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Tele medicine guidelines - the need of hour in times of a global pandemic

Sai Krishna P

Professor, Dept. of Psychiatry, PIMS, Karimnagar, Telangana, India

***Corresponding Author: Sai Krishna P**
Email: kannap103@gmail.com, editoroftjp@gmail.com

World Health Organization defines "Health is a state of complete physical, mental and social well-being and not merely the absence of disease."[1]

In India, giving in-person health care to all is quite challenging given the large geographical area, limited number of health care professionals, nursing, caregivers and resource allocation.

Various countries adopt different allocation of resources for health services of their citizens. For example in USA, in 2018 it was approximately 3.5 trillion dollars and in 2019 it was 3.6 trillion dollars.[2] It accounts for approximately 18% of their Gross Domestic Product[GDP].

Currently, India has one of the lowest allocation towards health care when compared with other countries across the globe at 1.6 percent of GDP. India's national health policy 2017 envisages to increase the health budget to percent of GDP.[2]

Despite India having achieved significant economic growth over the decades, the progress in health has not been commensurate. The inability to rapidly improve the human capital also places a binding constraint on economic growth.[3]

Government of India is committed to provide equal access to quality health care to all of its citizens and want to utilise digital mode to achieve this. India's digital health policy advocates use of digital tools in health and wellness Centers at the grassroots level wherein a mid level health care provider can connect to specialist doctors through technology platforms in providing best health care services.

The future of India lies in its villages. Unless we meet healthcare needs of rural population of India (approximately 65.97%), we cannot achieve desirable health outcomes.[4]

National Institution for Transforming India (NITI) AAYOG is spearheading the health index initiative to bring about transformational change in achieving desirable health outcomes.[5]

In India with a population of 130 crores, it will be difficult to provide equal health care to all. To promote health where specialist opinion is needed and resources are limited alternate strategies are being planned like telemedicine.

CORONA- Global Pandemic

A disease that started in Wuhan, China in December 2019 as a viral outbreak has changed the global health care dynamics. Day by day the number of people who are affected is increasing at an alarming rate. It has spread across 200 countries and has affected more than fifty five lakhs till date. The number is increasing in an exponential way. It made lot of countries to change the guidelines in handling regular outpatients who need medical care. India is no exception to this.

Due to panic created regarding the mode of spread, social distancing and staying in home is the golden principle being practiced all around the world. Elective health care services have been shut down and only emergency health care was given to reduce community spread.

Stopping of public transport system has made the situation even more challenging.

As an alternate to direct visit to the physician, telemedicine is being proposed as a newer health care delivery module. New guidelines have been formed by Board of Governors in super session of the Medical Council of India to enable registered medical practitioners to provide health care using telemedicine. This constitutes appendix 5 of the Indian medical council (Professional Conduct, Etiquette and Ethics Regulation, 2002) on 25th March 2020.[6]

Effect of COVID-19 Pandemic on psychological health

Sudden outbreak of a disease with no definitive treatment, high morbidity and mortality can cause serious impact on the mental health of individuals. Mental health care professionals are indeed noticing worsening health issues during this sudden outbreak.

To stop spread of the viral infection, Government of India has announced national lock down. Majority were not prepared for such restrictive measures. In addition the continuous watching of false and unauthentic news, listening to the loss of loved people, preoccupation and uncertainty regarding their own health, future financial implications, all have increased the stress and people have started experiencing worsening of their physical and psychological health. It is a known fact that stress alters our immunity and we are more prone to diseases.

Psychiatrists across the globe have noticed flare up of anxiety issues particularly COVID phobia, worsening of depression due to loss of loved ones, delusional thoughts regarding viral disease, substance abuse withdrawals and many more.[6]

Majority of the psychiatry set ups across the country are not prepared to handle the disease spread as it is extremely contagious. A voluntary shut down of elective Out Patient Department [OPD] services and handling of only psychiatric emergencies is being practiced. Like any health professional the psychiatrist is also not immune to contracting the viral infection. In such kind of scenarios alternative health care

delivery with minimal risk of exposure to patients and doctors is needed to help the vulnerable.

Telemedicine... need of the hour

The main purpose of telemedicine is to address medical needs of a remote patient in a simplest possible way.

Telemedicine is "delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities.[7]"

Tele health is "delivery and facilitation of health and health- related services including medical care, provider and patient education, health information services, and self care via telecommunications and digital communication technologies[7]".

Practical Guidelines have been proposed to all health care professionals which will provide sound course of action based on current information, available resources and patient needs to ensure patient and provider safety. They provide norms and protocols relating to physician- patient relationship, issues of liability and negligence, evaluation, management and treatment, informed consent, continuity of care, referrals for emergency services, medical records, privacy and security of the patient records and exchange of information, prescribing, reimbursement, health education and counseling.

Information on technology platforms, tools available, integration of technologies is available in the guidelines. Integration of technology and transmission of voice, data, images, information with other clinical standards, protocols, policies and procedures are possible with telemedicine.

All these telemedicine guidelines should be used in conjunction with existing national clinical standards, protocols, policies and guidelines.

Few Guidelines in India:[7]

1. Telemedicine should be appropriate and sufficient as per the context of case.
2. Registered Medical Practitioner [RMP] should ensure that there is a mechanism for both to verify the credentials and contact details.
3. Consent- when patient initiates telemedicine then the consent is implied. Explicit consent is needed if a health worker, RMP or a caregiver initiates a telemedicine consultation.
4. RMPs must make all efforts to gather sufficient medical information about the patient's condition before making any professional judgment.
5. RMP should provide health education as appropriate in the case, provide guidelines related to specific condition, prescribe medicines.
6. Prescription of medicines without an appropriate diagnosis or provisional diagnosis will amount to professional misconduct. Medicines are categorized as list O, list A, list B, prohibited list. Medicines listed in schedule X of drugs and cosmetics act and rules or any Narcotic and Psychotropic substances act 1985 should not be prescribed.
7. RMP shall issue a prescription as per the Indian Medical Council Regulations and shall not contravene the provisions of the Drugs and Cosmetics Act and rules.
8. All the principles of medical ethics, including professional norms for protecting patient privacy and confidentiality as per Indian Medical Council act shall be binding and must be upheld and practiced.
9. All the rules to protect data protection and privacy laws as per Information Technology act shall be practiced. Reasonable degree of care should be taken to prevent data breach and also during hiring third party services.
10. RMP should maintain log or record of telemedicine interactions, patients digital or non digital records, prescription records used in telemedicine consultation.
11. RMP can charge an appropriate fees for telemedicine consultation and provide a receipt or invoice for the fees charged.
12. Technology platforms based on Artificial Intelligence/ machine learning are not allowed to counsel the patients or prescribe any medicines.
13. Telemedicine guidelines, drug lists, directions, advisories, any clarifications can be amended from time to time in larger public interest with the prior approval of central government (ministry of health and family welfare, Government of India).

Tools for telemedicine:[7]

Applications can be classified into four basic according to the mode of communication, timing of the information transmitted, purpose of consultation and the interaction between the individuals involved. Tools used are telephone, video, devices connected over LAN, WAN, Internet, mobile or landline phones, chat platforms like WhatsApp, Face book messenger etc., mobile App or internet based digital platforms for telemedicine or data transmission systems like Skype/ email/ fax can be used.

Online course:[7]

An online program will be developed and made available by the board of governors in supersession of Medical Council of India. All registered medical practitioners willing to provide online consultation need to complete a mandatory online course within 3 years of this notification. In the interim period, guidelines should be followed.

Emergency consultations

Telemedicine can be used in such situations only when alternative care is not present and this is the only way to provide timely care. To the best of the registered medical practitioners judgment consultation should be limited to first

aid, life saving measures, counseling and advice on referral. Patient can be advised in person interaction at the earliest.

Emergency situations

Goal and objective should be to provide in person care at the earliest. RMP based on his professional discretion may advise first aid, counseling and facilitate referral. In all cases of emergency, patient must be advised for an in-person interaction with a registered medical practitioner at the earliest.

Exclusions from telemedicine services

Following are explicitly excluded:

1. Doesn't provide consultations outside the jurisdiction of India.
2. Use of digital technology to conduct surgical or invasive procedures remotely.
3. Data management systems involved; standards and interoperability.
4. Specifications for hardware or software, infrastructure building and maintenance.
5. Other aspects of tele-health such as research, evaluation and continuing education of health care workers.

Advantages

There are lot of benefits to this health care delivery like timely access to appropriate interventions including faster access to services that may not otherwise be available.

1. Faster access to health care.
2. Timely access to health service.
3. Less travel for rural patients to obtain health care.
4. Reduced financial costs.
5. Less inconvenience/ impact on family, caregivers and social factors.
6. Reduced burden on secondary hospitals.
7. Proper maintenance of records and documentation so that patient doesn't miss health advice.
8. Increased legal protection of both parties.
9. Health workers safety and doctors safety in situations where there is risk of contagious infections.

Disadvantages

1. Can be abused.
2. Data breach and misuse of patient personal details
3. Medico legal issues if guidelines not followed.

It can be reduced by appropriate training, enforcement of standards, protocols and guidelines

Conclusions

In this era of smart phones and digital India, Telemedicine, can be taken as an alternate method of health care delivery. Health care institutions and doctors should invest in telemedicine module of health care delivery in future for effective service to the patients. Like any health system it has its own challenges, which can be rectified with proper training and increased usage. If utilized properly in primary health care centers, it will fill the specialist gaps in many rural areas and reduce burden on secondary and tertiary hospitals.

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Psychosocial impact of the lockdown and COVID-19

Avinash De Sousa[1*], Sai Krishna P[2]

[1]Consultant Psychiatrist and Research Associate, Dept. of Psychiatry, Lokmanya Tilak Municipal Medical College, Mumbai, Maharashtra, [2]Professor, Dept. of Psychiatry, PIMS, Karimnagar, Telangana, India

***Corresponding Author: Avinash De Sousa**
Email: avinashdes888@gmail.com

Introduction

The COVID-19 pandemic resulted in a nationwide lockdown initially for 21 days and was extended to control further spread of the deadly disease. National and international travel was affected and people were ordered to stay indoors while moving out sparingly for essentials only. The lockdown is a unique phenomenon on its own. It is for the first time in recent years in our nation that we are homebound with our family members. This is very different from quarantine where the patient is isolated at home or in a quarantine facility and does not get to meet his family members. The lockdown while does grant us some freedom, has huge psychological ramifications as well for the common man as well as for patients who already suffer or are predisposed to psychopathology.

Psychosocial factors in a Lockdown

There are a number of psychosocial factors that shall determine one's response to a lockdown. The lockdown would reduce income of most professions and bring financial stress on anyone if it would continue for a long time. Sufferers are mostly the daily wage earners and those that have businesses and establishments that earn on a daily basis. The longer the lockdown, the greater the financial strain and this would lead to depression, anxiety, uncertainty about the future and days ahead which would cause panic and further anxiousness. The person with financial liabilities would succumb more to the same during the lockdown period and this would lead increased severity of depressive symptoms and an increased frequency of panic attacks.[1]

Corona-anxiety

Many people developed what is called "Corona anxiety" i.e., they feel that they may contract the virus. Symptoms like mild fever and cough may be thought of as COVID and people started experiencing anxiety symptoms. The thought of stepping out may precipitate anxiety and this will be more in people with personalities that are predisposed to anxiety and worry. In those who may get infected the knowledge of the diagnosis, and isolation for treatment can be a potential trigger for anxiety and depression. Excessive protection and obsessiveness about social distancing and protection may also develop in people.[2]

Psychological Aspects of Undergoing Quarantine

Most reviewed studies on psychological effects of quarantine have reported negative psychological effects including post-traumatic stress symptoms, confusion, anxiety, depression and anger. The stress revolved around factors like longer quarantine duration, staying away from family, infection fear, boredom, inadequate supplies, inadequate information, financial loss, isolation and stigma. Patients need to be psycho-educated about the clear rationale for quarantine and information about protocols, and ensure sufficient supplies are provided. If educated properly, people can appreciate the benefits of quarantine to wider society. Considering the potential risk of agitation in an isolated environment, it is advisable to allow the patient to interact with the family member/caregiver using video/audio call whenever a patient is under quarantine or admitted to COVID hospital.[3-4]

Access to Proper Mental Health Care

The biggest problem during COVID-19 would be access to proper mental health care. Patients would not be able to reach a mental health professional and a majority of consultations would happen over the phone and in India, telepsychiatry as a modality is yet to kick off in a big way. The psychiatric examination and mental status examination are best done in person and a teleconference video call may not suffice for the same. Many agencies have started telepsychiatry services offering free mental health services during the COVID-19 lockdown. Thus, while services are available, there is no stringent body that would monitor the quality of these services and whether ethical standards are adhered to. It is important that professionals and agencies offering telepsychiatry services have professionals who are qualified and trained in this regard to some extent. This is just one of the few issues that concern mental health during the lockdown.[5]

Relapse of Patients with Pre-Existing Psychiatric Diagnosis

A burgeoning issue is one of patients with pre-existing psychiatric diagnoses. Procuring medications may be difficult in a lockdown due to short supply and there may relapses due to a lack of compliance with medication in many cases. Patients with schizophrenia may experience delusions and hallucinations and they may have new delusions that posit themselves around the themes of the current pandemic. Aggression and violent behavior may be exhibited by patients with schizophrenia. Patients with obsessive compulsive disorder may show a relapse of symptoms and the current status of sanitization and cleanliness may serve to exacerbate their obsessions and compulsions in the form repeated sanitizer use, repeated hand washing and rigorous cleanliness. Patients with panic disorder may have a resurgence of their panic symptoms and

panic attacks may occur. Mood may go down and depressive symptoms may worsen while some patients may also develop suicidal thoughts and feelings. Withdrawal symptoms may be seen in patients with substance abuse to alcohol withdrawal and withdrawal from other drugs as they may not be available in the lockdown period.[6-7]

Focus on Special Populations

A major effect of the lockdown and COVID-19 would be on special populations that are vulnerable to be affected by mental health problems. Children and adolescents, geriatric populations, children with developmental disabilities, pregnant women and patients with medical illnesses that compound psychiatric illness need special mention. Many families may also undergo strife as they are staying together and there may be fights and squabbles between family members on a daily basis adding to the stress. Families must use this time to understand each other better and also end differences if any.[8]

Mental Health of Healthcare Personnel

All the the healthcare personnel and front line warriors looking after COVID patients and working in hospitals and isolation wards also need to have their mental health looked after. The stress of the work they are doing shall get to them and it will be difficult for them to deal with situations once cases escalate. Regular mental health care for these doctors, nurses and ancillary staff is very important for us to have a stable healthcare infrastructure to combat COVID. There is also a need for training these staff in communication skills and building their resilience for the tough times that they shall face ahead.[9]

Mental Health of Sanitation Workers and Police Personnel

Across the country, right from the onset of pandemic, police and sanitation workers are working continuously to help the government to control the spread of disease. They do service by staying away from families, with minimal facilities for food, water and other basic amenities. This group are vulnerable to severe stress due to prolonged work hours and pressure from the community and government to control the pandemic. Conducting regular counseling sessions, allowing them to ventilate their issues, conducting meditation, yoga camps will help them to cope up in long term.

Patients with Severe Mental Illness and COVID

Patients with severe mental illness may also be at an increased risk of contracting COVID infection. Homelessness and disorganization along with residences in slums may thwart social distancing protocols in these groups. Being illiterate and uneducated they will have little or no access to the COVID related educational material and may throw caution to the wind. Many patients with severe mental illness may delay diagnosis and coming to a hospital and may thus not receive mental health care. They may also delay seeking help due to lack of insight if having COVID and may also infect others around them. Even if treated they may not comply with medical care. Hence this is a very special group that needs attention during the pandemic.[10]

Changes in Psychopharmacological Approaches

Certain psychopharmacological tactics may need to be implemented in order to prevent withdrawal or side effect of drugs. In view of the medication shortage many stable patients with schizophrenia may be prescribed depot injectable antipsychotics to minimize the chances of withdrawalpsychosis. Many patients on Benzodiazepines may face abruptwithdrawal with rebound anxiety and panic attacks. One must ensure that they get a prescription so that they have enough medicines to see them through the COVID period.

The unavailability of antidepressants, can cause withdrawal symptoms and rebound depression.One must shift patients on once a day longer antidepressants. There will be instances when patients of bipolar disorder on antiepileptics as a mood stabilizer may get a seizure due to abrupt withdrawal and shifting them to longer acting once a day preparation will be helpful while optimizing the dose.[11]

Approach to ECT during COVID

Many patients may have been in the middle of an electroconvulsive therapy (ECT) course when the pandemic started and must complete their course of ECT. It is imperative that adequate precautions be taken before ECT. We must screen patients before ECT procedure for respiratory symptoms, history of contact with COVID-19, monitor temperature and oxygen saturation well. We must actively liaison with the anesthesia team and ancillary staff and see that personal protection equipment is available for the staff. We must minimize the staff involved in ECT procedure and also plan that all patients needing ECT come to a single ECT room and on the same day. The patients receiving ECT must be adequately secluded from each other pre and post ECT to maintainphysical distancing. One must give due attention to surface and equipment cleaning during and between cases (for example have a rigid protocol for anesthetic machine interface, bag, monitors, surfaces, doorhandles etc.).[12]

Patients Visiting Psychiatric Clinics

When patients visit the psychiatrist for a consultation, the clinic can be a potential source of infection for both people visiting the clinic and the staff working in it and this can be liability on the doctor running the clinic. Hence it may be best to screen patients for respiratory symptoms and provide them the option of teleconsultations if they have symptoms. In addition, a signed self-declaration for symptoms, travel history and informed consent can be obtained from patients and relatives.With little or no evidence base, treatment decisions need to be individualized to a given patient and psychiatrists have to use their clinical discretion based on the existing knowledge. Planning to prevent disruptions in the supply chain can help minimize the risk of withdrawals and relapse of symptoms. Psychiatrists need to liaise with the local public health authorities and develop plans to provide medications to patients at their homes.[13]

Some other Factors

There have been concerns over the role of mental disorders in coronavirus transmission.

Patients with mental illness may not be aware of risks and may be uncooperative with regard to social distancing and personal protection. Once patients with mental illness are infected with severe acute respiratory syndrome coronavirus 2 that shall cause COVID-19, more of them will be shunned away from mental health care. This will also happen due to the general discrimination associated with mental ill-health in health-care settings. The mental health disorder comorbidities to COVID-19 will make the treatment more challenging and potentially less effective.COVID-19 has caused a parallel epidemic of fear, anxiety, and depression and this shall increase post the COVID epidemic as has been though of. People with mental health problems are affected by social media and the news brought on by the COVID-19 epidemic which causes a relapse of an already existing mental health condition because of high susceptibility to stress compared with the general population.[14]

The Place of Psychiatry in COVID-19

By seeing the rise of mental health issues, Government authorities have felt psychiatry as an essential field. Even Prime minister, Shri Narendra Modiji had highlighted this in one of speeches during the corona crisis. District collectors and health administrators had initiated in formation of tele-counselling centers in district hospitals to address psychological issues. Hospitals and many centers have allowed that their non-essential staff to stay home. In few areas and corporate sector, we may be considered non-essential as we are not trained in managing medical emergencies. But the question of essentiality and non-essential is a personal one that we have to answer. We cannot shy away as we are doctors first and psychiatrists later.

We have a practice that is spread out and flexible but in the midst of COVID-19, psychiatry and psychiatrists are essential and invaluable. We should be there for everyone who has fear and uncertainty related to the pandemic, even if they are not infected with COVID. These patients may come to casualty departments with fear and worry, may present with psychiatric symptoms or may be medical inpatients worried about their existing medical problems worsening and can even be psychiatric patients rattled by the current pandemic.[15]

Consultation-liaison psychiatry in shall play a vital role and will decide the best approach in this situation. Consultation-liaison psychiatrists work closely with the medical and surgical teams and also know about the worries that their colleagues undergo. Consultation-liaison psychiatrists usually traverse through the hospital and multiple specialties system and will be on the frontline in this pandemic.[16]

While we use telepsychiatry to manage our patients, it is vital that we realize we are as important on the frontline as we are on a video screen or telephone call.

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A psychiatrist's report from the frontlines of the corona pandemic

Pingali Srilakshmi

Associate Professor, Dept. of Psychiatry, Gandhi Medical College, Secunderabad, Telangana, India

***Corresponding Author: Pingali Srilakshmi**
Email: drpingali@gmail.com

The Corona virus or the COVID 19 pandemic originated in Wuhan in China in December 2019.[1] The first case in India was reported on 30th January and has since rapidly spread across the country.[2] It has not only caused a cluster of acute respiratory illnesses, but has left plenty of mental health issues in its wake. The stress of uncertainty and the lack of any known treatment has precipitated anxiety and other mental health disorders, bringing the need for mental health support into sharp focus.

Various studies done in general public,[3] health care workers,[4] the people in isolation and patients diagnosed as COVID positive have shown various degrees of psychological suffering.

How to provide such care is a challenging task in a rapid changing world.

I would attempt to address this issue based on my experience of working in the Department of Psychiatry, in an exclusive COVID nodal center catering currently to over 500 COVID positive patients.

The role of a psychiatrist in any pandemic is manifold. To name a few. screening patients for mental health disorders, attending to psychiatric referrals from various departments, providing ongoing psychological support to the health care workers and managing patients of severe mental illness now diagnosed with COVID 19

The means to screen a large population of patients and to provide them with ongoing support is best done by audiovisual aids.

It ensures not only that a large size of the patient population is reached, but also avoids unnecessary exposure of the psychiatrist. Rapport also can be established with ease as the psychiatrist is the only doctor who would be talking to the patient without the barrier of the Personal Protective Equipment (PPE). The World Health Organization (WHO) has come up with various measures for providing mental health support.[5] How these are implemented depends to a large extent on the sensitivity of the establishment towards mental health issues and the convincing power of the psychiatrist. The flip side however is the misuse of such aids by the patients for non-psychiatric related issues.

The absence of audio-visual aids should not act as a deterrent to the psychiatrist. Mental health support can be given even while donning a PPE. Our experience while screening for mental health issues in hospitalized COVID 19 positive patients even with the PPE on, has shown positive results, with many patients expressing relief at their mental health issues being addressed.

