthan. Event Website: www.bkmedicalwing.org
- 42nd Annual Conference Indian Psychiatric Society – North Zone 2017. 7-8 October 2017, New Delhi. Event Website: www.ipsnz.org
- World Congress of Mental Health. 2-5 November 2017, New Delhi. Event Website: www.wfmhindia.com
- 24th National Conference of Indian Association for Social Psychiatry. 17-19 November 2017, Guwahati Event Website: www.iasp.org.in
- 18th Annual National Conference of Indian Association of Private Psychiatry, 2017. 23 - 26 November 2017, Jaipur, Rajasthan. Event Website: www.anciapp.com
- 70th Annual National Conference of Indian Psychiatric Society. 5-8 February 2018, Ranchi. Event website: ancips2018ranchi.com

Interesting Articles

- Jha MK, et al. **Early Improvement in Work Productivity Predicts Future Clinical Course in Depressed Outpatients: Findings From the CO-MED Trial.** Am J Psychiatry 2016 Dec 1; 173(12) : 1196-1204.
- Fochtmann LJ . **Evidence for the Continuing Benefits of Electroconvulsive Therapy.** Am J Psychiatry 2016 Nov 1; 173(11) : 1071-1072.
- Rodriguez CI et al. **Effect of a Novel NMDA Receptor Modulator, Rapastinel (Formerly GLYX-13), in OCD: Proof of Concept.** Am J Psychiatry 2016 Dec 1; 173(12) : 1239-1241.
- Pan LA et al. **Neurometabolic Disorders: Potentially Treatable Abnormalities in Patients with Treatment-Refractory Depression and Suicidal Behavior.** Am J Psychiatry 2017 Jan 1; 174(1) : 42-50.
- Kendler KS, et al. Kahlbaum, Hecker, and Kraepelin. **And the Transition From Psychiatric Symptom Complexes to Empirical Disease Forms**. Am J Psychiatry 2017 Feb 1; 174(2) : 102-109.
- Barak-Corren Y et al. **Predicting Suicidal Behavior From Longitudinal Electronic Health Records.** Am J Psychiatry 2017 Feb 1; 174(2) : 154-162.
- Przybylski AK et al. **Internet Gaming Disorder: Investigating the Clinical Relevance of a New Phenomenon.** Am J Psychiatry 2017 Mar 1; 174(3) : 230-236.
- Bryant RA et al. **Mental Health and Social Networks After Disaster.** Am J Psychiatry 2017 Mar 1; 174(3) : 277-285.
- Huang RY et al.**Use of lithium and cancer risk in patients with bipolar disorder: population-basedcohort study.** Br J Psychiatry 2016 Nov; 209(5) : 393-399.
- Brugha TS et al. **Epidemiology of autism in adults across age groups and ability levels.** Br J Psychiatry 2016 Dec; 209(6) : 498-503.
- Sequeira ME et al. **Association of timing of menarche with depressive symptoms and depression in adolescence: Mendelian randomisation study.** Br J Psychiatry 2017 Jan; 210(1) : 39-46.
- Shawyer F et al. **Acceptance and commitment therapy for psychosis: randomised controlled trial.** Br J Psychiatry 2017 Feb; 210(2) : 140-148.
- Zhuo C et al. **Cerebral blood flow alterations specific to auditory verbal hallucinations in schizophrenia.** Br J Psychiatry 2017 Mar; 210(3) : 209-215.
- Simiyon M et al. **Sexual dysfunction among women with Schizophrenia-A cross sectional study from India.** Asian J Psychiatr. 2016 Dec; 24 : 93-98.
- Sadath A. **Do stress and support matter for caring? The role of perceived stress and social support on expressed emotion of carers of persons with first episode psychosis.** Asian J Psychiatr 2017 Feb; 25 : 163-168.
- Kumar A et al. **Efficacy of mindfulness-integrated cognitive behavior therapy in patients with predominant obsessions.** Indian J Psychiatry 2016 Oct-Dec; 58(4) : 366-371.
- Zieger A et al. **Perceived stigma of mental illness: A comparison between two metropolitancities in India.** Indian J Psychiatry 2016 Oct-Dec; 58(4) : 432-437.
- Sinha P et al. **An exploratory study for bladder dysfunction in atypical antipsychotic-emergenturinary incontinence.** Indian J Psychiatry 2016 Oct-Dec; 58(4) : 438-442.
- Gupta S et al. **Leaf it or not: A case of khat dependence from India.** Indian J Psychiatry 2017 Jan-Mar; 59(1) : 126-127.
- Umut G et al. **Serum NUCB2/nesfatin-1 levels in different stages of alcohol dependence: Is there a relationship with craving?** Indian J Psychiatry 2017 Jan-Mar; 59(1) : 94-99.
- Patra S et al. **What they think of us: A study of teaching medical specialists' attitude towards psychiatry in India.** Indian J Psychiatry 2017 Jan-Mar; 59(1) : 100-105.

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- **Book**
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- **Chapter of a book**
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