Limited knowledge about the treatment and discharge protocol has been a major cause of stress for most patients. When will I go home? has been the frequently asked question, till the guidelines were revised to discharge all minimally symptomatic patients by 10 days.[6]

Lack of information is not only stressful to the patients and general public at large but would give rise to stigma against the sufferes.[7]This can be addressed by putting up posters in prominent places in the wards and handing out pamphlets having relevant information to the patients. The WHO website can be used as a source of such information. Information about hand hygiene, social distancing, symptoms to watch for, mode of transmission and sources of help should be displayed prominently.[5]

A continuous video streaming of similar information would help people who are not literate. It will be good to accept that most psychological distress may not actually translate into mental illness and that simple measures like readily available information would mitigate any unnecessary suffering.

Attending psychiatry referrals from other departments is also another major task of the psychiatrist. A good working knowledge about the safest psychotropics and the drug interactions is mandatory. A reliable source of such information is the guidelines released by NIMHANS[8].Previous studies have shown that the referral rate to psychiatry is low, mostly attributed to the lack of knowledge about psychiatric disorders.[9] So, expecting a sudden increase in awareness and therefore an increased referral rate is unrealistic. In such a scenario screening by the psychiatrists of all patients becomes a necessity. In addition, one should also gear up to tackle referrals for counselling for disruptive behavior unrelated to mental illness, like not getting reports on time or alleged poor quality of food. Who better than a psychiatrist to counsel?

A bigger challenge for the psychiatrist posted in an exclusive COVID 19 hospital is the need to treat severely mentally ill patients also tested positive for COVID 19. Agitated patients trying to leave the ward and aggressive behavior towards the staff is a common sight in psychiatric hospitals but is especially difficult to manage in an exclusive COVID hospital where such patients are clubbed with other non- mentally ill COVID patients. People with severe mental illness would lack the ability to understand or properly appreciate the risks of the disease, and the necessary behavioral modifications to stay well, e.g. physical distancing, frequent effective handwashing.[10] Providing separate isolation wards with trained staff in attendance could be one possible solution, however the feasibility of such a proposal has to be weighed against the limited resources and overburdened staff.

The health care workers including the doctors, nurses and sanitation workers are all under tremendous pressure to cater to an ever-increasing number of patients in this pandemic.[11] Their mental health needs also need to be adequately addressed. We have found running a helpline for them to contact in case of need to be helpful.

Research should be given equal preference as clinical work.[12] Mental health status of the health care workers, people in isolation, patients diagnosed as COVID positive, their family members and the general population should be studied to generate data so that we are better equipped for such calamities in future.

A lot more could possibly be done, but being an unprecedented situation, we are learning and adapting and innovating each day.

It is for the psychiatrist to stand up and be counted among the frontline workers.

Afterall aren't we the ones who know and vehemently assert that mental health is on par with physical health?

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Mental health literacy about depression among medical students at a tertiary care hospital in South India

Shanti Mohan Kethawath[1], Srilakshmi Pingali[2*], Sai Lakshmi Kante[3], Umashankar Molangur[4]

[1]Senior Resident, [2]Associate Professor, [3]Junior Resident, [4]Professor, Dept. of Psychiatry, Gandhi Medical College, Secunderabad, Telanagana, India

***Corresponding Author: Srilakshmi Pingali**
Email: drpingali@gmail.com

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Abstract

Background: Most of the time, medical students are the first access points to the health care system, and play a critical role in early identification of mental illnesses. Identifying knowledge gaps about mental illness amongst medical students constitutes one of the first step toward reducing treatment gap.

Aims: To assess the level of Mental Health Literacy about depression among medical students.

Methods: A total of 200 medical students, 100 of whom had completed psychiatric posting and 100 who had not completed were recruited through purposive sampling. A semi-structured proforma to capture the socio-demographic details and a self-administered questionnaire containing case vignette about depressive symptoms were administered.

Results: Medical students who have completed their psychiatry posting were significantly better in comparison to those who did not complete psychiatry posting during internship, in terms of identification of depression in the case vignette and recognition of antidepressants as helpful medications for the condition.

Conclusion: Mental health literacy about depression is poor among medical students who have not completed their psychiatric posting.

Keywords: Depression; Mental health literacy; Medical students.

Introduction

Mental illnessess has become an issue of major concern globally.[1] They are responsible for 13% of total Disability Adjusted Life Years (DALYs) lost for Years Lived with Disability with depression being the leading cause amongst them.[2] In developing countries like India, the prevalence of Mental illness is increasing and is becoming one of the major cause for DALYs. In the year, 2017, Mental disorders contributed 4.7% (3.7–5.6) of the total DALYs compared with 2·5% (2·0–3·1) in 1990 and the highest contribution to DALYs due to mental disorders was from depressive disorders (33·8%, 29·5–38·5).[3] Currently, the prevalence of depression is estimated to be 5.2% in individuals older than 18.[4] However, treatment gap for depression is 85.2% and ranks second next only to alcohol use disorders which has 86.3%.[5] Thus, depression is becoming an important concern among other illnesses.

It has been suggested that up to 70% of individuals suffering from a mental health disorder do not seek professional help or recognize these disorders in others.[5] Lack of mental health literacy (MHL) is one of the important factors for delay or lack of help-seeking. The term "mental health literacy" was introduced by Jorm et al. in 1997.[6] It refers to knowledge and beliefs about mental disorders, which aid in their recognition, management and prevention. Recognizing mental illness, knowing how to find mental health information, knowledge of risk factors and causes, and of the professional help available and attitudes that promote appropriate help seeking are all included in mental health literacy. It was found that mental health literacy is low among general population and non - medical population.[7-10] However, Mental health literacy among medical professionals is varying.

A cross-sectional survey conducted among psychiatrists and registered nurses in China (n = 70) found that for depression vignette, 100% of psychiatrists and 87.1% of registered nurses (n = 27) correctly identified it as depression.[11] In another study among 1123 non-mental health professionals, less than 60% could identify the mental disorders correctly. For vignette on depression, 58.1% doctors could correctly identify it as a depression and 78.2% quoted that antidepressants could help the condition in the vignettes.[12] Similarly, in another study, only 35.6% of medical students (n=324) identified the case vignette as depression.[13] All these studies indicate that mental health literacy is low, even among medical professionals. In India, studies on mental health literacy are from the general population. Only one study attempted to assess the suicide and depression literacy among students from health care sector. In this study, beliefs about depressive and suicidal symptoms were compared between medical and paramedical students. It was found that depression and suicide literacy is poor among healthcare professional students, particularly among paramedical students.[14]

Thus, from the existing literature it is apparent that not only there is a scarcity of studies among medical professionals, but amongst the studies that have been done, results indicate a low level of MHL. Further, Mental disorders such as depression and anxiety disorders are often nondetected / underdetected among patients attending public health facilities.[15] Thus, low MHL among medical students leads to lack of detection of mental disorders and delayed

treatment. This may assume significance as many times medical students are the first access points to the health care system, and play a critical role in early identification of mental illnesses. Therefore, identifying knowledge gaps about depression amongst medical students constitutes one of the first step toward reducing treatment gap. With this background, we aimed to assess the level of MHL among medical students. We further aim to compare mental health literacy about depression among those medical students who had completed their psychiatric posting and those who had not completed.

Materials and Methods

A cross sectional study design was used. Target population included medical students who completed MBBS and were pursuing their one year internship for the academic year 2019-2020. A total of 100 medical students who had completed their psychiatric posting and 100 medical students who had not completed psychiatric posting were included in the study. Those students who were posted in Psychiatry department as a part of their rotating internship were excluded from the study. Medical students were ensured of the confidentiality of the information provided. They were individually approached and recruited after obtaining written informed consent. After obtaining the sociodemographic profile, participants were administered a Mental Health Literacy questionnaire for depression adopted with permission from Jorm et al., 1997.[6] It consists of case vignette describing people experiencing symptoms of depression. Subsequently, questions about the case vignette involving a mixture of open and closed responses regarding the name of the problem, its causes and risk factors, discrimination and stigmatization, the helpfulness of possible service providers, treatments, prognosis and experiences were asked. More than one response was possible for each item. In order to maintain a cultural and regional cohesiveness, the name given in the vignette (Johny) was changed to a more relatable name in the Indian setting (Ramu). Some of the questions which were irrelevant to the Indian culture were removed. Approval to conduct the study was obtained from ethics committee before commencement of the study.

Statistical analysis

Data were analyzed with IBM-SPSS 26.0 software (IBM Corp., Armonk, NY, USA) Descriptive statistics were used to tabulate socio-demographic characteristics of the sample. Descriptive statistics were also used to calculate the percentage of each endorsed statement. Chi-square test ($\chi 2$ tests) for categorical variables was used to compare the recognition, intervention beliefs, and other appropriate domains from the case vignette between medical students who had completed their psychiatric posting and those who had not. Level of statistical significance was kept at $p < 0.05$ and all the tests were two tailed.

Results

Sample characteristics

Sociodemographic details of the participants have been given in Table 1. 66.5% of the participants were females. Mean age of the medical students was 23.43± 0.69 years. Majority (91%) of the students were from urban background. 62.5% of the students did their MBBS from government medical college and the rest 37.5% completed their MBBS from private medical college and were doing their internship in the current government medical college.

Table 1: Sociodemographic details of the participants (n=200)

Variable	Total (n)	Percentage (%)
Male	67	33.5
Female	133	66.5
Urban	182	91.0
Rural	18	9.0
Hindu	180	90.0
Muslim	9	4.5
Sikh	2	1.0
Christian	9	4.5
MBBS from government hospital	125	62.5
MBBS from private hospital	75	37.5

Recognition of illness

Table 2 shows the frequency distribution of identification of illness categories, based on the case vignette. Depression was correctly identified by 170 (85%) medical students. More than half of the participants identified the given vignette as having more than one problem. 12 (6%) medical students wrongly identified the case vignette as having schizophrenia/ psychosis.

Table 2: Frequency distribution of identification of illness based on case vignette

Variable	Total (n)	Percentage (%)
Depression	170	85
Schizophrenia/Psychosis	12	6.0
Mental illness	40	20
Stress	74	37
Nervous breakdown	19	9.5
Psychological/Mental/emotional problems	85	42.5
Multiple illness identified	122	61

Intended actions to seek help and intentions about first aid

Table 3 shows the frequency distribution of participant's response to question related to intention of seeking help and intentions about first aid. 76% of participants reported they would go for help if they had a problem similar to that described in the given case vignette. A majority (91.5%) of the participants said that they would help, if they came to know anyone who is suffering from such a problem.

Table 3: Frequency distribution of participant's response to questions related to intended actions to seek help and intentions about first aid

Variable	Total (n)	Percentage (%)
Q. If you had a problem like Ramu, would you go for help		
Yes	153	76.5
No	28	14.0
Don't know/Don't want to answer	19	9.5
Q. Imagine Ramu is someone you have known for a long time and care about. What would you do?		
Help him	183	91.5
Don't help him	5	2.5
Don't know/Don't want to answer	12	6.0

Beliefs about interventions

Table 4. illustrates the frequency distribution of participant's response to question on beliefs of various people and interventions that could help Ramu (from case vignette). 179 (89.5%) medical students agreed that a psychiatrist could help the person in the vignette. A psychologist was considered as helpful by 36.5% of medical students. 154 (77%) medical students identified antidepressants to be helpful followed by Vitamins (27.5%), antipsychotics (14%) and Sleeping pills (10.5%). Cutting down the use of substances like cannabis/alcohol/cigarette was identified as helpful by 31% whereas, 7% agreed to use these substances as a means of relaxation.

Table 4: Frequency distribution of participant's response to question on beliefs about interventions (n=200)

Variable	Total (n)	Percentage (%)
Persons that are likely to be helpful		
Multiple options (General physician, Lecturer, Counsellor, Psychologist, Psychiatrist, Family member, Close friend	179	89.5
Psychologist	73	36.5
Psychiatrist	167	83.5
Medicines that are likely to be helpful		
Multiple options (Vitamins, Antidepressants, Antipsychotics, Sleeping pills)	66	33
Antidepressants	154	77
Antipsychotics	28	14
Vitamins	55	27.5
Sleeping pills	21	10.5
Cutting down on use of alcohol/ smoking /cannabis	62	31
Using alcohol/smoking cigarettes/cannabis to relax	14	7

Exposure to mental disorders

Table 5 shows the frequency of participants or their family / close friends being exposed to mental disorders. 39% of participants reported that someone in their family or close circle of friends had suffered from a problem similar to that described in case vignette. 44 (22%) participants quoted that they had a problem similar to case vignette (Ramu), however, only 25% of these participants said that they received professional help or treatment for these problems.

Table 5: Frequency distribution of response to questions related to exposure to mental disorders

Variable	Total (n)	Percentage(%)
Has anyone in your family/ close circle of friends ever had a problem similar to Ramu	78	39.0
Have you ever had a problem similar to Ramu's	44	22.0
Have you received any professional help or treatment for these problems	11	25.0

Recognition of illness between medical students who completed psychiatry posting and those who did not

Table 6. illustrates the comparison of responses based on whether participants had completed their psychiatry posting or not. The participants who completed their psychiatry posting were significantly able to correctly identify the vignette as depression compared to those who did not complete the posting (P=0.017). Similarly, participants who had completed their psychiatry posting were significantly able to identify antidepressants as helpful compared to those who did not complete the posting (P=0.019). In all other domains no significant difference was found between the two group of participants.

Table 6: Illustrates the distribution of recognition of illness and beliefs about intervention based on completion of psychiatry posting

Recognition of illness			
Recognition of illness	Psychiatry posting not completed	Psychiatry posting completed	**Chi square value $\chi 2$ (p value)**
Depression	79	91	5.647 (0.017*)
Schizophrenia	12	7	1.454 (0.228)
Recognition of medications to be useful			
Antidepressants	70	84	5.534(0.019*)
Antipsychotics	16	12	0.664 (0.415)

*significant at less than 0.05

Discussion

Only one other study had assessed the mental health literacy among medical students from Indian context.[14] In their study, illness related domains were explored but they did not explore the identification of the illness. In our study, we explored the illness domains as well as identification of the illness.

In the current study, Depression was correctly identified by 85% of medical students. Illness identification rate in our study was high when compared to that by Sayarifard et al., 2014[13] and Wu et al., 2017,[12] but low when compared to study by Liu et al., 2011.[11] This difference in finding in comparison to Sayarifard et al., 2014[13] could be explained on the basis of inclusion of more than half of the participants from paramedical field in that study. This is unlike our study where we have included exclusively medical students. Higher identification rate in our study compared to that by Wu et al., 2017[12] might be due to 50% of the participants in our study have completed their psychiatry posting in the six months prior to this study, thus they might be better in identifying the illness. Similarly, high identification rate in a study by Liu et al., 2011[11] can be understood as more than half of the participants were psychiatrists.

In our study, 89.5% of medical students agreed that a psychiatrist could help the person in the vignette in line with some of the previous studies.[11,12] Similarly, 77% of medical students identified antidepressants to be helpful much similar to other studies.[11,12] Contrarily, another study found that antidepressants were identified as helpful only by 39.5%.[16] However, in their study, half of the participants were nursing students which are not adequately exposed about mental health compared to that of medical students.

In the question "Have you ever had a problem similar to Ramu's," which assesses exposure to mental disorders, 22% of the medical students responded "yes," and out of then only 25% reported that they received any professional help or treatment for these problems. This has noteworthy considerations, as in a country like India, where the treatment gap for major depressive disorder is 85.2 percent as per National Mental Health Survey, 2016.[4] Thus, even in the medical student's, help seeking for depression is quite low. Though, we didn't further evaluate for possible causes, low intention of seeking help among medical students urges the need to identify and resolve the barriers in seeking help.

In the current study, the participants who completed their psychiatry posting were significantly able to correctly identify the vignette as depression (P=0.017) and able to identify antidepressants as helpful compared to those who did not complete the posting (P=0.019). It can be explained as the medical students in the current medical college during 15 days of psychiatry posting, apart from being exposed to clinical material, have to mandatorily attend and present seminars about relevant clinical topics.[17] This, might have resulted in a better understanding about mental health conditions. Medical Council of India has recommended that all undergraduate students must receive two weeks clinical posting and 20 lectures in psychiatry in the fifth semester and assessment in the form of short notes in paper two of General Medicine.[18] However, its strict implementation is doubtful. It has noteworthy implications. Unless mental health literacy is incorporated strictly from the undergraduate level, the knowledge about mental illness will continue to be poor in future doctors. This is also important as most patients with psychiatric disorders seek help from non-psychiatry physicians and general practitioners.[17] Thus, many times medical students are the first access points to the health care system, and play a critical role in early identification of mental illnesses. Further, it has been found that the willingness to approach a psychiatrist is much more if the patient is referred by a primary health-care physician, further reiterating the need for training in psychiatry at the undergraduate and internship level.[19] A high level of MHL about depression thus would make early identification of depression and referral to mental health specialists more likely, which could help reduce the burden of the depression. We assume that high level of MHL about depression in medical students who completed their psychiatric posting might be due to mandatory seminar presentations made by these students, which might have added to their clinical knowledge. Hence, we propose the introduction of a mandatory seminar presentation focusing on relevant clinical topics in this group of students.

Limitations

Our study has some limitations which need to be mentioned. We didn't compare MHL among those who presented seminar on relevant clinical topics and those who didn't. This could have further strengthened the need for mandatory seminars during internship. Current medical students are from a single hospital, which runs the risk of bias in a heterogeneous population. Therefore, it is difficult to generalize the study results to a broader mental health professional population. Another limitation is the instrument used. The questionnaire is limited by providing multiple options for diagnosis, which might prevent the participants from drawing clear conclusions about diagnosis. Further, the questionnaire though is self-administered in English language, it was not validated to the Indian population. Future research is needed to compare MHL about depression from different medical colleges in this medical population using validated questionnaires.

Conclusion

The study showed mental health literacy is poor among medical students who have not completed their psychiatric posting. Low mental health literacy in medical students especially those who have not completed their psychiatry posting prompts the need for a strict implementation of undergraduate teaching schedule. Implementation of mandatory seminars during psychiatry internship may be one means of improving the mental health literacy.

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School refusal - Psychosocial distress or Psychiatric disorder?

G Karthika[1*], M Gowri Devi[2]

[1]DNB Psychiatry Resident, [2]Academic Director, Asha Hospital, Hyderabad, Telangana, India

***Corresponding Author: G Karthika**
Email: karthi.athi@gmail.com

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Abstract

Background: School refusal is not a diagnosis by itself but a behavior described when a child frequently refuses to go to school or remain in school. It is often associated with several psychiatric disorders. A prevalence rate of 5-10% is described in most studies. Several psychosocial factors, individual, familial, societal, school and medical are also known to play an important role. The study intends to explore the association of school refusal to either psychiatric disorder or to distress due to psychosocial factors.

Aim: To explore the psychosocial factors and psychopathology in children presented with school refusal.

Method: A descriptive study conducted on children attending Child and Adolescent Psychiatry OPD at ASHA Hospital with primary complaint of school refusal, from January 2018 to December 2018. Data pertaining to 33 new cases of school going children between 6 years and 18 years, with school refusal as main symptom were collected using a semi structured proforma. Various psychosocial factors which were broadly classified as individual, family, school, societal factors and other medical disorders were analyzed. Psychiatric diagnosis made using ICD 10 criteria was assessed. Data analyzed using SPSS software.

Results: About 6.6% of total new child cases in the year of 2018 were with primary complaint of School Refusal. Out of these 33 subjects, 30 (91%) had a psychiatric diagnosis at baseline. Depressive disorder (36.4%) was commonest followed by anxiety disorder (18.2%), conduct disorders (15.1%) and remaining Hyperkinetic disorder, mental retardation and bipolar disorders. Psycho-social factors influenced school refusal contributing to the psychiatric disorder.

Conclusion: The study highlights school refusal as a symptom of one or two psychiatric disorder rather than psychosocial distress alone, indicating high psychiatric morbidity. Further it emphasizes that the symptom need to be taken as an emergency and intervened. This would entail child going back to the school early and avoid chronic school refusal with serious consequences of poor academics and social development and risk of psychiatric illness into adulthood.

Keywords: School refusal, Psychiatric disorder, Psychosocial factors.

Background

School refusal is described when a child frequently refuses to go to school or remain in school. It is considered to be associated with several psychiatric disorders but not as a diagnosis by itself. A prevalence rate of 5-10% is described in most studies. Many psychosocial factors like familial conflicts, parenting styles, peer-pressure, bullying at school, and change of school or life events such as death or illness are attributed to school refusal. Individual factors like IQ and temperamental factors are also known to play an important role. In country like India where elementary education is mandatory from ages 6-14 (Right to Education Act), it is still observed that there is a high dropout rate among children of that age group. Though it appears to be simple absenteeism from school, there is lot of distress associated with it and hence to be considered as a major issue having negative consequences on child's future. The study intends to explore whether the distress due to psychosocial factors or psychiatric disorders contribute to symptom of school refusal in children. Assessment of psychiatric illness associated with school refusal seems to be important in alleviating distress to the child and family in order to enhance educational and emotional development of the child.

Introduction

School refusal is a behavior seen as one of the child psychiatric emergencies. It refers to child avoiding attending school and/or difficulty in staying at school throughout.[1] There are various risk factors described to be associated with this behavior in various Indian and western studies. Children presenting with school refusal have seen to be associated with psychiatric illness.[2]

Various terms like school phobia, school anxiety or absenteeism have been used to describe the concept. Broadwin first described about truancy as maladjustment to situations and an emerging personality issues. Understanding the psychological conflicts in children helped in an effective approach towards anxiety related school-absenteeism.[3] Later the term "school refusal" was introduced which was also noted by National Association of School Psychologists (NASP).[4] In spite of school refusal being linked to various psychiatric disorders, it is not included in DSM V or ICD 10 because of the heterogeneity of the problem. One of the earliest studies, by Berg in 1969, described criteria for diagnosing school phobia. He further classified them as acute and chronic cases. He considered the following symptoms of; (a) severe difficulty in attending school, (b) becoming emotionally upset on attending school, (c) results in school absenteeism with parent's knowledge and (d) absence of significant antisocial disorders, as criteria for identifying school refusal. The child is described to have

an emotional upset with the prospect of having to go to school, that is expressed as excessive fearfulness, temper tantrums, misery, or somatic complaints without obvious organic cause.[5] Another study found that negative emotional states of depression, anxiety and stress are related to school refusal, which in turn results in avoidance of negative affectivity, escape from social situations, attention seeking and reinforcement behaviors.[6] School refusal is often seen following holiday, a long break, change in school or any life events or associated with other psychosocial factors. Most of the children present with vide variety of symptoms like anxiety, fear, clinging behavior, difficulty to sleep, nightmares, somatic complaints of headache, sore throat or stomach ache, and various other mood symptoms. And thus this behavior becomes a major issue stressful for the child, caregivers or parents as well as school staff. Unlike in truancy, here the child remains absent from school with their parent's knowledge, associated with emotional distress and with no antisocial behavior.[7] However the studies are not clear whether the school refusal is due to underlying psychiatric disorder or distress due to psycho social factors.

If school refusal and non-attendance persists without being diagnosed and treated, it would affect the academic and social development with risk of the underlying psychiatric illness progressing into adulthood. Hence, the need for early identification and intervention of the problem is important. Further there is lack of literature with regard to comorbidities associated with school refusal in the Indian context. A detailed evaluation of the presenting complaints, pre disposing events, collaborative history from family and school, physical and psychological evaluation and a multidisciplinary approach is often needed to understand the issue. Hence the study is taken up to explore the socio-demographic factors, psychopathology and psychiatric diagnostic categories in children with school refusal. The distribution of psychiatric disorders is also studied.[2]

Aims & Objectives

Aim

To explore the psychosocial factors and psychopathology in children presenting with a symptom of school refusal.

Primary objective

To assess the primary psychiatric disorders and their distribution underlying school refusal and the comorbidities if any.

Secondary objectives

To explore the psychosocial factors contributing to the school refusal and its association to any primary psychiatric disorders.

Materials and Methods

Study design

Exploratory and descriptive study

Study site

The study was conducted at the Child and Adolescent Department of Asha Hospital, which is a private psychiatric teaching hospital. It is a tertiary psychiatric center catering to the needs of Hyderabad and its neighboring areas of Telangana and Andhra Pradesh, with 100 beds. The average number of child cases attending child psychiatry OPD per day is between10-15.

Study population

All the consecutive cases with a complaint of school refusal coming for the first time to the outpatient department of child psychiatry unit, from January 2018 to December 2018 are taken for the study.

Sample size

33 children were registered with the complaint of school refusal during the period of Jan 2018- Dec 2018.

Inclusion criteria

1. School going children between the age group of 6-18 years, belonging to both the gender.
2. School refusal as the primary complaint.
3. Written informed consent of parents.

Exclusion criteria

1. Child with serious, disabling medical/ surgical disorders as primary diagnosis.

Method

The present study is an exploratory, descriptive study of children with complaint of school refusal, in a private tertiary psychiatric care centre. All the consecutive new child cases presented with the complaint of school refusal were taken up for the study. Appropriate ethical approval procedures were followed while taking consent from subjects and also in conducting the research. A semi-structured proforma designed, to collect clinical data from parents, which includes socio demographic variables, history of present illness, developmental history, temperaments, medical history, family history and school details. The psychosocial factors are broadly categorized as individual, family, school and societal factors. Psychiatric diagnosis was made corroborating history, MSE and using ICD 10 criteria for various disorders. Specific scales and systematic psychological assessments were done later by a Clinical Psychologist. Statistical Analysis of data was done by using, IBM SPSS 21 statistics application.

Results

A total of 498 new child cases were registered in the year of 2018. Out of these new cases, 33 children presented with complaint of school refusal, which amounts to 6.6%. The mean age was 12.73 with standard deviation 2.929, minimum age was 6 years and maximum age was 17. Maximum number of children was from the age 12 years (21.2%), followed by 14 years and 16 years (12.1% each) and children below the age of 12 years constituted 27.3%.

Table 1: Shows the age distribution

Age	Frequency (n=33)	Percentage (100%)
6	1	3
7	1	3
8	2	6.1
10	3	9.1
11	2	6.1
12	7	21.2
13	3	9.1
14	4	12.1
15	3	9.1
16	4	12.1
17	3	9.1

On considering the schooling, 15 out of 33 (45.5%) children were in primary education, 12 of them (36.4%) in high school and remaining 6 (18.1%) in intermediate education.

Gender distribution shows that out of 33 children, 15 were male children (45%) and 18 were female children (55%).

With reference to religion, majority of the children belonged to Hinduism (84.8%), 12% of them being Muslims and remaining 3% Christians. Most of the children were from the urban area and belonging to middle socioeconomic status. Considering the duration of school refusal, we noticed a range of minimum 1 month to 1 year duration of the symptom.

Table 2: Table showing distribution of psychiatric disorder diagnosed for children with school refusal, is given below

Psychiatric diagnosis	Frequency	Percentage
Depressive disorder	12	36.4
Anxiety disorder	6	18.2
Conduct disorder	5	15.1
BPAD	3	9.1
Hyperkinetic disorder	2	6.1
Mental retardation	2	6.1
Nil	3	9

Among 33 children who presented with school refusal, 30 were found to be associated with psychiatric diagnosis, i.e. 91% had a psychiatric disorder that was diagnosed on assessment. 36.4% (n=12) were having depressive disorder, followed by 18.2% (n=6) with anxiety disorders, 15.1% with conduct disorder (n=5), bipolar affective disorder 9.1% (n=3) and 6.1% each with mental retardation and hyperkinetic disorder. Presence of a second psychiatric illness comorbid to the primary diagnosis was 12.1% (n=4). 9% of children could not be categorized as a psychiatric disorder.

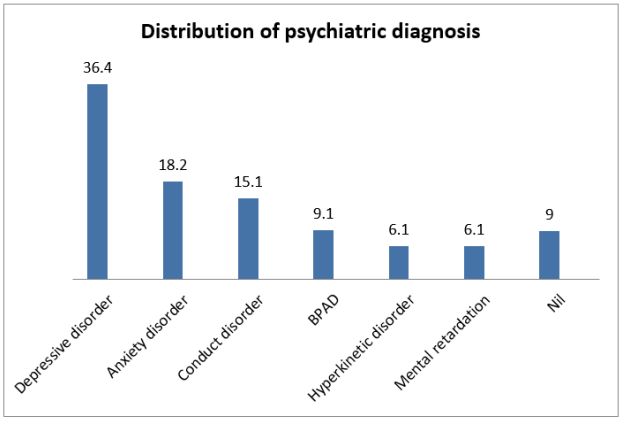

Fig. 1: Distribution of psychiatric diagnosis

Other factors like presence of medical illness, temperamental factors, and factors related to school, family and social factors were assessed. 9 (27.3%) children had medical illness (like typhoid fever, past history of febrile seizure disorder, h/o surgery and obesity) preceding onset of school refusal. About 57.6% (n=19) had temperamental issues in form of anxious traits, adamancy, sensitivity to criticism, shy, introvert etc. 10 children (30.3%) had issues at school in form of bullying by friends, issues with teachers and exams or excessive study material. Family factors in form of family history of substance abuse, psychiatric illness, death or separation of parents and discord in family were present for 48.5% of children (n=16). Social factors included history of abuse, adoption, step mother and issues with friends, which were present in 5 children (15.2%). 6 children had evident issues with parenting being permissive and excessive screen time.

Table 3: Various factors causing distress seen in this study

Medical factors: typhoid fever, past history of febrile seizures, h/o minor surgeries, obesity
Temperamental factors: anxious, sensitive to criticism, adamant, shy, introvert
School factors: bullying at school, issues with teachers, exams, excessive study material
Family factors: family history of substance abuse, psychiatric illness, death or separation of parents, discord in the family
Social factors: history of adoption, abuse, step mother, issues with friends
Other: evident issues of parenting style (permissive), excessive screen time

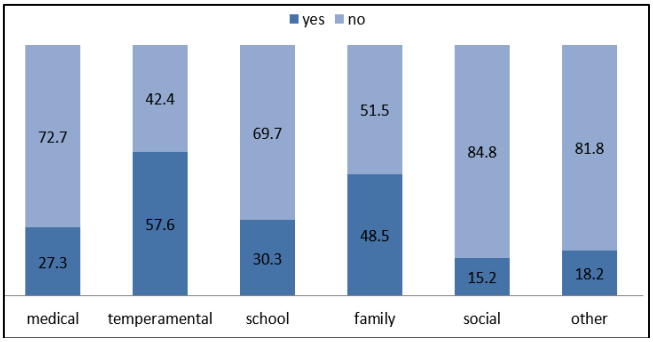

Fig. 2: Distribution of psychosocial factors assessed

Discussion

The study was done with the aim to assess the primary psychiatric disorders and their distribution underlying school refusal and the comorbidities if any. Also we wanted to explore socio demographic, psycho social factors associated with symptom of school refusal. A total of 498 new child cases were registered in child psychiatry OPD in the year of 2018. Out of these new cases, 33 children presented with complaint of school refusal which amounts to 6.6%; in contrast to the study by Nayak et al, where 3.6% of children had school refusal. This was in correlation with most of the studies showing about 3-10% of children presenting in clinics with school refusal. Studies have shown that school refusal can occur at any age but more commonly seen during a period of transition like between 5-7 years of age and 12-14 years of age.[8] In the present study, the mean age was 12.73 with standard deviation 2.929, minimum age was 6 years and maximum age was 17. Maximum number of children was from the age 12 years (21.2%), followed by 14 years (12.1%) and 12.1% by 16 years; however 27.3% was constituted by children less than 12 years. We can see that school refusal is more common when child is in transition from primary school to high school and then again when transition from high school to intermediate. It shows that transition of grades of school and pubertal age changes results in clustering of children presenting with school refusal in that age group. This was similar with many studies which show that though all age group presents with school refusal but significant number of children are in the age group of 12 years, 14 years and 16 years of age.[8-10] Among the 33 children 15 were male (45%) children and 18 (55%) were female children. Similar gender distribution is seen in other studies.[9] There was no much differences shown regarding the gender distribution in the above studies.

In line with the findings of other studies, the study also had about 91% diagnosed with a psychiatric disorder while in study by Nayak et al it was 77.8% and majority of the diagnosed psychiatric disorder being depression (36.4%). This was followed by 18.2% (n=6) with anxiety disorders. Remaining was constituted with Conduct disorder, Attention Deficit Hyperactivity Disorder, Bipolar Affective Disorder and mental retardation. Most of the similar studies mention about depression and anxiety as major causal factor for school refusal (as per Nayak et al most common being depression (26.7%), followed by anxiety (17.7%)). They also considered few factors like academic difficulties, adjustment problems at school, behavioral problems and parental conflicts which were significant in contributing to school refusal.[2] A study done by Prabhuswamy et al had findings consistent with present study.[11] Most other studies also indicate presence of anxiety disorders as reason of school refusal together with various risk factors of family environment.[12]

Presence of psycho social stressors like medical illness, temperamental factors, school factors, family factors and social factors assessed. It was seen that around 9 (27.3%) children had medical illness like typhoid fever, past history of febrile seizure disorder, h/o surgery and obesity. These illnesses were seen prior to the onset of symptom of school refusal. Parents initially considered it to be usual and facilitated the child to remain absent from school until the symptom started worsening. About 57.6% (n=19) had temperamental issues in form of anxious traits, adamancy, sensitivity to criticism, shy, introvert etc. 10 children (30.3%) had issues at school in form of bullying by friends, issues with teachers and exams or excessive study material. They were seen to show more of anxiety and adjustment issues to the situations. Few children had the issues with academics because of their hyperactivity, inattention or intellectual disability Family issues in form of family history of substance abuse, psychiatric illness, death or separation of parents and discord in family were present for 48.5% of children (n=16). Social factors included history of abuse, adoption, step mother and issues with friends, which were present in 5 children (15.2%). This shows the influence of environment and relationship with others in the development of child. 6 children had evident issues with parenting being permissive and excessive screen time. As the child is having primary and secondary gains, the behavior of school refusal is reinforced, emphasizing the importance of parenting and behavioral modification. Temperamental factors along with family factors seem to trigger the symptom of school refusal in the development of psychiatric disorder, These stressors contribute significantly to the problem either directly or contributing for the psychiatric diagnosis.[13] All these factors are strongly associated with each other resulting in chronic absenteeism. Duration of school refusal noticed was ranging from minimum one month to one year. Mental health condition impairs the cognitive and emotional development of the child and the negative effects persists into adulthood, having significant impact on public health[14] Various studies have assessed profile of children with school refusal with similar findings.[15]

Conclusion

Thus the study highlights school refusal as a symptom of one or two psychiatric disorder under ICD 10, rather than psychosocial distress alone, indicating high psychiatric morbidity. Further it emphasizes that the symptom need to be taken seriously as an emergency. Thus it requires detailed assessment to categorize any child with school

refusal early when the parents approach for help. Assessment of psychiatric illness associated with school refusal seems to be important in alleviating distress to the child and family in order to enhance educational and emotional development of the child. Management of these cases adequately improve these children in terms of return to school and global functioning.[11] A synergistic approach for sensitization, assessment and management of school refusal should include the health care provider, parents, school staff, and other mental health professionals.[16] The approaches include psycho social support for parents and children, cognitive behavior therapy, educational-support therapy, pharmacotherapy, and parent-teacher interventions.[6] The response of parents, school and medical agencies to the child's complaint and various reinforcing factors play an important role in sending children back to normal routine of attending school regularly. Few youngsters completely refuse and few attend with reluctance.[5] This would entail the child going back to school early and avoid chronic school refusal with serious consequences of poor academic and social development and risk of psychiatric illness in adulthood.[17]

Strengths

1. When only few Indian studies are conducted in this aspect of school refusal, our study highlighted the increased psychiatric morbidity in this group of children.
2. The inclusion and exclusion criteria were specific.
3. The sample size was sufficient as compared to various studies.
4. The study brought out various temperamental and other psycho social factors contributing to the onset of symptoms of school refusal.

Limitations

1. Limitations due to the natural constraints of an investigation
2. Study being conducted in a tertiary center has questionable generalizability.

Recommendations and Future Directions

1. Larger sample size for better generalizability
2. To include specific scales and psychological assessment details of the child
3. Follow up of children with school refusal diagnosed with psychiatric disorders will benefit in understanding the course and prognosis and choice of tailor made treatment. It would help in relieving distress of child, parents and further serious consequences into adulthood.

Ethics

The study is conducted after taking written informed consent from subjects (In the case of minors, assent taken from the subjects, and written informed consent obtained from the legal guardian).

Appropriate ethical approval procedures were followed while taking consent from subjects and also in conducting the research. We ensure that patient confidentiality is no way breached.

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Conflicts of Interest

No potential conflicts of interest

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A study of adherence and non-adherence to antipsychotic medication in patients of schizophrenia

Khar Prerna B[1*], Netto Ivan S[2]

[1]MD Psychiatry, [2]Associate Professor, Dept. of Psychiatry, [1]Fellow in Child and Adolescent Mental Health, TNMC and BYL Nair Charitable Hospital, Mumbai, Maharashtra, [2]BJGMC and SGH, Pune, Maharashtra, India

***Corresponding Author: Khar Prerna B**
Email: prernakhar@gmail.com

Abstract
Background: Adherence has always been a major problem in the treatment of Schizophrenia, despite of the advances in the treatment regime. Various factors influence adherence to antipsychotics in patients of Schizophrenia. This study is the first of its kind, done on a specific group of patients of Schizophrenia on antipsychotic medication, at a tertiary referral hospital, in the Indian setting. It was done to highlight the various factors influencing adherence and non-adherence to antipsychotics which will help plan future directives to address barriers in adherence.
Method: The study evaluated the socio-demographic profile, clinical features, causes of adherence and non-adherence, and their associations in 60 patients of Schizophrenia on antipsychotics, using the ICD-10 criteria for research, the modified Kuppuswamy socio-economic scale, the MINI-PLUS and the ROMI scale.
Results: The most common reason for adherence was the family member's strong belief in the efficacy of medication (96%), while for non-adherence it was the poor financial condition of the patients (71.6%). A significant association was found between the perceived daily benefit, having a strong positive relationship with the clinician, and adherence, as per the ROMI scale. Non-adherence was found in patients who did not perceive any benefit with medication, those who had financial problems and side effects of medication.
Conclusion: These findings will help in planning suitable interventions to enhance adherence to antipsychotics in patients of Schizophrenia.

Keywords: Schizophrenia, Adherence, Non- adherence.

Introduction
The WHO defines adherence as "The extent to which a person's behaviour in taking medication, following a diet and/ or executing life style changes corresponds with agreed recommendations from a health care provider."[1] Despite recent progress in the treatment of schizophrenia, non-adherence continues to be a frequent phenomenon, often associated with negative clinical consequences and high expenditure. It has been observed that only one-third patients suffering from Schizophrenia are fully adherent to their medications.[2,3]

There are various factors responsible for non-adherence. The *patient related factors* are age, lack of insight (most important), negative attitude towards treatment and substance use.[4-12] The *family related factors* are ignorance of benefits and unrealistic expectations. The *illness related factors* are aggressive behaviour and cognitive decline.[13,14] *Clinician related factors*, such as prescribing expensive drugs and poly-pharmacy affect adherence in a significant way. The *health care system related factors* which negatively impact adherence are lack of access and social supervision.

There are many consequences of non-adherence; namely- poor prognosis, dangerous behaviour, arrest, violence, drug abuse, low satisfaction with life, stress, increase risk of suicide, longer time to attain remission, break through symptoms, job losses, relapse and hospital admissions.[15-17]

There are various reasons for adherence, such as, having a good therapeutic relation with the treating psychiatrist, patient's positive attitude towards the medication, having a better global functioning, having a longer duration of illness, good social support and once daily dosing of medication.

Various methods have been used to assess adherence in patients of Schizophrenia, such as prescription renewals, electronic compliance monitors, pill counts, direct observation and serum drug levels. A number of scales have also been designed, each with varying degrees of specificity and limitations.[18]

There are very few recent studies in the Indian setting regarding factors of adherence and non-adherence to antipsychotic medication in patients of Schizophrenia. This study was done to evaluate the socio-economic factors, causes of adherence and non-adherence to antipsychotics; and their associations in patients of Schizophrenia at a tertiary referral hospital. It also compares the factors influencing adherence and those leading to non-adherence in the Indian and foreign setting.

Materials and Methods
The study was conducted on 60 patients of Schizophrenia attending the Department of Psychiatry of a tertiary referral hospital. The study protocol was approved by the Institutional Ethics Committee.

Inclusion criteria
1. Patients fulfilling ICD-10 Diagnostic Criteria for research[19] of Schizophrenia with a course of illness more than 1 year

2. Patients who/ who's relative gave consent to take part in the study.
3. Patients in the age group of 18-60 years.

Exclusion criteria

1. Patients with co-morbid medical conditions.
2. Patients having other co-morbid psychiatric disorders.
3. Patients who were not prescribed antipsychotic medication in the past 6 months.
4. Patients with medico-legal issues.
5. Patients with insight less than grade III.[20]

Tools

The modified Kuppuswamy socioeconomic scale[21,22] and the MINI-PLUS[23,24] scales were administered to the patient. The severity of the illness was assessed using the Positive and Negative Syndrome scale (PANSS).[25,26] Those patients who did not take their medication for at least one week in the past one month were termed non-adherent and the remaining as adherent. The subjective reasons for adherence and non-adherence were assessed using the Rating of Medication Influences Scale (ROMI).[27]

The statistical analysis of data was performed using Statistical Package for Social Sciences (SPSS) for Windows (version 20.0) and Microsoft Excel 2010. The variables were analyzed using the chi-squared test, the 2 independent sample T test and the Mann Whitney test. Significance levels for all analyses were set at the p value 0.05.

Results

Sociodemographic data: The age range of patients was from 18 to 58 years, with a mean age of 34.7 years. There were 43.33% males and 56.66% females. Maximum number (40%) of patients were from the lower middle class. Table 1 shows the detailed socio-demographic data.

Clinical profile and treatment received: According to the ICD-10 Diagnostic Criteria for Research, most (83.33%) of the patients had Paranoid Schizophrenia. 90% of the patients received oral antipsychotic medication while the rest (10%) received a combination of oral and depot preparations. 60% of the patients were treated with second generation antipsychotics.

Adherence: The most common reason for adherence to antipsychotic medications among the patients of Schizophrenia was the family member's strong belief in medication (96%). The other reasons are mentioned in Fig. 1.

Table 1: Socio-demographic data and clinical profile of patients

	N	%
Age group(years)		
18-24	8	13.33
25-34	26	43.33
35-44	11	18.33
45-54	11	18.33
55-60	4	6.66
Sex		
Male	26	43.3
Female	34	56.6
Marital Status		
Married	30	50
Unmarried	18	30
Divorced/ Separated	9	15
Widowed	3	5
Locality		
Rural	32	53.33
Urban	28	46.66
Educational Status		
Illiterate	4	6.66
Primary School	13	21.66
Middle School	8	13.33
High School	9	15
Intermediate	12	20
Graduate	14	23.33
Occupational Categories		
Unemployed	35	58.33
Employed	25	41.67
Socio-Economic Class		
Upper	2	3.33
Upper Middle	18	30
Lower Middle	24	40
Upper Lower	16	26.66
Lower	0	0
Religion		
Hindu	47	78.33
Muslim	4	6.66
Buddhist	8	13.33
Christianity	1	1.66
Family Support		
Living alone	1	1.66
Living with family	59	98.33
Types of Schizophrenia		
Paranoid	50	88.33
Undifferentiated	6	1
Catatonic	2	3.33
Disorganised	2	3.33
Family History of Schizophrenia		
Present	27	45
Absent	33	55
Route of medication		
Oral	54	90
Oral +Depot	6	10
Class of antipsychotic		
FGA	9	15
SGA	36	60
FGA + SGA	15	25
Medication Supervision		
Supervised	38	63.33
Unsupervised	22	36.66
Adherence Rates		
Adherent	31	51.66
Non-Adherent	29	48.34

FGA: First generation antipsychotic
SGA: Second generation antipsychotic

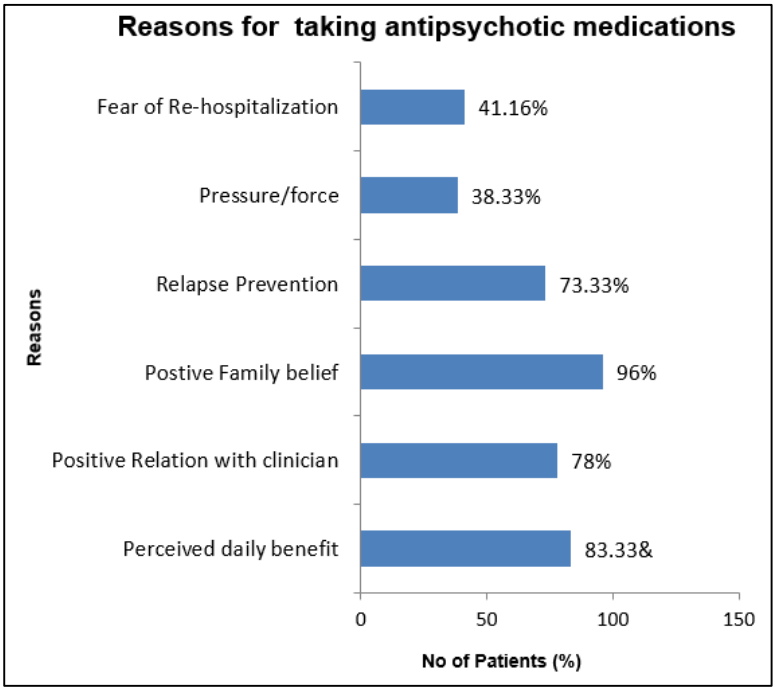

Fig. 1: Bar graph depicting the reasons for taking antipsychotics

Table 2: The degree of Influence over adherence of each ROMI question

S. No	Question	Adherent (n=31)			Non-Adherent(n=29)			Value
		Degree of influence (%)			Degree of influence (%)			
		Strong	Mild	None	Strong	Mild	None	
1	Perceived Daily Benefit	80.64	12.9	6.45	17.24	55.17	27.58	x^2=24.09 **p<0.001**
2	Positive Relation with Clinician	67.7	25.8	6.45	13.7	48.2	37.9	x^2=14.32 **p<0.001**
3	Positive Family Belief	87.09	6.45	6.45	86.2	13.7	0	x^2=2.67 p=0.430
4	Relapse Prevention	74.19	16.12	9.6	13.7	41.37	44.82	x^2=22.4 **p<0.001**
5	Pressure/Force	12.9	3.22	83.87	31.03	31.03	37.93	x^2=14.35 **p=0.001**
6	Fear of re-hospitalization	25.8	19.35	54.83	13.7	27.58	58.62	x^2=1.55 p=0.5

Table 3: The degree of Influence over non- adherence of each ROMI question

S.No	Question	Adherent (n=31)			Non-Adherent(n=29)			Value
		Degree of influence (%)			Degree of influence (%)			
		Strong	Mild	None	Strong	Mild	None	
1	No perceived daily benefit	9.6	3.22	87.09	6.89	41.3	51.72	x^2= 12.88 **p<0.001**
2	Negative relation with clinician	3.22	0	96.77	0	3.44	96.55	x^2= 2.004 p=0.73
3	Practitioner opposed to medication	0	6.45	93.54	0	0	100	x^2= 1.93 p=0.492
4	Family/ friend opposed to medication	3.22	3.22	93.54	3.44	0	96.55	x^2= 1.86 p=0.99

5	Access to treatment problems	3.22	45.16	51.61	13.79	55.17	31.03	x^2= 3.83 p=0.158
6	Embarrassment or stigma over medication/ illness	6.45	29.03	58.06	6.89	37.93	55.17	x^2= 0.31 p=0.916
7	Financial obstacles	0	70.96	29.03	27.58	44.82	27.58	x^2= 10.31 **p=0.004**
8	Substance use preferred over medication	0	3.22	96.77	0	6.8	93.1	x^2=0.42 p=0.606
9	Denial of illness	6.45	48.38	45.16	10.34	51.72	37.93	x^2= 0.49 p=0.797
10	Medication currently unnecessary	0	32.25	67.74	10.34	37.93	51.72	x^2= 3.98 p=0.157
11	Distressed by side effects	3.22	25.8	70.96	24.13	17.24	58.62	x^2= 7.36 **p= 0.02**
12	Desire Re-hospitalization	6.45	3.22	90.32	3.44	3.44	93.1	x^2= 0.28 p=0.99

Associations

Associations between Socio-demographic profile and adherence

Patients > 30 years of age were more adherent to antipsychotic medication than those < 30 years of age (p = 0.009).Patients who had completed their education till 10thstandard or more were more adherent than those who had studied till less than 10th standard (p=0.07). Patients who belonged to the Upper and Upper Middle Socio-economic Class were more adherent than those who belonged to the Upper Lower and Lower Middle Class (p=0.024)Adherence rates were higher among those patients who were married as compared to others (divorced/ separated/ single/widowed) (p=0.03).

Associations between clinical profile and adherence

The grade of insight was more in the adherent patients compared to the non-adherent patients (p=0.0117).The mean PANSS positive symptom score for non-adherent patients was more than that of the adherent patients (P=0.014).The mean PANSS negative symptom score was more in the non-adherent patients than in the adherent patients (P=0.019).

Associations between patient's subjective attitude towards medication and adherence

The ROMI questionnaire was used to assess the degree of influence of the various factors over adherence and non-adherence. We found that perceiving daily benefit, having a positive relationship with the clinician and taking medication to prevent a relapse were significantly more in the adherent group of patients that in the non-adherent group (p<0.001). (Table 2)

Associations between patient's subjective attitude towards medication and non-adherence

We found that the patients who were non-adherent reported to have been forced/ pressurized to take the medication significantly more than the adherent patients (p<0.001). The other reasons reported for non- adherence which were more for non-adherent than the adherent patients were: no perceived daily benefit (p=0.001), financial obstacles (p=0.004) and distress due to side effects (p=0.02). (Table 3).

Discussion

Socio-demographic data

Our socio-demographic data compares with the Indian studies done by Baby RS et al and Chandra IS et al, where most patients were staying with their family members.[28,29] In most of the foreign studies, such as those done by Coldham et al, the patients were single and staying alone.[18,30-24] This highlights cultural factors, such as the strong family system in the Indian setting.

Clinical profile

The clinical profile of our patients compared with the Indian studies (Baby et al) and a few foreign based studies done by Meier J et al.[29,35-38] Our studies did not compare with some of the foreign based studies, such as those done by Diaz et al in which patients had higher PANSS scores[28,34,39-42] and were treated with a single antipsychotic only.[37,42-43] This could because our study had mainly non-acute patients and because of different prescribing practice styles in the Indian setting compared to the foreign setting.

Adherence

Our findings compared with a few Indian and foreign based studies.[28-29,40,44] They did not compare with a few of the hospital based foreign studies which were prospective in nature and used different methods to assess adherence such as Pill counts. In these studies, the most common reason for adherence was relapse prevention and prevention of symptom exacerbation.[32,35,38-39,43,45-46] This is mainly due to socio-cultural factors and variation in study designs.

Non-adherence

Our findings of non-adherence which was due to poor financial condition in patients on antipsychotics compared with a few Indian and foreign based studies.[28-29,45-46] Our findings did not compare with a few hospital based foreign

studies.[22,42] This could be explained by the poor financial status of the patients at tertiary care hospitals in the Indian setting, compared to the foreign setting.

Strengths

Our study highlights the differences between foreign based studies and Indian based studies. It also helps us to better understand the socio-cultural factors prevailing in the Indian setting which affects adherence to antipsychotics.

Limitations

Our study was conducted over a short period and on a small sample of patients. This may not be representative of all patients of Schizophrenia on antipsychotics, at all tertiary referral hospitals in India. Our study evaluated adherence according to the report of the patient and their informants, which was mainly subjective in nature. The use of more objective methods such as pill counts, MEMS (Medication event monitoring system) were not undertaken.

Conclusion

Our study will help in planning suitable, customized and targeted interventions in patients of Schizophrenia to prevent non-adherence. The treatment for patients of Schizophrenia should be affordable, accessible and regularly available. The usage of depot preparations of antipsychotics should also be considered to improve adherence.

Mental health professionals need to be trained in the evaluation of non-adherence and to use suitable interventions wherever required. The doctor-patient relationship needs to be improved in order to enhance adherence to antipsychotics. Psycho-education of relatives and patients needs to be undertaken in order to enhance adherence. Patients should be closely monitored for side effects, which is a deterrent to adherence.

The effects of various interventions could be areas of further research and this will go a long way in planning policy for patients of Schizophrenia.

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Conflicting Interest

Nil.

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Metabolic syndrome in patients with Schizophrenia: Relationship with socio-demographic & clinical variables

Raghul Raj[1], Fiaz Ahmed Sattar[2], Kiran Kumar K[3*]

[1]Assistant Professor, [2]Professor and Head, [3]Associate Professor, Dept. of Psychiatry, [1]The Oxford Medical College, Hospital & Research Centre, Bangalore, Karnataka, [2,3]Vydehi Institute of Medical Sciences & Research Centre, Bangalore, Karnataka, India

***Corresponding Author: Kiran Kumar K**
Email: drkiran.psychiatry@gmail.com

Abstract

Background: Schizophrenia is an enduring severe mental illness with significant morbidity and early excess mortality. Metabolic syndrome (MetS) is a construct that aids psychiatrist to understand this constellation of risk factors leading to premature mortality. The current study was carried out with an aim to understand the association of metabolic syndrome in patients with schizophrenia and also to ascertain its relationship with socio-demographic & clinical variables.

Materials and Methods: A cross sectional study was undertaken in patients suffering from Schizophrenia (F20) as per International Classification of Diseases (ICD-10. A total of one-hundred patients were selected by purposive random sampling after obtaining a written informed consent. A predesigned proforma was used to obtain the information regarding the sociodemographic variables, drug intake, anthropometric values and metabolic parameters. Metabolic syndrome was diagnosed as per the International Diabetes Federation- 2006 criteria. The data obtained was analysed using statistical package for social services (SPSS 20).

Results: The association of metabolic syndrome in schizophrenia in the current study was 42%. The individual metabolic parameters were found to be higher in the MetS group than the non-MetS group (p=0.001). Majority of the schizophrenia patients with MetS were older (59.5% vs 44.8%; 31-50 years of age) and females (52.4% vs 36.2%; p=0.107) compared to those without MetS. Most of them were married (85.7% vs 56.9%; p=0.006), from urban areas (45.2% vs 19%; p=0.005), had lower educational qualification (p=0.01) in comparison to the non-MetS group. The MetS group had longer mean duration of schizophrenia (9.64±8.1 years vs 3.76±2.29 years), more hospitalizations (66.7% vs 53.4%; p=0.02) and higher medical comorbidity (diabetes-7.1% vs nil, hypertension-9.5% vs 1.7% and hypothyroidism-7.1% vs nil; p=0.006). With respect to psychotropic drugs usage; the use of Olanzapine (69% vs 46.6%; p=0.025), longer duration of treatment with Olanzapine (26.31 ± 33.9 months vs 8.98 ± 12.3; p=0.001) and Amisulpride (11.0 ± 21.68 months vs 3.48 ± 9.9; p=0.022) were significantly associated with MetS group than the group without MetS. On the contrary, the non-MetS group had more patients receiving risperidone (58.6%) than the MetS group.

Conclusion: The study shows that the association of metabolic syndrome in schizophrenia patients is significantly in higher percentage and thereby underlines the importance of early detection and treatment of both the disorders simultaneously.

Keywords: Cardiovascular disorders, Metabolic syndrome, Schizophrenia, Type 2 diabetes mellitus.

Introduction

Schizophrenia is a debilitating mental illness that affects about one percent of the population in all cultures and it has varied and ominous symptoms that usually begins in late adolescence or early adulthood and is generally chronic.[1] Patients suffering from schizophrenia in general have multiple medical comorbidities and available evidence suggest that patients with schizophrenia have about 15 to 20 years reduced life expectancy compared to the general population.[2,3] An alarming trend noted indicates that this mortality gap associated with schizophrenia compared to the general population has widened in recent decades.[4] The causes of death comprise a broad range of conditions, similar to the general population, but however death as a result of cardiovascular (CV) complications represents the leading aetiology of superfluous mortality in patients with schizophrenia.[5,6] To address this premature mortality in schizophrenia patients, the concept of Metabolic Syndrome (MetS) has gained importance in psychiatric literature.[7]

The Metabolic Syndrome (MetS, also known as syndrome X, syndrome of chronic cardiovascular disease and Reaven's syndrome) is a constellation of different conditions which are predictive of CV disease risk.[8] Metabolic syndrome is a cluster of risk factors which includes increased abdominal obesity, impaired glucose tolerance, dyslipidaemia and high blood pressure that causes increased cardiovascular disease and type 2 diabetes mellitus.[8,9] All components of the MetS (with obesity holding a central role in its development) have been recognized as independent risk factors for cardiovascular disease. The MetS is helpful in screening and monitoring the risk of cardiovascular disease (CVD) and has therefore been studied extensively in relation to patients with schizophrenia in the past decades.[10]

The prevalence rates of MetS in schizophrenia varies from 11% to 69%.[7] Understanding the precise reason for MetS in schizophrenia is an enigma. A number of elucidations like change in lifestyle and eating habits, increasing obesity epidemic, effect of psychotropic medications; particularly antipsychotics, alterations of the hypothalamic pituitary-adrenal axis (HPA) leading to hypercortisolemia, poor glycaemic control and possible variations in neuroanatomical architecture, particularly hippocampal volume have been proposed.[2-7,10-12]

Schizophrenia brings together a series of socio-demographic, clinical and metabolic parameters which are predictive of cardiovascular disease risk. The association between schizophrenia and the metabolic syndrome is emerging as a public health question of importance to both

mental health and primary care practitioners. In order to address the above issue, the current study was carried out with an aim to evaluate the association of metabolic syndrome in patients with schizophrenia and to evaluate the relationship of metabolic syndrome with socio-demographic and clinical variables of patients with schizophrenia.

Materials and Methods

This is a cross-sectional descriptive study of patients with a diagnosis of Schizophrenia, as per International Classification of Diseases (ICD-10) classification of Mental and Behavioral disorders attending to the teaching hospital facility of Vydehi Institute of Medical Sciences and Research Centre, Bangalore. Ethical clearance was obtained from the Institutional ethics committee.

Sample size

In order to estimate with sufficient precision, we hypothesized that the prevalence of MetS to be 30%. We calculated the sample size with a 99% confidence interval and of a 10% width. Based on this, we selected a sample size of 100 patients.

One hundred consecutive cases in the age group of 18-65 years of either sex presenting with a diagnosis of Schizophrenia (F20) and fulfilling inclusion & exclusion criteria were included after obtaining a written informed consent by purposive random sampling. The socio-demographic and clinical variables were recorded in a proforma designed for the study. Patients were then subjected for anthropometric measurements and laboratory investigations to ascertain for the presence or absence of Metabolic Syndrome as per International Diabetes Federation (IDF) criteria.[13]

Fasting blood sugar kit

Fasting blood sugar estimation was be done by GOD-PAP method calorimetric determination as described by David BS, 2001.[14]

Lipid profile kit

Enzymatic determination of cholesterol in HDL fraction was be done by precipitation techniques described by Steele BW et al 1976[15] and Triglycerides by enzymatic method as described by Bucolo G and Harold, 1973.[16]

Sypghmomanometer for measuring blood pressure

The standard clinic procedure (mercury sphygmomanometer with the Korotkoff's sound technique) was used and the guidelines by American Heart Association Guidelines for In-Clinic Blood Pressure measurement followed.[17]

Measuring tape for waist circumference

The waist circumference was measured as per the WHO guidelines.[18]

Body Mass Index (BMI) measurement

Body Mass Index (BMI) was calculated as the weight in kilograms divided by the square of the height in metres (kg/m2).

Analysis of data

Data was tabulated and coded. Data was analysed using SPSS package version 20. For categorical variables frequencies and percentages was used. The quantitative variables were analysed using measures of central tendency and dispersion. The Chi Square test was used a test of significance for categorical variables and Independent samples T test was used as test of significance. A p value of less than 0.05 was considered as statistically significant.

Results

The association of metabolic syndrome in schizophrenia in the current study was 42% (Table 1). The mean values of all metabolic syndrome parameters were all statistically significant when compared with cases without metabolic syndrome (p=0.001; Table 2).

Majority of the schizophrenia patients with MetS were older (59.5% vs 44.8%; 31-50 years of age) and females (52.4% vs 36.2%; p=0.107) compared to those without MetS. Most of them in MetS group were married (85.7% vs 56.9%; p=0.006), from urban areas (45.2% vs 19%; p=0.005), had lower educational qualification (p=0.01) in comparison to the non-MetS group (Table 3).

The MetS group when matched against the non-MetS group, the former had longer mean duration of schizophrenia (9.64±8.1 years vs 3.76±2.29 years; T Value=5.529 and p value= 0.001), more hospitalizations (66.7% vs 53.4%; p=0.02) and higher medical comorbidity (diabetes-7.1% vs nil, hypertension-9.5% vs 1.7% and hypothyroidism-7.1% vs nil; p=0.006). (Table 4)

With respect to psychotropic drugs usage; the use of Olanzapine (69% vs 46.6%; p=0.025), longer duration of treatment with Olanzapine (26.31 ± 33.9 months vs 8.98 ± 12.3; p=0.001) and Amisulpride (11.0 ± 21.68 months vs 3.48 ± 9.9; p=0.022) were significantly associated with MetS group than the group without MetS. On the contrary, the non-MetS group had more patients receiving risperidone (58.6%) than the MetS group (Table 5).

The other variables which were associated with manifestation of metabolic syndrome, yet not significant are: occupation, belonging to a lower socioeconomic status, smoking tobacco and alcohol consumption.

The study also did not find any difference between the two groups with respect to family structure, religion, age at onset of schizophrenia and there was no difference between the two groups with respect to use of Clozapine, Quetiapine, Aripiprazole and Haloperidol.

Discussion

Prevalence of MetS (Table 1)

In our study, 42% of patients suffering from schizophrenia had metabolic syndrome. The prevalence rate found in the

study was comparable closely with the study by Grover S et al in 2012, who reported a prevalence of 43.6% as per the IDF criteria.[19] Various other authors have reported varied prevalence rates. Subashini R et al reported 34.4% (using ADA criteria),[20] Kagal UA et al reported 35% (using NCEP ATP III),[21] Singh M et al reported 31.66% (using IDF).[22] Few studies have reported lower prevalence rates viz, Roshdy R reported 24.9% (using IDF),[23] Sarisoy G et al reported 27% (using IDF)[24] and Verma AK et al reported 28% (using IDF).[25] These wide variations could be partly due to diverse diagnostic criteria used for diagnosing MetS and studies being carried out in different set of population in various backgrounds.

Components of MetS: (Table 2)

In our study all the parameters of MetS was higher in the cases. Forty-four percent of the subjects had abdominal obesity (BMI of > 30 was present in 16% of the patients), hypertension was present in 27%, hyperglycemia in 21%, low HDL cholesterol among 53% and high triglycerides among 71% of the patients.

The present IDF definition emphasizes on central obesity for the diagnosis of MetS, attributing to its higher correlation with insulin resistance[26] and authors like Jensen et.al have supported this view.[27] An effective measure of central obesity is provided by Waist circumference in routine clinical practice. In our study, the mean (± SD) waist circumference of the patients without metabolic syndrome was 77.65 (± 6.2) cms and with metabolic syndrome was 89.4 (± 4.5) cms which was statistically significant (p=0.001; Table 2). Central obesity is a vital feature of the MetS, and is directly proportional to the waist circumference in majority of the population.

In our study, the mean (± SD) fasting triglycerides was 157.6 (± 55.05) mg/dl among the patients without MetS and 197.5 (± 39.8) in patients with MetS, which was statistically significant (p=0.001). Elevated levels of triglycerides are associated with atherosclerosis, even in the absence of hypercholesterolemia and predispose to cardiovascular disease.[28] This unique constitution, described as "hypertriglyceridemic waist" phenotype by Lemieux et al,[29] can be a simple bedside screening instrument for recognizing individuals with increased cardio metabolic risk.

In our study, the mean (± SD) high density lipoprotein was 44.25 (± 3.84) mg/dl among the patients without MetS and 40.37 (± 6.52) mg/dl among the patients with MetS where the mean difference was statistically significant (p=0.001). Hansel B et al found that antioxidative activity of small, dense HDL sub fractions of altered chemical composition is impaired in MetS and associated with elevated oxidative stress and insulin resistance. Induction of selective increase in the circulating concentrations of dense HDL sub fractions may represent an innovative therapeutic approach for the attenuation of high cardiovascular risk in MetS.[30]

Our study reported that, the mean fasting blood sugar level in patients without MetS was 89.72 (± 7.46) mg/dl and with MetS was 100.21 (± 15.6) mg/dl, where the mean difference was statistically significant (p=0.001). Insulin resistance is a hallmark in most of the subjects presenting with MetS. Although controversies exist about its role as an autonomous CVD risk factor, meta-analysis by Ruige JB et al., has revealed a significant association of insulin resistance and incident CVD.[31]

The mean systolic and diastolic BP was statistically significant between the two groups (p=0.001). Essential hypertension is commonly associated with the other metabolic derangements, particularly it's an important accompaniment with obesity, hyperglycemia and dyslipidemia.[32]

In our study, the mean body mass index among the patients without metabolic syndrome was 25.28 (± 1.86) kg/m^2 and 30.15 (± 1.51) among the patients with metabolic syndrome which was also statistically significant (p=0.001). Though some criteria use waist circumference (WC) and other use Body mass index (BMI) to estimate the excessive deposition of fat in the body, it has been found that WC and BMI are highly correlated and there's no superiority between the two.

Socio-demographic variables and Metabolic Syndrome (Table 3)

The mean (± SD) age of the study group was 35.68 (± 11.08) years. The mean (± SD) age of schizophrenia patients without metabolic syndrome was 31.72 (± 9.5) years while those with metabolic syndrome was 41.14 (± 10.88) years. Majority of the subjects in this study without metabolic syndrome belonged to 21-40 years (70.7%) and with metabolic syndrome belonged to 31-50 years (59.5%). This indicates that MetS was higher in older individuals. Roshdy R found that the frequency of metabolic syndrome increased consistently with age (with MetS - 43.4±9.5 vs without MetS - 35.3±9.0).[23] However, authors like Kang et al., 2011 have demonstrated this difference of MetS in older age groups in male gender only.[33]

About 52.4% of cases among the females and 47.6% among males had MetS in our study. Similar findings of female patients from all culture and traditions being more susceptible to MetS as compared with males has been established in CATIE study.[34] This finding of gender differences is not uniform across literature and a few studies have reported higher prevalence in males.[7]

In this study 56.9% of the patients without metabolic syndrome and 85.7% of the patients with metabolic syndrome were married. This finding of higher prevalence of MetS in people who were married anytime during their lifetime was statistically significant (p=0.006). Similar reports have been found by Arango C et al.[35] and Grover S et al.[36]

The study, found that the group with MetS had more patients from urban background compared to the group without MetS, which was statistically significant (p=0.005). Grover S et al found that the risk of MetS in schizophrenia patients of urban background was more than two times that in the patients from rural background (OR=2.08), which was in line with the findings of the current study.[19] However, other studies from literature have not replicated similar

findings. Rapid urbanization, changing dietary trends, increased sedentary occupation and increased perceived stress in an urban environment can all be etiologically related.

Attainment of lower levels of education in the group with metabolic syndrome compared to the group without metabolic syndrome has been found to be statistically significant in the current study (p=0.01). Sporadic studies have reported association of MetS with higher education level.[37,38] This could possibly be due to differences in the study population and classification of education into several subgroups, which may not be comparable across studies.

Other socio-demographic parameters did not show much variance between the two groups and there is no decisive evidence regarding the relationship of these parameters with MetS in literature.

Clinical variables and metabolic syndrome (Table 4)

Majority of the study population (74%) had onset of their schizophrenia before 35 years of age. In the group without MetS significant percentage of patients had an early onset (15-25 years of age) compared to the group with MetS (without MetS- 43.1% vs with MetS- 21.4%). However, in the following decade (25-35 years of age), there was a reversal of this trend (with MetS- 47.6% vs without MetS- 34.5%). According to Meyer and Stahl, the age of metabolic syndrome onset occurs much earlier in individuals with schizophrenia and other severe mental illnesses than in the general population, with high metabolic syndrome prevalence seen among the patients with schizophrenia below the age of thirty.[39]

The mean duration of schizophrenia among patients without metabolic syndrome is 3.76 years and among those with metabolic syndrome is 9.64 years and is statistically significant (p=0.001). While a lengthier duration of illness has been established to be associated with higher prevalence of MetS in some of the studies,[19,40-42] other studies have shown no association of MetS and duration of illness.[43,44] Co-morbid factors like psycho-active substance use, IGF-1 deficiency and inactive lifestyle can also contribute to the advent of metabolic complications in these patients.[45]

The groups differed with respect to number of hospitalizations, which was more in the MetS group and was statistically significant (p value= 0.020). In the study by Elgamal M et al, the onset of diabetes mellitus, hypertension and dyslipidemia for most of the cases was during the period of chronic institutionalization, especially at the time of last admission (n=17, 60.71%; n=21, 72.41%; and n=40, 81.63%, respectively).[46] Increased severity, chronicity of illness, multiple psychotropic usage can be confounding factors.

There was no statistically significant difference with respect to use of Nicotine between the two groups. However, a significant proportion of subjects in both the groups had dependence for smoking. (20.7% of the patients without MetS v/s 23.8% of the patients with MetS). Tobacco use has been consistently related with an amplified risk of developing MetS.[47] A national nutrition examination survey in USA reported an increase in risk of development of metabolic syndrome among women (OR, 1.8; 95% CI: 1.2–2.6) and men (OR, 1.5; 95% CI: 1.1–2.2) who were current smokers compared with those who never smoked.[48] Tobacco use is associated with all cascades in the etiopathogenesis of MetS and hence could contribute to development of metabolic syndrome through multiple mechanisms.

About 1.7% of the cases without metabolic syndrome and 7.1% of the cases with metabolic syndrome had dependence to alcohol, however it was not statistically significant. It is hypothesized that use of alcohol is a harbinger of hepatic dysregulation leading to disturbances of hepatic gluconeogenesis and oxidation of lactate to pyruvate all of which can lead to development of MetS.[49]

Antipsychotic usage and metabolic syndrome (Table 5)

Antipsychotic usage is known to increase the prevalence of MetS by about three-fold as compared to the general population.[50,51] In our study we tried to compare the commonly used antipsychotics between the two groups and understand its outcome.

The use of Olanzapine (69% vs 46.6%; p=0.025) and mean duration of treatment with Olanzapine (26.31 ± 33.9 months vs 8.98 ± 12.3; p=0.001) was statistically significant among the patients with and without metabolic syndrome. Similar findings was demonstrated in the CATIE study, wherein patients in the olanzapine group gained the maximum weight (mean weight gain was 0.9 kg monthly).[52] Another long term follow-up study of 52-weeks also found the highest weight gain among olanzapine-treated patients.[53] Olanzapine is the commonest second generation antipsychotic implicated in the causation of MetS. Similar findings are obtained in our study, however being a cross-sectional study, its difficult to comment on the exact pathogenesis and presence of other confounding factors has to be considered.

The duration of use of amisulpride was 3.48 months among the patients without metabolic syndrome and 11 months with metabolic syndrome and the difference was statistically significant (T Value=2.329, p value= 0.022). There are very few data available on the metabolic effects of amisulpride. In general, it is a preferred drug to be used when considering the risk of MetS. The association present in our study need to be interpreted with caution because of the small sample size and cross-sectional nature of the study.

The non-MetS group had more patients receiving risperidone (58.6%) than the MetS group. In general, Risperidone is associated with lesser weight gain and has favourable metabolic profile. No significance was obtained on comparison of the two groups with other antipsychotics viz, Clozapine, Quetiapine, Aripiprazole and Haloperidol.

Though various literature suggests about the role of antipsychotics in development of MetS, but controversies and incontinences exist. Some large scale multicentric trials (CLAMORS study), have reported no significance between patients with and without MetS in relation to the mean duration or type of antipsychotic treatment. [54]

Table 1: Prevalence of metabolic syndrome in the study population (N=100)

Metabolic Syndrome	Prevalence (%)
Absent	58
Present	42
Total	100

Table 2: Distribution of the study groups based on the metabolic parameters

Metabolic Syndrome Parameters	Metabolic syndrome		T value	p value
	No Mean ± SD	Yes Mean ± SD		
Waist circumference (cm)	77.65 ± 6.2	89.4 ± 4.5	10.4	0.001**
Fasting Triglycerides (mg/dl)	157.6 ± 55.05	197.5 ± 39.8	3.996	0.001**
High density lipoprotein (mg/dl)	44.25 ± 3.84	40.37 ± 6.52	3.734	0.001**
Fasting blood sugar (mg/dl)	89.72 ± 7.46	100.21 ± 15.6	4.47	0.001**
Blood pressure systolic (mm of Hg)	117.93 ± 5.21	126.14 ± 8.52	5.961	0.001**
Blood pressure diastolic (mm of Hg)	77.24 ± 4.51	81.78 ± 5.8	4.397	0.001**
Body mass index (kg/m^2)	25.28 ± 1.86	30.15 ± 1.51	13.976	0.001**

Table 3: Socio-demographic variables and metabolic syndrome (N=100)

Socio-demographic Variable	Metabolic Syndrome		Total (N%)	Test p value
	No (n%)	Yes (n%)		
Age group				
< 20 years	7 (12.1)	0	7 (7.0)	
21 – 30 years	23 (39.7)	7 (16.7)	30 (30.0)	
31 – 40 years	18 (31.0)	16 (38.1)	34 (34.0)	
41 – 50 years	8 (13.8)	9 (21.4)	17 (17.0)	
51 – 60 years	1 (1.7)	8 (19.0)	9 (9.0)	
> 60 years	1 (1.7)	2 (4.8)	3 (3.0)	
Total	58 (100)	42 (100)	100 (100)	
Mean ± SD	31.72 ± 9.5	41.14 ± 10.88	35.68 ± 11.08	
Gender				
Male	37 (63.8)	20 (47.6)	57 (57.0)	$\chi 2$ Value=2.6 df=1 p value= 0.107
Female	21 (36.2)	22 (52.4)	43 (43.0)	
Total	58 (100)	42 (100)	100 (100)	
Marital Status				
Married	33 (56.9)	36 (85.7)	69 (69.0)	χ^2 Value=10.282 df=2 p value= **0.006* Sig**
Unmarried	24 (41.4)	5 (11.9)	29 (29.0)	
Divorced	1 (1.7)	1 (2.4)	2 (2.0)	
Total	58 (100)	42 (100)	100 (100)	
Educational Status				
Illiterate	0	4 (9.5)	4 (4.0)	χ^2 Value=15.052 df=5 p value=**0.01***
Primary school certificate	6 (10.3)	10 (23.8)	16 (16.0)	
Middle school certificate	20 (34.5)	6 (14.3)	26 (26.0)	
High school certificate	22 (37.9)	10 (23.8)	32 (32.0)	
Intermediate or post high school diploma	6 (10.3)	7 (16.7)	13 (13.0)	
Graduate or post graduate	4 (6.9)	5 (11.9)	9 (9.0)	
Total	58 (100)	42 (100)	100 (100)	
Family Type				
Nuclear	47 (81.0)	27 (64.3)	74 (74.0)	χ^2 Value=3.552 df=1 p value=0.059
Joint	11 (19.0)	15 (35.7)	26 (26.0)	
Total	58 (100)	42 (100)	100 (100)	
Occupation				
Unemployed	34 (58.6)	27 (64.3)	61 (61.0)	χ^2 Value=2.744 df=6 p value=0.84
Unskilled worker	6 (10.3)	4 (9.5)	10 (10.0)	
Semi-skilled worker	8 (13.8)	3 (7.1)	11 (11.0)	
Skilled worker	5 (8.6)	6 (14.3)	11 (11.0)	

Clerical, shop owner, Farmer	1 (1.7)	0	1 (1.0)	
Semi profession	2 (3.4)	1 (2.4)	3 (3.0)	
Profession	2 (3.4)	1 (2.4)	3 (3.0)	
Total	58 (100)	42 (100)	100 (100)	
Residence				
Rural	47 (81.0)	23 (54.8)	70 (70.0)	χ2 Value=8.007
Urban	11 (19.0)	19 (45.2)	30 (30.0)	df=1
Total	58 (100)	42 (100)	100 (100)	p value=**0.005***
SES				
Upper middle	7 (12.1)	5 (11.9)	12 (12.0)	
Lower middle	43 (74.1)	29 (69.0)	72 (72.0)	χ^2 Value=0.509
Upper lower	7 (12.1)	7 (16.7)	14 (14.0)	df=3
Lower	1 (1.7)	1 (2.4)	2 (2.0)	p value=0.917
Total	58 (100)	42 (100)	100 (100)	

Table 4: Clinical variables and metabolic syndrome (N=100)

Clinical Variable	Metabolic Syndrome		Total (N%)	Test p value
	No (n%)	Yes (n%)		
Age at onset of schizophrenia				
15 to ≤ 25 years	25 (43.1)	9 (21.4)	34 (34.0)	
25 to ≤ 35 years	20 (34.5)	20 (47.6)	40 (40.0)	χ^2 Value=5.307
35 to ≤ 45 years	8 (13.8)	9 (21.4)	17 (17.0)	df=4
45 to ≤ 55 years	4 (6.9)	3 (7.1)	7 (7.0)	p value=0.257
55 to ≤ 65 years	1 (1.7)	1 (2.4)	2 (2.0)	
Total	58 (100)	42 (100)	100 (100)	
Total duration of schizophrenia				
0 to <5 years	44 (75.9)	15 (35.7)	59 (59.0)	
5 to 10 years	13 (22.4)	9 (21.4)	22 (22.0)	χ^2 Value=28.458
10 to 15 years	1 (1.7)	12 (28.6)	13 (13.0)	df=4
15 to 25 years	0	3 (7.1)	3 (3.0)	p value=**0.001****
> 25 years	0	3 (7.1)	3 (3.0)	
Total	58 (100)	42 (100)	100 (100)	
Total duration of schizophrenia (number of years)				
Mean ± SD	3.76 ± 2.29	9.64 ± 8.1		T Value=5.529
				p value= **0.001****
Number of hospitalizations				
0	27 (46.6)	14 (33.3)	41 (41.0)	
1 to 5	30 (51.7)	21 (50.0)	51 (51.0)	χ^2 Value=7.851
6 to 10	1 (1.7)	7 (16.7)	8 (8.0)	df=2
Total	58 (100)	42 (100)	100 (100)	p value= **0.020***
Co-morbid medical conditions				
Nil	57 (98.3)	32 (76.2)	89 (89.0)	
Diabetes	0	3 (7.1)	3 (3.0)	χ^2 Value=12.585
Hypertension	1 (1.7)	4 (9.5)	5 (5.0)	df=3
Hypothyroid	0	3 (7.1)	3 (3.0)	p value=**0.006***
Total	58 (100)	42 (100)	100 (100)	
Cigarette smoking				
Non smoker	46 (79.3)	32 (76.2)	78 (78.0)	χ^2 Value=0.138
Dependence	12 (20.7)	10 (23.8)	22 (22.0)	df=1
Total	58 (100)	42 (100)	100 (100)	p value=0.71
Alcohol consumption				
Non-alcoholic	53 (91.4)	37 (88.1)	90 (90.0)	χ^2 Value=2.002
Dependence	1 (1.7)	3 (7.1)	4 (24.0)	df=2
Occasional use	4 (6.9)	2 (4.8)	6 (6.0)	p value=0.367
Total	58 (100)	42 (100)	100 (100)	

Table 5: Antipsychotic usage and metabolic syndrome (N=100)

Clinical Variable	Metabolic Syndrome		Total (N%)	Test p value
	No (n%)	Yes (n%)		
Olanzapine				
Nil	31 (53.4)	13 (31.0)	44 (44.0)	χ^2 Value=5.003
Yes	27 (46.6)	29 (69.0)	56 (56.0)	df=1
Total	58 (100)	42 (100)	100 (100)	p value=**0.025***
Mean duration of use ± SD	8.98 ± 12.3	26.31 ± 33.9		T Value=3.586 p value= **0.001****
Risperidone				
Not used	24 (41.4)	23 (54.8)	47 (47.0)	χ^2 Value=1.751
Yes	34 (58.6)	19 (45.2)	53 (53.0)	df=1
Total	58 (100)	42 (100)	100 (100)	p value=0.186
Mean duration of use ± SD	14.71 ± 15.62	16.43 ± 23.33		T Value=0.442 p value= 0.659
Amisulpride				
Not use	48 (82.8)	31 (73.8)	79 (79.0)	χ^2 Value=1.176
Yes	10 (17.2)	11 (26.2)	21 (21.0)	df=1
Total	58 (100)	42 (100)	100 (100)	p value=0.278
Mean duration of use ± SD	3.48 ± 9.9	11.0 ± 21.68		T Value=2.329 p value= **0.022***
Clozapine				
Not used	52 (89.7)	37 (88.1)	89 (89.0)	χ^2 Value=0.061
Yes	6 (10.3)	5 (11.9)	11 (11.0)	df=1
Total	58 (100)	42 (100)	100 (100)	p value=0.806
Mean duration of use ± SD	2.88 ± 9.6	3.05 ± 9.5		T Value=0.087 p value= 0.931
Quetiapine				
Nil	56 (96.6)	39 (92.9)	95 (95.0)	χ^2 Value=0.7
Yes	2 (3.4)	3 (7.1)	5 (5.0)	df=1
Total	58 (100)	42 (100)	100 (100)	p value=0.403
Mean duration of use ± SD	0.9 ± 5.14	3.14 ± 13.27		T Value=1.175 p value= 0.243
Aripiprazole				
Nil	46 (79.3)	35 (83.3)	81 (81.0)	χ^2 Value=0.256
Yes	12 (20.7)	7 (16.7)	19 (19.0)	df=1
Total	58 (100)	42 (100)	100 (100)	p value=0.613
Mean duration of use ± SD	5.07 ± 10.83	3.76 ± 9.51		T Value=0.627 p value= 0.532
Haloperidol				
Not used	53 (91.4)	41 (97.6)	94 (94.0)	χ^2 Value=1.682
Yes	5 (8.6)	1 (2.4)	6 (6.0)	df=1
Total	58 (100)	42 (100)	100 (100)	p value=0.195
Mean duration of use ± SD	1.10 ± 4.14	0.57 ± 3.7		T Value=0.662 p value= 0.509

p Value: *Significant, ** Highly Significant

Conclusion

The study shows that the association of metabolic syndrome in schizophrenia patients is significantly higher and thereby underlines the importance of early detection and treatment of both the disorders simultaneously. Several sociodemographic and clinical variables (including the use of psychotropics) are important predictors of MetS and play a pivotal role in the morbidity and mortality of schizophrenia. Early recognition and evaluation of these markers can prevent/protract the onset of MetS and prevent further complications.

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Conflict of Interest

Nil.

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Study of negative symptoms in schizophrenia

Phanikanth Kondaparthi[1], Sai Krishna Puli[2*], Datt M[3]

[1]Assistant Professor, [2,3]Professor, Dept. of Psychiatry, [1]Institute of Mental Health, Erragadda, Hyderabad, Telangana, [2]Prathima Institute of Medical Sciences, Karimnagar, Telangana, [3]Kamineni Institute of Medical Sciences, Narketpally, Nalgonda, Telangana, India

***Corresponding Author: Sai Krishna Puli**
Email: kannap103@gmail.com

Abstract

Introduction: Schizophrenia is a major mental illness that can afflict and corrupt the normal functions of powerful mind. Schizophrenia is a chronic relapsing disorder with incomplete remissions. It is characterized by a diverse set of signs and symptoms which include positive, negative, cognitive, disorganization, mood and motor symptom dimensions.

Aims: The current study was aimed to study the negative symptoms in schizophrenia in patients attending a rural teaching hospital and its relation to demographic parameters, severity of illness and follow up changes.

Setting and Design: This is a cross-sectional study done in a rural medical college of Telangana state. The sample size consisted of 50 Schizophrenia subjects. .

Materials and Methods: The socio-demographic data and psychiatric morbidity was assessed using Brief Psychiatric Rating Scale (BPRS). Negative symptoms were assessed on Scale for Assessment of Negative Symptoms(SANS).

Results: In the study sample of 50 schizophrenia subjects, 35(70%) subjects were having gradual onset of symptoms, 13(26%) subjects were having illness from past 24 months, 26(52%) subjects were treatment naïve, 8 (16%) relapse subjects and 16(32%) were on regular maintenance treatment. The pattern of negative symptoms 34(68%) were having flat affect, 32 (64%) alogia, 40 (80%) avolition, 38 (76%) anhedonia, 36 (72%) were having inattention. On SANS, most marked negative symptom is impersistence at work. In the present study negative symptoms were more often seen in unmarried subjects, literate subjects, unemployed subjects, joint families, gradual onset of illness, duration of illness between 13-24 months and in relapse cases. BPRS and SANS scores improved on follow up evaluations after initiation of treatment (p value <0.05).

Conclusion: In the present study negative symptoms had a significant association with demographic parameters like education and occupation. In majority of the subjects duration of illness is less than one year and the negative symptoms started quite early in the course of the disease contrary to the popular evidence. In the present study there is an equal distribution of symptoms in all five domains of negative symptoms with 'avolition' at the top. Clinically negative symptoms were missed in few subjects, as is the case in general. So it is advisable to employ standard rating scales in all clinical evaluations, lest one should overlook the negative symptoms. Follow up evaluations in all showed the negative symptoms responding effectively to treatment, contrary to the existing evidence regarding their refractoriness.

Keywords: Schizophrenia, Negative symptoms, SANS.

Introduction

Schizophrenia is a major mental illness that can afflict and corrupt the normal functions of powerful mind. It is an enigmatic mental disorder mental disorder that severely impacts the way people think, feel and act, robbing away their insight and touch with reality.[1] Across the world millions of people suffer from schizophrenia. No culture, race or society is free from this malady. There is no gender immunity either.

In India, for a population of nearly one billion, an estimated four million people suffer from schizophrenia[2]. Today, with a considerable lifetime morbidity and high mortality from suicide, schizophrenia is a serious public health problem and is among the top ten leading causes of disease related disability in the world.[3,4] Schizophrenia is not just a bane to the sufferer, but a gigantic burden to the society as well.

Down the centuries schizophrenia entailed a lot of social stigma due to superstitions. Today, despite growing awareness, the situation is no better. Since time immemorial, schizophrenia is known to the mankind in the names of 'lunacy', 'insanity' or 'madness'. But a serious and scientific investigation of this condition began only in mid to late nineteenth century.

Ever since Eugen Bleuler coined the term schizophrenia, meaning split mind, to describe the disorder, a lot of water has flown under the bridge[5]. Incessant research is ongoing in this field to understand the etio-pathogenesis and phenomenology of schizophrenia for the sake of better diagnosis and management. Perhaps because of the complex heterogeneity in psychopathology and lack of precise diagnostic specificity, schizophrenia is still as much an enigma as ever. No doubt advances in pharmacotherapy and psychosocial interventions did improve the management of schizophrenia to certain extent but the core issues still remain unanswered.

Efforts so far, to unravel the mystery of schizophrenia, only succeeded in creating semantic jargon rather than reaching any meaningful conclusions, resulting in more confusion than clarity[6]. The present study attempts to make a foray into the domain of negative symptoms in schizophrenia to record our experience and results.

Aims and Objectives

The current study was aimed to

a. To study the negative symptoms in schizophrenia in patients attending a rural teaching hospital.

b. To study the relation between negative symptoms and demographic parameters
c. To study the relationship between negative symptoms and severity of illness.
d. To study the status of negative symptoms on two follow up visits.

Materials and Methods

A cross sectional observational study was conducted among diagnosed cases of schizophrenia patients attending a rural teaching hospital, in Telangana. The study duration was from October 2011 to September 2012.

Schizophrenic subjects diagnosed as per the International Classification of Diseases 10 (ICD-10),[7] and between age groups 15-65 years, belonging to both sexes were included. Informed consent of each participant was taken. Those not willing to give valid consent and subjects with negative symptoms due to causes other than schizophrenia, co-morbidity with any serious physical illness were also excluded.[8-10]

Psychiatric morbidity was evaluated by using Brief Psychiatric Rating Scale (BPRS).[11]BPRS was first introduced by Overall and Gorham (1962) with 16 items. It is a brief scale measuring psychopathology in psychotic patients, particularly schizophrenia. The most commonly used version is with 18 items devised by Overall and Klett(1972).[12] Each item is rated on a 0 to 6 point scale ranging between not present to extremely severe. Rating is based upon observations made by clinician and subjects verbal report. Strengths of the scale include its brevity, ease of administration, wide use in research, well established validity and reliability. BPRS is appropriate for evaluating baseline psychopathology, clinical outcome and treatment response. The severity of psychopathology on BPRS is considered as 0-30 not significant, 31-40 mild illness, 41-52 moderate illness, 53 and above as severe illness.

Scale for Assessment of Negative Symptoms (SANS) was developed by N.Andreasen[13-15] to assess negative symptoms in schizophrenia among the five domains of affective flattening, alogia, avolition, anhedonia and inattention.[16,17] The scale consists of 24 items of which 5 are on global assessment. Clinical rating is done on direct observation over a 0 to 5 point scale ranging between none to severe. Strength of SANS includes its ease of administration and well researched reliability. SANS is often employed in assessing baseline clinical status and changes over a period of time.

Data collection was done after approval from Institutional Ethics Committee. Frequency analysis was done as a part of descriptive statistics, to describe the sample in terms of socio-demographic and clinical characteristics. Subsequently, chi-square test and t-test were used where ever appropriate.

Methodology

Subjects attending psychiatry OPD fulfilling the study criteria are enrolled into the study. Diagnosis was made by a qualified psychiatrist after applying ICD-10 criteria for schizophrenia. Then subjects are screened to rule out causes for negative symptoms other than schizophrenia. Socio-demographic data and psychosocial history were recorded on intake proforma. Subjects were rated on BPRS for severity of illness and on SANS for negative symptoms on day 1 (basal evaluation). Subjects were again evaluated after second and fourth weeks (follow up evaluation). The data collected was entered in excel sheets. Statistical analysis was done by using SPSS 22.

Results and Discussion

The study sample included 50 subjects. Of them 34(68%) subjects were between 15-35 years age, 28 (56%) were males and 22(44%) were females. Among them 26(52%) were married, 40(80%) are from rural background, 36(72%) were literates, 33 (66%) were unemployed, 36(72%) from nuclear family [Table 1].

Table 1

S. No	Parameter	Males n=28 (56%)	Females n=28 (56%)	Total n=50 (100%)
1	Age group (in years)			
	a. 15-25	15 (53.57)	4 (18.18)	19 (38)
	b. 26-35	10 (35.71)	5 (22.73)	15 (30)
	c. 36-45	3 (10.72)	4 (18.18)	7 (14)
	d. 46-55	0	5 (22.73)	5 (10)
	e. 56-65	0	4 (18.18)	4 (8)
2	Marital status			
	a. Unmarried	12 (42.86)	3 (13.64)	15 (30)
	b. Married	13 (46.42)	13 (59.09)	26 (52)
	c. Others (separated)	3 (10.72)	6 (27.27)	9 (18)
3	Education			
	a. Illiterate	3 (10.72)	11 (50.00)	14 (28)
	b. School	12 (42.86)	5 (22.72)	17 (34)
	c. Intermediate	4 (14.28)	3 (13.64)	7 (14)
	d. Graduation	9 (32.14)	3 (13.64)	12 (24)
4	Occupation			

	a. Agriculture b. Professional c. Student d. Unemployed	7 (25) 1 (3.57) 5 (17.86) 15 (53.57)	4 (18.18) 0 0 18 (81.82)	11 (22) 1 (2) 5 (10) 33 (66)
5	Family a. Nuclear b. Joint c. Single	 19 (67.8) 9 (32.2) 0	 17 (77.2) 3 (13.6) 2 (9.2)	 36 (72) 12 (24) 2 (4)

Among this group 35(70%) subjects were having gradual onset of symptoms, 13(26%) subjects were having illness from past 24 months, 26(52%) subjects were treatment naïve, 8 (16%) relapse subjects and 16(32%) were on regular maintenance treatment. Among these fifty subjects, the pattern of negative symptoms 34(68%) were having flat affect, 32 (64%) alogia, 40 (80%) avolition, 38 (76%) anhedonia, 36 (72%) were having inattention.

Table 2

S. No	Parameter	Males n =28(%)	Females n =28 (%)	Total n=50 (%)
1	Onset of symptoms a. sudden b. gradual	 5 (17.86) 23 (82.14)	 10 (45.45) 12 (54.55)	 15 (30) 35 (70)
2	Duration of illness (in months) a. 1-12 b. 13-24 c. > 24	 20 (71.43) 1 (3.57) 7 (25)	 15 (68.18) 1 (4.54) 6 (27.28)	 35 70) 2 (4) 13 (26)
3	Treatment status a. Treatment naïve b. Relapse c. On treatment	 19 (67.86) 3 (10.71) 6 (21.43)	 7 (31.82) 5 (22.73) 10 (45.45)	 26 (52) 8 (16) 16 (32)
4	Negative symptom profile a. Flat affect b. Alogia c. Avolition d. Anhedonia e. Inattention	 18 19 26 22 20	 16 13 14 16 16	 34 (68) 32 (64) 40 (80) 38 (76) 36 (72)

Among the study subjects, 36 (72%) showed difficulties in relationship with friends, 35 (70%) showed inattentiveness, impersistence at work, intimacy and closeness difficulties; 33 (66%) showed physical anergia, 28 (56%) showed social inattentiveness and 26 (52%) showed poverty of speech

On SANS, most marked negative symptom is impersistence at work. . Most common negative symptom domain is avolition, symptoms are decreased recreational interests and activities as well as poor relationships (Table 3).

Table 3: SANS Individual items

S. No	SANS item	Gender Distribution			Severity of symptoms		
		Males n (%)	Females n(%)	Total n (%)	Absent n(%)	Moderate n (%)	Marked n(%)
1	Unchanging facial expression	12 (42%)	12 (54%)	24 (48%)	26 (52%)	16 (32%)	08 (16%)
2	Decreased spontaneous movements	8 (28%)	5 (22%)	13 (26%)	37 (74%)	07 (14%)	06 (12%)
3	Paucity of expressive gestures	10 (35%)	6 (22%)	16 (26%)	34 (68%)	11 (22%)	05 (10%)
4	Poor eye contact	9 (32%)	10 (45%)	19 (38%)	31 (62%)	11 (22%)	08 (16%)
5	Affective non responsivity	5 (17%)	9 (40%)	14 (28%)	36 (72%)	10 (20%)	04 (8%)
6	Lack of vocal inflections	7 (25%)	7 (31%)	14 (28%)	36 (72%)	10 (20%)	04 (8%)

7	Poverty of speech	15 (53%)	11 (50%)	26 (52%)	24 (48%)	15 (30%)	11 (22%)
8	Poverty of content of speech	4 (14%)	5 (22%)	9 (18%)	41 (82%)	08 (16%)	01 (2%)
9	Thought blocking	4 (14%)	4 (18%)	8 (16%)	42 (84%)	06 (12%)	02 (4%)
10	Increased latency of response	11 (39%)	5 (22%)	16 (32%)	34 (68%)	12 (24%)	04 (8%)
11	Grooming and hygiene	17 (60%)	7 (31%)	24 (48%)	26 (52%)	17 (34%)	07 (14%)
12	Impersistence at work	23 (82%)	12 (54%)	35 (70%)	15 (30%)	04 (8%)	31 (62%)
13	Physical anergia	21 (75%)	12 (54%)	33 (66%)	17 (34%)	05 (10%)	28 (56%)
14	Recreational interests and activities	20 (71%)	16 (72%)	36 (72%)	14 (28%)	13 (26%)	23 (46%)
15	Sexual activity	17 (60%)	12 (54%)	29 (58%)	21 (42%)	10 (20%)	19 (38%)
16	Intimacy and closeness	22 (78%)	13 (59%)	35 (70%)	15 (30%)	14 (28%)	21 (42%)
17	Relationships with friends	22 (78%)	14 (63%)	36 (72%)	14 (28%)	15 (30%)	21 (42%)
18	Social inattentiveness	15 (53%)	13 (59%)	28 (56%)	22 (44%)	12 (24%)	16 (32%)
19	Inattentiveness during MSE	20 (71%)	15 (68%)	35 (70%)	15 (30%)	08 (16%)	27 (54%)

In the present study negative symptoms were more often seen in unmarried subjects, literate subjects, unemployed subjects, joint families, gradual onset of illness, duration of illness between 13-24 months and in relapse cases.

Table 4

S. No	Parameter	Flat affect n (%)	Alogia n(%)	Avolition n (%)	Anhedonia n (%)	Inattention n (%)
1	Marital status					
	a. Married n=26	18 (69.2)	15 (57.6)	20(76.9)	19 (73.07)	18 (69.2)
	b. Unmarried n=25	12 (80)	11 (73.3)	13(86.6)	12(80)	10 (66.6)
	c. Others n=9	4 (44.4)	6 (66.6)	7(77.7)	7 (77.7)	8 (88.8)
2	Education					
	a. Literate n=36	24 (66.6)	25(69.4)	32 (88.8)	29 (80.5)	29 (80.5)
	b. Illiterate n=14	10 (71.4)	7 (50)	8 (57.1)	9 (64.2)	9 (64.2)
3	Occupation					
	a. Employed n=17	11 (64.7)	10 (58.8)	13 (76.4)	10 (58.8)	10 (58.8)
	b. Unemployed n=33	23 (69.6)	22 (66.6)	27 (81.8)	28 (84.8)	26 (78.7)
4	Family					
	a. Nuclear n=36	25(69.4)	22 (61.1)	29 (80.5)	27 (75)	27 (75)
	b. Joint n=12	8 (66.6)	10 (83.3)	10 (83.3)	10 (83.3)	9 (75)
	c. Single n=2	1 (50)	0	1 (50)	1 (50)	0
5	Onset of illness					
	a. sudden n=15	12 (80)	10 (66.6)	10 (66.6)	10 (66.6)	11 (73.3)
	b. gradual n=35	22(62.8)	22 (62.8)	30 (85.7)	30 (85.7)	25 (71.4)
6	Duration of illness in months					
	a. 1-12 n=35	25 (71.4)	22(62.8)	26(74.2)	24(68.5)	25(71.4)
	b. 13-24 n=2	2(100)	2(100)	2(100)	2(100)	2(100)
	c. >24 n=13	7(53.8)	8(61.5)	12(92.3)	12(92.3)	9(69.2)
7	Treatment status					
	a. Naïve n=26	16(61.5)	17 (65.3)	22 (84.6)	20(76.9)	19 (73.07)
	b. Relapse n=8	7 (87.5)	4 (50)	7 (87.5)	7 (87.5)	7 (87.5)
	c. On treatment n=16	11(68.7)	11 (68.7)	11(68.7)	11 (68.7)	10 (62.5)

On BPRS scores most of the subjects had very mild illness. Basal BPRS scores are 26.04, first follow up BPRS scores were14.62, second follow up BPRS scores were 7.52.[p value < 0.05, statistically significant]. Basal SANS scores were 43.64, first follow up SANS score were 33.34, second follow up SANS score were 27.08, [p value < 0.05, statistically significant]. BPRS and SANS scores improved on follow up evaluations after initiation of treatment (p value <0.05).Usually positive symptoms improve more effectively with treatment rather than negative symptoms.

Discussion

Epidemiological data support the notion that patients with the deficit syndrome represent a distinct subgroup within schizophrenia. In clinical samples, patients with the deficit form of schizophrenia or primary negative symptoms represent about 20%-30% of patients, where as in population –based samples approximating incidence samples, patients with the deficit form of schizophrenia comprise14%-17% of patients with schizophrenia. Carpenter and colleagues examined the prevalence of deficit syndrome within an outpatient clinical population. They reported 19% prevalence rate in a nonrandom population of patients. Bottlender and colleagues reported a similar prevalence (26%) in patients who were evaluated 15 years after their first hospitalization.

The present study is comparable to the existing work done by Vijay et al,[24] where most of the male subjects are in age groups between 15-35 years and female subjects are almost equally distributed in ages 15-65 years. Similar results were noted in other domains like marital status, education, occupation.

In the present study the most frequently occurring negative symptom domain is avolition followed by anhedonia, while in Chaturvedi et al [25]it was affective flattening followed by anhedonia and avolition.

In Chaturvedi et al study patients with schizophrenia showed more of affective flattening, alogia and they were statistically significant, global rating on anhedonia - asociatily sub scale had no significant difference, since large number of depressives as well as schizophrenics scored high on this sub scale.

In the present study the most common negative symptom noted on SANS is decreased interest in recreational activities and decreased relationships, where as in study by Kulhara et al[26] the most common symptoms were impersistence at work, decreased interests in recreational activities and decreased relationships. In both the studies, the most marked SANS item is impersistence at work.

In the present study 26% of the study subjects were having significant scores on BPRS which is comparable with the study done by Wijesundara et al.[27]

Usually positive symptoms improve more effectively with treatment rather than negative symptoms.In the present study follow up evaluations of BPRS and SANS scores improved after initiation of treatment which were statistically significant.

Studies by Shtasel et al(1992), Ring et al(1991),Cowell et al(1996), Maric et al(2003) and Szymansky et al (1995) have reported predominant negative symptoms in male though Andia et al(1995), Usall et al(2001) and Lindamer et al (1999) reported no gender differences in expression of negative symptoms. No such comparison was done in our study. Such conflicting results might be attributed to difference in rating scales employed.

In study by Pogue-Guile and Harrow schizophrenia patients have shown more poverty of speech. Other negative symptoms is poor physical hygiene, impersistence at work, inattention and inability to feel intimacy were observed more in subjects with schizophrenia.

Limitations of the Study

Limitations of the present study are small sample size and lack of focus on premorbid personality. Some patients were treatment naïve, some with relapse while some were on treatment as the sample was collected on outpatient basis. This is a heterogeneous sample which is a shortcoming. This study is not a prospective study. Hence, patients were reviewed in a short duration that is 2 weeks and 4 weeks. Improvement with treatment was seen in PANS and SANS scores in the follow up visits compared to baseline scores.

Conclusion

In the present study negative symptoms had a significant association with demographic parameters like education and occupation. In majority of the subjects duration of illness is less than one year and the negative symptoms started quite early in the course of the disease contrary to the popular evidence. In the present study there is an equal distribution of symptoms in all five domains of negative symptoms with 'avolition' at the top.

Occurrence of negative symptoms is quite frequent, with decreased relationships and decreased interest in recreational activities topping the list. Clinically negative symptoms were missed in few subjects, as is the case in general. So it is advisable to employ standard rating scales in all clinical evaluations, lest one should overlook the negative symptoms.

In the present study most of the cases were treatment naïve. Follow up evaluations in all showed the negative symptoms responding effectively to treatment, contrary to the existing evidence regarding their refractoriness.

Negative symptoms are intrinsic to the pathology of schizophrenia and are associated with significant deficits in motivation, verbal and nonverbal communication, affect, cognitive and social functioning.[18] This in turn contributes to poor outcome, response to treatment and social adjustment.[19] Negative symptoms in schizophrenia enjoy a prominent place in today's clinical practice and research as a distinct and integrated entity in symptomatology.

As the study of negative symptoms assumes immense significance in schizophrenia research it is imperative and desirable to make the study designs more comprehensive and foolproof.

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Conflict of Interest
Nil.

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A cross-sectional comparative study of problematic internet use and associated depression in private and Government school students in rural and urban areas of Telangana

Vivaswan Boorla[1], Sireesha Srinivasarao[2], Nikhil Ravindranath Tondehal[3*], Sumedha[4]

[1,3]Assistant Professor, [2]Professor, [4]Post Graduate, [1,2,4]Institute of Mental Health, Erragadda, Hyderabad, Telangana, [3]ESI Medical College, Erragadda, Hyderabad, Telangana, India

***Corresponding Author: Nikhil Ravindranath Tondehal**
Email: indianstream007@gmail.com

Abstract

Background: The Internet has become an essential part of our day to day life, especially among adolescents. It can be used for education, entertainment, and communication & sharing of information. If it is used excessively beyond a limit, it becomes an addiction and is becoming a significant concern. This study was carried out to estimate the prevalence of internet addiction among rural, urban, Government, and private school-going adolescents and its association with socio-demographic factors, internet-related variables, and comorbid depression.

Materials and Methods: A cross-sectional and comparative study was conducted in government and private schools in urban and rural areas of Telangana for three months. By using a simple random sampling method, 400 students of 10-13 years age group, studying in private, government schools of rural and urban areas were taken for the study. The study was conducted after obtaining approval from the institutional ethics committee. Students who had a history of internet use for the past one year were taken into study. Confidentiality was assured, and the voluntary nature of the study was explained. Semi structure intake proforma was used to collect age, gender, place of internet access, money spent on the Internet, duration of access, any quarrels happened among parents in the family, parental education, the purpose of internet use. Data was entered on Young's internet addiction questionnaire and depression self-rating scale for children by Birleson.

Results: Prevalence of internet addiction was estimated in rural, urban, and government and private schools. Correlates for internet addiction is different in rural and urban samples. Prevalence of internet addiction was found to be 4% mild and 4% moderate among rural government sample.10% mild, 3% moderate among rural private adolescents. 18% mild, 10% moderate among urban Government schools. 35% mild, 22% moderate among the private urban sample. The highest prevalence of internet addiction among urban adolescents in private schools. Risk factors for internet addiction among the rural sample were found to be "purpose of use of internet" that is social networking. Students studying in private school among urban sample having the Internet at home, quarrels of parents at home, parental income (6000 to 15000), access of Internet on weekends at home were found to be predictors of internet addiction

Conclusion: Internet addiction is widely prevalent among school-going adolescents' needs attention

Keywords: Internet addiction, Adolescents, Problematic internet use, Depression.

Our earth has become a global village with the advent of the Internet. Over the last 15 years, internet addiction has snowballed. Dramatic changes are happening in the psychological states of the population and society at large because of computers and the Internet. The Internet became an essential tool in most of our life activities like education, entertainment, communication, and sharing the information. According to one study, almost 40% of the current world population is using the Internet.[1] An increase in popularity and frequency of use has led to the emergence of clinical cases presenting with abuse symptoms. As children tend to explore new things, the Internet became an easy tool for them to explore the world, and due to its easy accessibility, the Internet makes them prone to addiction.

Prevalence studies have reported large variations due to (0.7-27.7%) difference in study design, age group, assessing methods, sampling techniques, different cutoff values, and geographical areas studied.[2-4] In several studies, it was noted that the children who are dependent on the Internet also showed a significant correlation with depression, anxiety, and suicidal behavior at times.[2,5] Internet addiction also resulted in low academic performance, strained relationships with family members, and difficulty in the regulation of emotions in adolescents.

There has been enormous concern about the excessive use of the Internet across all countries in the world, including India. Internet addiction has not been formally occupied as a disorder yet, but the literature review is showing internet use related problematic behaviors causing significant psychosocial impairment. Internet addiction is defined as an uncontrollable desire to use the Internet, the devaluation of time spent without connecting to the Internet, intense nervousness and aggression in the event of deprivation and progressive deterioration of social and family life. This needs attention because children and adolescents are more likely to indulge most of their time in internet games and social networking so much so that they neglect school work and sports. Complications like depression, sleep disorders, low academic achievements secondary to internet use have necessitated the need for further research. So, this study has been taken to assess the prevalence of internet addiction in school children of Telangana state. In this study, we have used internet addiction and problematic internet use as a synonym.

Aims

This study was carried out to assess and compare the prevalence of internet addiction among adolescents studying

in government and private schools of rural and urban areas of Telangana.

Objectives

To study the prevalence of depression among the study sample

To examine the association of socio-demographic factors with internet addiction.

Materials and Methods

A cross-sectional and comparative study was conducted in government and private schools in urban and rural areas of Telangana for three months. By using a simple random sampling method, 400 students of 10 -13 years of age group, studying in private, government schools of rural and urban areas were taken for the study. The study was conducted after obtaining approval from the institutional ethics committee. Written permission was obtained from respective school authorities before completing the survey. All the teachers and parents of children were explained the purpose of the study and assured that the information would not be used for any other purpose. Students who had a history of internet use for the past one year were taken into study. Confidentiality was assured, and the voluntary nature of the study was explained. Students gave their verbal assent for participation in the study. Information was taken from students batch by batch on a prefixed date.

Semi structure intake proforma was used to collect age, gender, place of internet access, money spent on Internet, duration of access, any quarrels happened regarding internet use in the family, parental education, the purpose of internet use. Students were asked to fill Young's internet addiction questionnaire, consisting of 20 questions to be answered on a 5 point Likert scale. Comorbid psychiatric illnesses are assessed using Birleson depression self -rating scale for children (DSRS-C).

1. Internet Addiction Test (IAT) by Dr. Kimberly Young.[6] Internet Addiction Test (IAT) is a reliable and valid measure of addictive use of the Internet, developed by Dr. Kimberly Young. It consists of 20 items that measure mild, moderate, and severe levels of Internet Addiction.
2. Depression Self-Rating Scale for Children by Birleson (1978).[7]

This self-rating scale was developed for children between the ages of 8 and 14 years of age. The test-retest reliability of the scale on an independent sample showed good stability (0.80). Individual items had a reliability coefficient of 0.65-0.95. The scale's corrected split-half reliability was 0.86 showing good internal consistency

3. Modified Kuppuswamy scale,[8] was used to assess socioeconomic status. It is measured by a composite score of education, occupation of the head of the family, and monthly income of the family yields a score of 3-29. It was updated in 2017 by Singh T.
4. Semi-structured intake Pro-forma: student-related factors, including socio-demographic characteristics, were collected.

Statistical analysis

Data were analyzed using statistical package for social sciences (SPSS) for Windows, version 22. P-value was set at 0.05. Demographic variables were described using frequencies and percentages. A Chi-Square association test was done between demographic variables and internet addiction. Kruskal Wallis H test of difference was done for the severity of Internet Addiction between Independent Samples. Kendall's Tau-b test of correlation was done between demographic variables, depression, and Internet addiction.

Results

Four hundred consenting individuals were taken into the study. Demographic data was collected with the use of semi intake proforma, and they were assessed for depression and internet addiction. The sample consisted of 200 individuals, each from rural and urban domiciles. Within the group of a domicile, 100 individuals belonged to Government and private institutions, respectively. Table 1 demonstrates the distribution of the sample concerning variables. The majority of the sample (45.8%) were from the middle-income group (6001-14999). 54.3% of the people reported using the Internet for 2-5hrs on weekends, while 47.8% reported using the Internet <2hrs on weekdays. 52% reported using the Internet for multiple purposes, with 80.8% using the Internet at home. 73% reported affecting academics though 63.7% reported no quarrels at home. 90.2% were exposed to the Internet for the first time after 10yrs of age, with 82% reporting spending more than Rs.500 for internet purposes. 34% of the sample suffered from some form of internet addiction, with 29% also reporting depression.

A Chi-Square test was done to assess an association between the demographic variables and Internet addiction in the rural domicile. Table 2 shows the results of the chi-square test between demographic variables and internet addiction. The test was found to be showing statistically significant association for Purpose of Use of Internet (χ_2 = 21.617, p = .001), Institution (χ_2 = 10.02, p = 0.007).

A Chi Square test was done to assess association between the demographic variables and Internet addiction in the urban domicile. Table 3 shows the results of the chi square test between demographic variables and internet addiction. The test was found to be showing statistically significant association for Income (χ_2 = 152.09, p = <.001), average Duration of access in weekends (χ_2 = 185.10, p = <.001), average Duration of access in weekdays (χ_2 = 152.34, p = <.001), effect on academic (χ_2 = 7.24, p = .027), Quarrels at home (χ_2 = 21.54, p = <.001), Place of internet use (χ_2 = 22.82, p = .001), Internet at home (χ_2 = 63.42, p = <.001), Money spent (χ_2 = 12.39, p = .002), Age at onset (χ_2 = 7.858, p = .020), Institution (χ_2 = 31.29, p = <.001), Depression(χ_2 = 26.09, p = <.001).

Kruskal Wallis H test was run to determine if there were differences in the severity of Internet addiction between rural and urban domiciles. The differences of

severity in internet addiction between the domicile groups were not found to be statistically significant (χ^2 = 2.632, df = 1, p = .105). Kruskal Wallis H test was run to determine if there were differences in the severity of Internet addiction between Government and Private institutions. The differences of severity in internet addiction between the Institution groups was found to be statistically significant (χ^2 = 6.154, df = 1, p = .013)

Kendall's Tau b correlation test was done between the demographic variables, depression, internet addiction to identify the nature and strength of association. Table 4 shows the Kendall's Tau b correlation test. The following had a statistically significant positive correlation with depression; Avg Duration of access in weekends (T_b = .157, p = .001), Internet at home (T_b = .124, p = .013), Institution (T_b = .209, p = <.001). The following had a statistically significant negative correlation with depression; Domicile (T_b = -231, p = <.001), Income (T_b = -222, p = <.001), Avg Duration of access in weekdays (T_b = -202, p = <.001), Purpose (T_b = -.355, p = <.001), Age at onset (T_b = -.161, p = .001), Internet Addiction (T_b = -160, p = .001). The following had a statistically significant positive correlation with internet addiction; Income (T_b = .292, p = <.001), Avg Duration of access in weekdays (T_b = .444, p = <.001), effect on academics (T_b = .114, p = .020), Institution (T_b = .121, p = .013). The following had a statistically significant negative correlation with internet addiction; Avg Duration of access in weekends (T_b = -.157, p =.001), Internet at home (T_b = -.146, p = .003).

Internet addiction was found to be negatively correlated with depression (T_b = -160), and this was statistically significant (p = .001)

Table 1: Sample distribution percentages

Variable	Frequency (N)	Percentage
Income <6000	115	28.7
6001-14999	183	45.8
>15000	102	25.5
Avg Duration of access(weekends) <2hrs	118	29.5
2-5hrs	217	54.3
>5hrs	65	16.3
Avg Duration of access(weekdays) <2hrs	191	47.8
2-5hrs	184	46.0
>5hrs	25	6.3
Purpose Education	78	19.5
Social Media	91	22.8
Others	23	5.8
Multiple	208	52.0
Effect on academics No	108	27.0
Yes	292	73.0
Quarrels at home No	255	63.7
Yes	145	36.3
Place of internet use Home	323	80.8
School	11	2.8
Others	43	10.8
Multiple	23	5.8
Internet at home No	293	73.3
Yes	107	26.8
Money spent <500	328	82.0
>500	72	18.0
Age at onset <10yrs	39	9.8
>10yrs	361	90.2
Internet Addiction Normal	264	66.0
Mild	114	28.5
Moderate	22	5.5
Depression No	284	71.0
Yes	116	29.0

Table 2: Chi Square test (rural) - Demographic variables & Internet Addiction

Variable	Internet Addiction			Chi-Square	p-Value
	Normal (n = 137)	Mild (n =61)	Moderate (n=2)		
Income <6000	58	23	1	2.979	.561
6001-14999	52	30	1		
>15000	27	8	0		
Avg Duration of access(weekends) <2hrs	39	11	0	3.597	.463
2-5hrs	88	46	2		
>5hrs	10	4	0		
Avg Duration of access(weekdays) <2hrs	62	22	0	3.020	.555
2-5hrs	73	38	2		
>5hrs	2	1	0		
Purpose Education	45	9	0	21.617	.001
Social Media	31	33	1		
Others	12	2	0		
Multiple	49	17	1		
Effect on academics No	36	9	0	3.801	.150
Yes	101	52	2		
Quarrels at home No	114	52	2	.515	.773
Yes	23	9	0		
Place of internet use Home	126	55	2	2.284	.892
School	2	0	0		
Others	3	1	0		
Multiple	6	5	0		
Internet at home No	121	59	2	3.836	.147
Yes	16	2	0		
Money spent <500	107	56	2	5.916	.052
>500	30	5	0		
Age at onset <10yrs	2	0	0	.929	.628
>10yrs	135	61	2		
Institution Government	60	40	0	10.028	.007
Private	77	21	2		
Depression No	84	37	0	3.102	.212
Yes	53	24	2		

Table 3: Chi Square test (Urban) - Demographic variables & Internet Addiction

Variable	Internet Addiction			Chi-Square	p-Value
	Normal (n=127)	Mild (n=53)	Moderate (n=20)		
Income <6000	33	0	0	152.09	<.001
6001-14999	85	0	15		
>15000	9	53	5		
Avg Duration of access(weekends) <2hrs	13	53	2	185.10	<.001
2-5hrs	81	0	0		
>5hrs	33	0	18		
Avg Duration of access(weekdays) <2hrs	107	0	0	152.34	<.001
2-5hrs	16	35	20		
>5hrs	4	18	0		
Purpose Education	14	9	1	12.37	.054
Social Media	17	9	0		
Others	9	0	0		

Multiple	87	35	19		
Effect on academics No	44	18	1	7.24	.027
Yes	83	35	19		
Quarrels at home No	55	32	0	21.54	<.001
Yes	72	21	20		
Place of internet use Home	86	35	19	22.82	.001
School	9	0	0		
Others	20	18	1		
Multiple	12	0	0		
Internet at home No	55	53	3	63.42	<.001
Yes	72	0	17		
Money spent <500	109	35	19	12.39	.002
>500	18	18	1		
Age at onset <10yrs	20	16	1	7.858	.020
>10yrs	107	37	19		
Institution Government	81	18	1	31.29	<.001
Private	46	35	19		
Depression No	90	53	20	26.09	<.001
Yes	37	0	0		

Table 4: Kendall's tau b Correlation

Correlations				
			Depression	**Internet Addiction**
Kendall's tau_b	Domicile	Correlation Coefficient	-.231**	.079
		Sig. (2-tailed)	.000	.105
	Income	Correlation Coefficient	-.222**	.292**
		Sig. (2-tailed)	.000	.000
	Avg Duration of access(weekends)	Correlation Coefficient	.157**	-.157**
		Sig. (2-tailed)	.001	.001
	Avg Duration of access(weekdays)	Correlation Coefficient	-.202**	.444**
		Sig. (2-tailed)	.000	.000
	Purpose	Correlation Coefficient	-.355**	.049
		Sig. (2-tailed)	.000	.288
	Effect on academics	Correlation Coefficient	-.033	.114*
		Sig. (2-tailed)	.506	.020
	Quarrels at home	Correlation Coefficient	-.058	.050
		Sig. (2-tailed)	.248	.303
	Place of internet use	Correlation Coefficient	.021	-.027
		Sig. (2-tailed)	.672	.572
	Internet at home	Correlation Coefficient	.124*	-.146**
		Sig. (2-tailed)	.013	.003
	Money spent	Correlation Coefficient	.030	-.019
		Sig. (2-tailed)	.544	.692
	Age at onset	Correlation Coefficient	-.161**	-.054
		Sig. (2-tailed)	.001	.269
	Institution	Correlation Coefficient	.209**	.121*
		Sig. (2-tailed)	.000	.013
	Depression	Correlation Coefficient		-.160**
		Sig. (2-tailed)		.001
	Internet Addiction	Correlation Coefficient	-.160**	
		Sig. (2-tailed)	.001	
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Discussion

Our study is the first cross-sectional study done on private and Government school-going children in rural and urban areas in Telangana. In our survey of 400 students, 136 met the criteria of internet addiction as per the internet addiction test. Among students studying in a government school in the rural area, the prevalence was found to be 4% for Mild internet addiction only whereas, in private schools in a rural area, 21% showed mild internet addiction 2% showed moderate internet addiction. In urban areas, students studying in government school showed 18% Mild Internet Addiction, 1% moderate internet addiction. Private schools in the urban area showed the highest prevalence of 35% mild, 19% moderate internet addiction. No cases of Severe Internet Addiction were reported. The probable reason could be an underscoring bias due to the nature of the questionnaire. The reason for the highest prevalence of internet addiction among private schools in urban areas might presumably be easy accessibility of internet and computer availability in private schools. Children studying in a private school may be coming from affluent families and thus increased prevalence. Our study prevalence in urban private schools is in line with the study by Sakthivel et al[9,] who did a survey on English medium private schools in Aligarh district that found a prevalence of 35.6 percent. Another comparative study on the prevalence of internet addiction on polish adolescence in urban and rural area[10] showed 0.45% in urban areas 2.9% in rural areas. Another comparable study at Mangalore[11] showed among Urban and rural school-going children (in Indian setting) a very high prevalence of 83.33% among Urban and 78% among rural, in essence, the prevalence was found to be higher among urban than rural.

This type of wide variation in the prevalence of internet addiction among school-going students across Indian and western countries might be attributed to several factors like socio-cultural criteria, rating scales used for the study, study methodology, etc. This infers the urgent need to develop standardized criteria for estimating internet addiction.

Our second objective was to study the correlation between internet addiction and socio-demographic, Internet-related variables across study subjects. In the rural sample, internet addiction was found to be associated with the purpose of the use of the Internet. Internet use for social media was significantly correlated with Internet addiction. Our study is in line with the polish study [10], which is also found in adolescents living in rural areas use the Internet to a great extent for social networking, playing games, and pornography. Adolescence from rural areas showing internet addiction may have the problem of disclosing their personal data to strangers. They may have harmful consequences, especially in rural areas where parental supervision is relatively less given the ignorance of parents. High usage of social media on the Internet among rural school children might presumably be due to ignorance, illiteracy, and inadequate parental supervision in rural areas.

The study found 6-7 factors significantly associated with Internet addiction among the urban sample. In urban areas, adolescent internet use was related to parental income, duration of access to the Internet on weekends or weekdays, the purpose of the use of the Internet. Other predictors of internet addiction among urban adolescents were having Internet at home, quarrels among parents at home, money spent on the Internet, age at onset of internet use. The use of the Internet affected the academic performance of adolescents adversely. Our study is in line with the study by Shaktivel et al.,[9,] who also found having internet facility at home, time spent online, and use of social networking sites were the most significant predictors of internet addiction. Adolescents pass through a phase of hormonal disturbances, which makes them try to experiment and explore new things. In doing so, having easy access to the Internet and spending a long time may place them at a greater risk for internet addiction. Having parents who quarrel at home repeatedly also found to be associated with internet addiction. Among our urban study population, it may be presumed that children are finding a convenient alternative to cope with stress by resorting to internet usage, or they may be going into depression becoming withdrawn and resorting to excessive internet usage. The use of the Internet has affected academics to a consistent extent among the urban study sample. This may be explained as children might giving more priority time for Internet-related issues instead of academics.

Early age of onset (>10 years) of use of the Internet is also related to Internet addiction. Earlier the age, more are the chances of developing an addiction. This is not in line with Shaktivel et al.,[9] study, which found internet addiction highly prevalent among the age group of 17 to 19 years. If children start using the Internet at an early age, the chances are that they may get addicted soon. Our study found a positive correlation between internet addiction and the availability of the Internet at home and access to the Internet on weekends.

Overall, 22.5% of the regular internet users reported depression, thus pointing out the possibility of external factors. Among rural government students, 26% have depressive cognition, and in rural private students, 53% have depression. This result is statistically significant. Whereas in the urban government school, 13% have depressive cognition, and in urban private, 24% have depressive cognition. In the whole sample, it was seen that depression was higher in rural (39.5%) as compared to urban (18.5). This could be because of the flawed support system and unmonitored use. Internet addiction was found to be marginally higher in urban (36.5%) compared to rural (31.5%). Our study found a negative correlation between internet addiction and internet availability on weekdays. All depressive cases in adolescence may be checked for internet addiction and vice versa. Yadav[12] study also found a positive correlation between internet addiction and depression, and they did not find any association between gender, education, and socio-economic status of parents.

Out of the 136 students who qualified for having internet addiction, only 19.1% were found to be clinically depressed.

Conclusion

Internet addiction is significantly prevalent among school-going adolescents and needs attention, as seen in this study. Prevalence is widely variable; hence there is a need for standardized criteria. There is an enormous need to give importance to outdoor games like Kabaddi, tennikoit, tennis to adolescents. It is necessary to introduce alternative forms of activities in rural areas so that students are not at higher risk for internet addiction and depression due to lack of facilities. It has to be made compulsory in schools where all high school children suffering from anxiety, depression have to be screened for internet addiction, and all cases of internet addiction to be screened for depression and anxiety. Students coming from problem families, showing sudden academic deterioration, have to be screened for internet addiction. Risk factors for internet addiction vary for adolescents studying in urban area private schools when compared to rural counterparts.

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Highlights of our Study

We collected data from urban, rural Government, and private schools to overcome the sampling bias.

Drawbacks of our Study

Our study has a cross-sectional design, and it could not be established whether internet addiction has led to depression or to cope up with depression; they are resorting to internet addiction. Similarly, academic backwardness may be a cause or consequence of internet addiction. Such issues can be addressed with longitudinal study design.

Recommendations for Future

Researchers should be encouraged towards performing studies involving a larger sample size of longitudinal study design.it is also important to develop strategies for identification, treatment, prevention of internet addiction.

Conflict of Interest

Nil

Source of Support

Nil.

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Quality of life in Bipolar affective disorder: Relationship with demographic and clinical variables

Malini Govinadan[1], Fiaz Ahmed Sattar[2], Kiran Kumar K[3*], Swapna B[4], Venugopal VP[5]

[1]Consultant Psychiatrist, [2]Professor & Head, [3,4]Associate Professor, [5]Junior Consultant, [2-4]Dept. of Psychiatry, [1]District Hospital, Tumkur, Karnataka, [2,3]Vydehi Institute of Medical Sciences & Research Centre, Bangalore, Karnataka, [4]Oxford Institute of Medical Sciences & Research Centre, Bangalore, Karnataka, [5]Government Mental Health Centre, Thrissur, Kerala, India

***Corresponding Author: Kiran Kumar K**
Email: drkiran.psychiatry@gmail.com

Abstract
Background and Objectives: Bipolar Affective Disorder (BPAD) is a complex, episodic and heterogeneous condition leading to impairment of Quality of life (Qol). The current study was undertaken with the aim to assess the Quality of Life of patients with Bipolar Affective Disorder, compare it with general population and to examine the correlation of socio-demographic and clinical variables with the Quality of Life.

Methodology: This was a cross-sectional case-control study. Hundred consecutive patients diagnosed to have BPAD as per ICD-10 currently euthymic who fulfilled the inclusion and exclusion criteria and gave informed consent were included for the study. Fifty healthy controls were selected from the general population after clinical interview. Subjects were administered YMRS and HAM-D followed by assessment of QoL using WHOQOL-BREF (World Health Organization Quality of Life –Brief version). The data was analysed using SPSS package version 15.0.

Results: Comparison of the four domain scores of WHOQOL-BREF showed that BPAD patients Qol was significantly impaired than the healthy controls (Physical health, $p<0.0001$; Psychological, $p<0.0001$; Social relationships, $p<0.0003$ and Environmental, $p<0.0004$). In comparison to healthy controls, the overall perception of QoL (Q1) and overall perception of health (Q2) was significantly lower in the BPAD patients (Q1, $p =0.003$ and Q2, $p<0.001$). Socio-demographic variables like marital status, type of family, educational status and place of residence had a significant impact on the QoL. Among the clinical variables assessed, early age of onset, number of depressive episodes, HAM-D scores, number of previous hospitalizations and suicidal attempts had a significant negative correlation with QoL. The time elapsed since the last episode had a significant positive correlation with the QoL indicating that longer euthymic period was associated with better QoL.

Conclusion: The emerging body of research has shown that the BPAD has a negative effect on the QoL even during periods of euthymia and remission. A number of socio-demographic and clinical variables have a bearing on the QoL of patients with BPAD.

Keywords: Bipolar affective disorder, Quality of life, Remission.

Introduction
The term Quality of Life (QoL) has become an important construct for all clinicians who are concerned about measuring functional recovery of patients. QoL is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment. According to the definition proposed by WHO "Quality of Life is an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns".[1] It has been suggested that psychiatric disorders are associated with greater impairment in QoL than medical disorders and that there is a distinct pattern of impairment associated with various mental disorders.

The episodic nature of Bipolar Affective Disorder (BPAD) with its many remissions and symptom rich periods of exacerbation, can affect an individual's physical, emotional, social and functional well-being and significantly impact their overall quality of life.[2] A person suffering from BPAD, apart from facing the symptoms and complications of the illness and the resulting psychosocial impairments also has to contend with stigma and discrimination due to the illness. Due to these reasons many clinicians are increasingly concerned about the QoL of patients with BPAD beyond mere abatement of symptoms. BPAD is responsible for the loss of more disability-adjusted life years than all forms of cancer or major neurologic conditions such as epilepsy and Alzheimer disease, primarily because of its early onset and chronicity across the life span.[3]

A gamut of demographic and clinical variables can influence QoL in patients with BPAD. Gutie´rrez-Rojas L et al examined quality of life in BPAD and found that increasing age was significantly associated with lower QoL.[4] Sierra P et al analysed demographic variables of patients with BPAD and found no difference in QoL with respect to marital status, sex, or employment situation.[2] Earlier studies found women scoring lower on the quality-of-life subscales.[4,5] While Kebede D et al demonstrated that male sex, rural residence and being married were associated with better functional outcome.[6] Research has shown that patients with bipolar disorder experience loss of productivity, loss of income due to few paid working hours and unemployment due to morbidity.[7,8] Romans and McPherson found that BPAD patients have impoverished social relationships and increased rates of marital failure.[9] All these demographic factors greatly impact the QoL of patients with BPAD.

Several clinical variables have been associated with poor functional outcome, such as comorbid substance abuse, the side-effects of medication, prior history of psychotic symptoms, low premorbid functioning, persistent subsyndromal fluctuations, the number of prior episodes, prior admissions, younger age of onset and persistent cognitive dysfunction.[10] Another study found low QoL was associated with the length of illness, the presence of depressive symptoms, nicotine dependence and the lack of social support.[4]

Quality of life studies in BPAD patients have so far documented the areas of reduced life satisfaction and functioning, but few have studied the factors that affect QoL. Thus, assessment of QoL in BPAD patients and the study of the predictors of the QoL will help to enrich the understanding of patient's progress and guide the management regimens to achieve complete wellbeing. Therefore, this study was undertaken with the aim to assess the Quality of Life of patients with BPAD, compare it with general population and to examine the correlation of socio-demographic and clinical variables with the Quality of Life.

Methodology

This was a cross-sectional case-control hospital-based descriptive study. Ethical clearance was obtained from the Institutional ethics committee. One hundred consecutive patients diagnosed as having BPAD as per International Classification of Diseases-10 (ICD-10) criteria in remission and in the age group of 18-65 years of either sex were included in the study after obtaining informed consent and applying inclusion and exclusion criteria. For the purpose of the study, remission was defined as absence or minimal symptoms of both mania and depression for at least 1 week. (As defined in study by Hirschfeld RM et al.[11] This operational definition was measured as YMRS and HAM-D scores of ≤7. Fifty healthy controls were selected from the general population after a clinical interview. The cases and controls included in the study were interviewed and the socio-demographic variables were recorded in the semi-structured proforma designed for the study. Patients were first administered the Young Mania Rating Scale (YMRS) followed by Hamilton Depression Rating Scale (HAM-D 17) and Quality of Life was assessed using World Health Organisation Quality of Life Assessment-Brief (WHOQOL-BREF) which was administered in the end of the interview. All the instruments were administered in a single session of one to one and half hour's duration.

Analysis of data

Data was tabulated and coded. Data was analysed using SPSS package version 15.0. The data was expressed using mean, median and standard deviation for continuous variables and frequency and percentages for categorical variables. Comparison of mean values between groups was done using Independent Sample t test. Relationship between continuous variables was studied using Pearson's correlation coefficient. Association between categorical variables was established by Chi square test /Fishers t test and $p < 0.05$ was considered as significant and $p < 0.005$ was considered as highly significant.

Results

Majority of the study population were aged between 18 to 48 years (87%), most of them were from the rural areas (78%) and 75% of the patients were married and most of them were educated up to 10th standard (62%). Patients mainly hailed from joint families (67%) and belonged to class III (54%) and class IV (35%) socio-economic status (Modified B.G. Prasad classification). There was no significant difference between the age, gender distribution, marital status and socio-economic status between the cases and controls. However, there was a statistically significant difference in the education levels, occupational status and place of residence between the two groups. It was found that the controls had better educational qualification, majority of them were employed and hailed from urban areas and lived in nuclear families. (Table 1)

In comparison to healthy controls, the overall perception of QoL (Q1) and overall perception of health (Q2) was significantly lower in the BPAD patients (Q1, $p = 0.003$ and Q2, $p < 0.001$). (Table 2 & 3) Comparison of the four domain scores of WHOQOL-BREF showed that BPAD patients QoL was significantly impaired than the healthy controls (Physical health, $p < 0.0001$; Psychological, $p < 0.0001$; Social relationships, $p < 0.0003$ and Environmental, $p < 0.0004$). (Table 4)

On analysis of the impact of socio-demographic factors on the QoL we found that marital status, type of family, educational status and place of residence had a significant impact on the QoL. It was found that being married had a positive impact on QoL in the psychological and social relationships domain of WHOQOL-BREF. Living in a joint family led to a significantly higher scores in the social relations and environmental domains. Higher educational status had a significant positive correlation with QoL in the social relationship domain. Rural residence had a negative impact on the psychological and social relationships domain of the WHOQOL-BREF. Other socio-demographic variables such as age, gender and occupational status did not have a significant effect on QoL. (Table 5 & 6)

Among the clinical variables assessed, number of depressive episodes had a highly significant correlation with physical health, psychological and environmental domain of the QoL indicating that number of past depressive episodes was a strong determinant of QoL. It was found that early onset of illness (before the age of 18years) was associated with more impaired QoL in the psychological domain. Number of hospitalizations had a highly significant statistical relationship to the psychological domain indicating that a greater number of hospital admissions had a negative impact on the QoL. Suicide attempts was found to have a significant correlation to the physical health, psychological and social relationships domain of QoL. The study found that longer duration of time elapsed since the last episode led to better QoL in the domains of physical health, psychological and social relationships. (Table 7 & 8)

Table 1: Socio-demographic Profile (N=150)

Socio-demographic Variable	Cases (n%) (n =100)	Controls (n%) (n=50)	p Value (Test)
Age group			
18- 28	39 (39)	17 (34)	p =0.496 (Independent Samples Test)
29-38	26 (26)	13 (26)	
39-48	22 (22)	8 (16)	
49-58	9 (9)	12 (24)	
58-65	4 (4)	0 (0)	
Total	100 (100)	50 (100)	
MEAN AGE ± SD	34.89 ± 11.0	36.26 ± 11.0	
Gender			
Male	54 (54)	26 (52)	p =0.863 (Fisher's Exact Test)
Female	46 (46)	24 (48)	
Total	100	50 (100)	
Marital Status			
Married	75 (75)	32 (64)	p = 0.249 (Chi-Square Test)
Unmarried	24 (24)	18 (36)	
Divorced	1 (1)	0 (0)	
Total	100 (100)	50 (100)	
Educational Status			
Illiterate	7 (7)	7 (14)	**p = 0.007*** (Chi-Square Test)
Primary school	9 (9)	8 (16)	
Up to 10^{th} std	62 (62)	16 (32)	
Degree	22 (22)	19 (38)	
Total	100	50 (100)	
Family Type			
Joint	67 (67)	24 (48)	p = 0.055 (Fisher's Exact Test)
Nuclear	33 (33)	26 (52)	
Total	100 (100)	50 (100)	
Occupation			
Student	9 (9)	3 (6)	**p=0.001**** (Chi-Square Test)
Unskilled	5 (5)	5 (10)	
Semiskilled	8 (8)	15 (30)	
Skilled	8 (8)	9 (18)	
Business	20 (20)	4 (8)	
Unemployed	50 (50)	14 (28)	
Total	100 (100)	50 (100)	
Residence			
Rural	78 (78)	23 (46)	**p <0.001**** (Fisher's Exact Test)
Urban	22 (22)	27 (54)	
Total	100 (100)	50 (100)	
SES			
Class I	2 (2)	1 (2)	p =0.759 (Chi-Square Test)
Class II	6 (6)	6 (12)	
Class III	54 (54)	21 (42)	
Class IV	35 (35)	15 (30)	
Class V	3 (3)	2 (4)	
Total	100 (100)	50 (100)	

Table 2: Overall perception of Quality of Life (N=150) (Q-1)

Q-1 Scores	Cases (n=100)	Controls (n=50)	p Value (Test)
Very Poor (1)	5 (5%)	0 (0%)	**0.003**** (Chi-Square Test)
Poor (2)	9 (9%)	0 (0%)	
Neither Poor nor Good (3)	47 (47%)	19 (38%)	
Good (4)	39 (39%)	28 (56%)	
Very Good (5)	0 (0%)	3 (6%)	
Mean score (± SD)	3.20 (± 0.794)	3.68 (± 0.581)	

Table 3: Overall perception of health (N=150) (Q-2)

Q-2 Scores	Cases (n=100)	Controls (n=50)	p Value (Test)
Very Dissatisfied (1)	0 (0%)	0 (0%)	**<0.001**** (Chi-Square Test)
Dissatisfied (2)	21 (21%)	1 (2%)	
Neither satisfied nor dissatisfied (3)	33 (33%)	9 (18%)	
Satisfied (4)	46 (46%)	36 (72%)	
Very satisfied (5)	0 (0%)	4 (8%)	
Mean score (± SD)	3.25 (± 0.782)	3.86 (± 0.571)	

Table 4: Comparison of the four whoqol domains (N=150)

Domains	Mean Scores ±SD Cases (n=100)	Transformed Scores (0-100)	Mean scores ±SD Controls (n=50)	Transformed Scores (0-100)	p Value
Domain 1 Physical health	23.17 (± 4.18)	56	29.10 (± 2.90)	81	**<0.0001****
Domain 2 Psychological	19.01 (± 3.38)	56	22.44 (± 2.24)	69	**<0.0001****
Domain 3 Social relations	9.31 (± 2.23)	50	10.50 (± 1.61)	69	**<0.0003****
Domain 4 Environmental	26.78 (± 3.70)	63	28.94 (± 3.29)	69	**<0.0004****

Table 5: Comparison of QoL Domains with Demographic variables

Demographic Variables (N)		DOMAIN 1 Physical health Mean Scores ± SD	DOMAIN 2 Psychological Mean Scores ± SD	DOMAIN 3 Social relations Mean Scores ± SD	DOMAIN 4 Environmental Mean Scores ± SD
Male (N=80)	Cases (n=54)	23.17 (± 4.39)	18.67 (± 3.52)	9.17 (± 2.47)	26.93 (± 3.80)
	Controls (n=26)	29.62 (± 2.74)	22.23 (± 2.48)	10.50 (± 1.77)	29.77 (± 3.26)
	p value	**<0.001****	**<0.001****	**0.016***	**0.002****
Female (N=70)	Cases (n=46)	23.17 (± 4.34)	19.41 (± 3.18)	9.48 (± 1.92)	26.61 (± 3.61)
	Controls (n=24)	28.54 (± 3.02)	22.67 (± 1.97)	10.50 (± 1.47)	28.04 (± 3.21)
	p value	**<0.001****	**<0.001****	**0.017***	0.096
Married (N=107)	Cases (n=75)	23.44 (± 4.10)	19.47 (± 3.27)	9.65 (± 1.96)	27.19 (± 3.43)
	Controls (n=32)	28.27 (± 2.86)	22.38 (±2.48)	10.59 (± 1.43)	28.59 (± 3.21)
	p value	**<0.001****	**<0.001****	**0.047***	**0.046***
Unmarried (N=43)	Cases (n=25)	22.79 (± 3.90)	17.92 (± 3.14)	8.29 (± 2.72)	25.71 (± 4.26)
	Controls (n=18)	29.78 (± 2.92)	22.56 (± 1.76)	10.33 (± 1.94)	29.56 (± 3.45)
	p value	**<0.001****	**<0.001****	**0.007***	**0.003****
Unemployed	Cases (n=50)	23.02 (± 4.43)	19.50 (± 3.17)	9.62 (± 2.14)	26.62 (± 3.24)
	Controls (n=14)	28.21 (± 3.04)	22.29 (± 1.81)	10.71 (± 1.63)	28.36 (± 3.56)

(N=64)	p value	**<0.001****	**<0.001****	0.08	0.08
Urban (N=49)	Cases (n=22)	23.60 (± 4.21)	19.37 (± 3.15)	9.63 (± 2.10)	27.08 (± 3.36)
	Controls (n=27)	27.78 (± 3.23)	21.65 (± 2.10)	10.39 (± 1.50)	27.52 (± 3.20)
	p value	**<0.001****	**<0.001****	0.108	0.575
Rural (N=101)	Cases (n=78)	21.64 (± 3.78)	17.73 (± 3.90)	8.18 (± 2.36)	25.73 (± 4.63)
	Controls (n=23)	30.22 (± 2.04)	23.11(± 2.17)	10.59 (± 1.73)	30.15 (± 2.91)
	p value	**<0.001****	**<0.001****	**<0.001****	**<0.001****
Nuclear Family (N=59)	Cases (n=33)	22.06 (± 4.69)	18.55 (± 3.78)	8.42 (± 2.29)	25.55 (± 3.03)
	Controls (n=26)	30.04 (± 2.05)	23.21 (± 2.41)	10.75 (± 1.67)	29.79 (± 4.17)
	p value	**<0.001****	**<0.001****	**<0.001****	**<0.001****
Joint Family (N=91)	Cases (n=67)	23.72 (± 3.82)	19.24 (± 3.16)	9.75 (± 2.08)	27.39 (± 3.30)
	Controls (n=24)	28.23 (± 3.31)	21.73 (± 2.12)	10.27 (± 1.56)	28.15 (± 3.39)
	p value	**<0.001****	**<0.001****	0.250	0.322

(N=150)

Table 6: Correlation of Socio-demographic profile of Cases with QoL Domains (N= 100) (Pearson Correlation)

Demographic variables	Domain 1 (Physical health)	Domain 2 (Psychological)	Domain 3 (Social relationships)	Domain 4 (Environmental)
Age	r=0.140 p=0.166	r= 0.022 p=0.705	r=0.121 p=0.179	r= 0.019 p=0.134
Gender	r=0.001 p=0.993	r=0.111 p=0.273	r=0.070 p=0.489	r=0.043 p=0.671
Occupation	r=0.036 p=0.722	r=0.146 p=0.148	r=0.140 p=0.166	r=0.043 p=0.668
Marital status	r=0.164 p=0.103	r=0.273 **p=0.008***	r=0.140 **p=0.037***	r=0.208 **p=0.042***
Residence	r=0.196 p=0.051	r=0.203 **p=0.043***	r=0.270 **p=0.007***	r=0.152 p=0.131
Family type	r=0.187 p=0.062	r=0.097 p=0.842	r=0.280 **p=0.005***	r=0.235 **p=0.018***
Education	r=0.121 p=0.229	r=0.027 p=0.78	r=0.107 p=0.290	r=0.227 **p=0.023***

Table 7: Correlation of clinical variables with QoL Domains (N=100) (Pearson Correlation)

Clinical variables	Domain 1 (Physical health)	Domain 2 (Psychological)	Domain 3 (Social relationships)	Domain 4 (Environmental)
Duration of illness	r=-0.148 p=0.141	r=-0.157 p=0.118	r=-0.043 p=0.674	r=- 0.157 p=0.119
Time elapsed since last episode	r=0.30 **p=0.002****	r=0.202 **p=0.044***	r=0.388 **p=0.001****	r=0.250 p= 0.012
No. of depressive episodes	r=-0.311 **p=0.002****	r =-0.376 **P<0.001****	r=-0.75 p=0.457	r=-0.355 **p=0.001****
No. of manic episodes	r=-0.146 p=0.147	r=-0.121 p=0.231	r= -0.143 p=0.155	r=-0.014 p=0.883
No. of mixed episodes	r=0.15 p=0.884	r=0.143 p=0.155	r=0.214 p=0.052	r=-0.082 p=0.419
No. of hypomanic episode	r= -0.135 p=0.180	r=0.029 p=0.774	r=-0.57 p=0.575	r=-0.103 p=0.308
No. of admissions	r=-0.232 **p=0.020***	r=-0.283 **p=0.004****	r=-0.99 p=0.329	r=-0.244 **p=0.025***

Table 8: Comparison of QoL Domains with cinical variables (N=100)

Clinical Variables		Domain 1 Physical health Mean Scores ± SD	Domain 2 Psychological Mean Scores ± SD	Domain 3 Social relations Mean Scores ± SD	Domain 4 Environmental Mean Scores ± SD
Age at onset of BPAD	Early Onset (n=30)	22.27 (± 3.08)	18.10 (± 2.63)	8.80 (± 2.31)	27.37 (± 3.67)
	Late Onset (n=70)	23.56 (± 4.53)	19.40 (± 3.60)	9.53 (± 2.17)	25.40 (± 3.43)
	p value	0.103	**0.047***	0.136	**0.014***
Past Psychotic Episode	Psychosis Present (n=32)	22.61 (± 3.92)	18.27 (± 3.74)	8.88 (± 2.28)	25.88 (± 4.35)
	Psychosis Absent (n=67)	23.45 (± 4.30)	19.37 (± 3.15)	9.52 (± 2.19)	27.22 (± 4.35)
	p value	0.347	0.126	0.176	0.087
Past Suicide Attempt	Suicide Attempt (n=19)	20.95 (± 3.90)	16.53 (± 3.16)	8.00 (± 2.53)	25.05 (± 4.51)
	No Attempt (n=81)	23.69 (± 4.09)	19.59 (± 3.17)	9.62 (± 2.05)	27.19 (± 3.38)
	p value	**0.009***	**0.001****	**0.004****	0.023
Drug Compliance	Present (n=57)	23.54 (± 4.82)	19.46 (± 3.70))	9.19 (± 2.46)	27.46 (± 3.94)
	Absent (n=43)	22.67 (± 4.13)	18.42 (± 2.82)	9.47 (± 1.89)	25.88 (± 3.17)
	p value	0.278	0.129	0.549	**0.035***
Family H/O Psychiatric Illness	Present (n=21)	22.71 (± 3.27)	17.71 (± 3.03)	8.00 (± 2.30)	25.14 (± 3.86)
	Absent (n=79)	23.29 (± 4.40)	19.35 (± 3.40)	9.66 (± 2.09)	27.22 (± 3.55)
	p value	0.577	**0.048***	**0.002****	**0.022***

Discussion

The Quality of Life of cases with BPAD (n=100) and healthy controls (n=50) was assessed using the WHOQOL-BREF questionnaire which consists of two items from the overall QoL and general health and 24 items of satisfaction that are divided into four domains: Physical health with 7 items, Psychological health with 6 items, Social relationships with 3 items and Environmental health with 8 items.

Overall Perception of QoL: (Table 2)

The overall perception of QoL was assessed in the WHOQOL–BREF by the 'benchmark' item on overall QoL (Q-1). Our study found that the overall perception of QoL was significantly lower in the cases as compared to that of the healthy controls (Q-1, p =0.003). Similar results have been reported by various studies done on QoL in BPAD by Sierra P et al,[2] Gutie´rrez-Rojas L et al[4] and Arnold LM[12] et al. Among the cases, most of them (47%) reported that they perceived their overall quality of life was neither poor nor good, followed by 39% of them who perceived quality of life to be good. This perhaps may be the indicator of a positive impact of remission on the quality of their lives. It can also be noted that self-reports of QoL by bipolar patients are likely to be influenced by 'mood bias' or cognitive distortions regarding self-concept and functioning. Studying remitted or euthymic bipolar patients (as in the present study) can reduce this bias. For these patients, the euthymic state offers a chance to reintegrate into society and a healthy lifestyle. The instrument in general uses a cut-off period of past four weeks to assess the overall quality of life and our euthymic patient population benefited from this criterion. However, euthymic patients are not necessarily asymptomatic as many have mild sub-syndromal symptoms, and studies by Michalak et al[13,14] have demonstrated that even residual depressive symptoms can be strongly associated with impaired QoL. Not surprisingly in our study about 9% and 5% of the patient population reported poor and very poor overall quality of life even in periods of remission. Some limitation arises while comparing "subjective" self-report of patients/controls perception of their overall QoL with an instrument like WHOQOL-BREF. The WHOQOL is based on a purely subjective evaluation, to assess the perceived quality of life, and in this way differs from many other instruments and it approaches the quality of life as a multidimensional concept. So other dimensions apart from the health status also plays an important role in the overall quality of life and this explains why in our study about 38% of healthy controls rated their overall perception of QoL as neither poor nor good.

Overall perception of health: (Table 3)

Question 2 of the WHOQOL-BREF scale provides another independent general facet of the subject's overall perception of health. The overall perception of health was significantly lower in the cases as compared to that of the controls (Q-2, p<0.001). Substantial number of cases rated their overall health as neither satisfied or dissatisfied (33%) where as 80% of the controls were satisfied with their overall health. BPAD is potentially devastating and it encompasses the subsisted experience of responding to symptoms and their accompanying disability, this probably explains the overall dissatisfaction of BPAD patients while perceiving their general health. Measures of QoL, by contrast, are consonant with a bio-psychosocial approach to BPAD, in that they prioritize patient agency, context, meaning-making, and lived experience. Though we measured the QoL of patients in periods of remission the negative effect of the illness was evident. Our study coincides with earlier studies by Sierra P

et al[2] and Kebede et al[6] suggesting that bipolar patients experience lower functioning and well-being even in the stable phase of the disorder.

Comparison of the four WHOQOL Domains: (Table 4)
Means of raw scores were generated for the WHOQOL-BREF by organizing the items into facets representing the 4 domains covered by the questionnaire (physical health, psychological, social relationships and environmental). In our study, the QoL of cases with BPAD was significantly lower than in the healthy controls in all the four domains of the WHOQOL-BREF scale. Comparison of the transformed scores of the four domains shows that cases had better scores in the environmental domain (t score 63) followed by physical health and psychological domains (t score of 56 each) and worse score in social relations (t score 50). These findings correspond to the findings of studies by IsHakk et al,[15] Sierra P et al,[2] Gutie´rrez-Rojas L et al[4] and Arnold LM et al[12] who have reported that QoL is to a marked extent lower in patients with BPAD as compared to the general population.

1. Domain 1 (Physical Health):
It is not surprising that physical well-being of the BPAD cases was significantly lower than in healthy controls ($p < 0.0001$) since this domain includes questions related to 7 different components which are physical pain, energy, sleep, ability for Activities of Daily Living (ADL), mobility/activity, dependence on medication and work capacity. Compared to controls, majority of the cases in remission still had problems with physical pain, energy levels and need for treatment. Subsyndromal psychopathology, need for maintenance treatment and reduced energy are all hallmark of BPAD, during various stages of the illness. According to a study by Sofia Brissos et al [16], using the same instrument (WHOQOL-BREF) it was noted that BPAD patients reported worse QoL, especially in the physical and environmental domains.

2. Domain 2 (Psychological):
This domain consists of 6 different components which are concentration in work, enjoying life, finding life meaningful, body image, satisfaction with self and negative feelings such as blue mood, anxiety, depression. Lower scores of cases with BPAD on this domain (t score 56) suggest more extensive problems with self-esteem, body image and cognition. Student t test indicates highly significant p value ($p < 0.0001$) in this domain between the two groups. Several other studies have compared Health Related QoL in patients with BPAD with that of patients with other psychiatric conditions. For example, the NEMESIS study conducted in the Netherlands compared SF-36 scores in 136 adults with DSM-III-R lifetime BPAD with that observed in a variety of other psychiatric disorders. Participants with BPAD showed significantly more impairment in most SF-36 domains compared with other NEMESIS subjects. For example, in the domain of mental health, participants with BPAD type I experienced significantly lower scores (62.3) than people with other mood (75.2), anxiety (74.0), substance use (80.2) or no psychiatric disorders (85.8).[17] Other research has compared QoL in patients with schizophrenia with that observed in patients with BPAD. For example, Chand and colleagues in India measured QoL via the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) and the WHOQOL-BREF in patients with BPAD who were in remission and stabilized on lithium prophylaxis, patients with schizophrenia and healthy controls.[18] The bipolar group reported significantly better QoL than the schizophrenia group in general well-being, physical health and psychological health on the WHOQOL-BREF.

3. Domain 3 (Social Relationships):
This domain consists of 3 different components which assess the quality of interpersonal relationships other than the family, social support and sexual activity. In this domain, cases with BPAD had the lowest scores (t score 50). This trend seems consistent with the stigmatization of the disorder in society. Social isolation due to the stigma might generally have a dramatic impact on the social domain. Furthermore, social isolation in BPAD may to some extent be seen both as a source and as a consequence of disability associated with these disorders. A highly significant statistical difference was found on comparison of the scores of cases and controls in this domain ($p < 0.0003$). Several studies have now assessed QoL in inter-episode patients with BPAD. For example, a Canadian research group generated a series of interrelated reports on QoL in euthymic patients with BPAD. Cooke and colleagues[19] examined levels of HRQOL using the MOS SF-20, a short version of the SF-36. Analysis of SF-20 scores by type of BPAD showed that patients with BPAD type II reported significantly poorer HRQOL than BPAD type I in the areas of social functioning and mental health. The finding of more dysfunction in social area as compared to other areas is similar to that reported by Kumar et al.[20] Indian studies have shown poor functioning in social relationship in BPAD patients probably because of greater stigma of mental illnesses in India and the prejudices may be affecting patients' chances of functioning in the social area.

4. Domain 4 (Environmental):
It consists of 8 components which are security, physical environment, financial support, accessibility of information, leisure activity, home environment, health care and transport. In our study; cases overall environmental domain score was the best (t score 63) when compared to healthy controls (t score 69). It is noteworthy in this context that the WHOQOL-BREF scores within the environmental domain did not seem to adequately discriminate, possibly due to the widespread lack of financial resources and related environmental opportunities in India, similar to the restricted conditions in other developing countries.

Comparison & correlation of QoL domains with demographic variables: (Table 5 & 6)

Our study did not find any correlation between age of the patients and the QoL domain scores. Several authors have reported that physical component scores worsened with age and was attributed to medical comorbidities and concomitant substance use.[21,22] But these results have to be interpreted in the light that majority of the patients in our study, belonged to the age groups of 18 to 38yrs and elderly patients were poorly represented in the study sample. The study did not find any significant correlation of gender with the QoL domain scores. Similar findings were reported by Sierra P et al[2] who found no significant relationship of gender with QoL in BPAD patients. However, Gutie´rrez-Rojas L et al[4] showed that female sex was significantly associated with worse mental QoL and Kebede et al[6] found male sex was associated with better functional outcome. A comparison of the QoL domain scores of male patients with male controls and female patients with female controls was also done. It was found that the QoL scores had a highly significant difference in all the domains for male subjects. Among the females a highly significant difference was found in the QoL scores of the first 3 domains (i.e. physical health, psychological and social relationships). Though female cases scored lower than controls in the domain 4 (environmental domain) a statistically significant difference was not found in the QoL scores, indicating that female subjects maybe less satisfied with financial resources, recreation and leisure, home environment and physical safety which results in reduced satisfaction in these aspects among both the female patients and the controls. Thus in our study though gender did not have statistically significant correlation with the QoL domains, we found that female subjects (cases and controls) had poorer scores in the environmental domain which could partly be explained by the male dominated culture of our country wherein the female population mostly do not have financial independence and have less opportunity for optimum living which reflects in their perception of the QoL. The quality of life of married cases and controls was compared, similarly QoL of unmarried cases and controls were compared. It was found that both married and unmarried cases had significantly poorer quality of life in all the WHOQOL domains as compared to the married and unmarried controls respectively. This demonstrates that both married and unmarried cases have a much lower QoL than that of the general population. However, on corelating the various domains of QoL of married cases with unmarried cases, our study found that there was a statistically significant difference between married and unmarried patients in the psychological (p=0.008), social relationships (p=0.037) and environmental domains (p= 0.042) of QoL indicating that marriage had a positive impact on the QoL. Married patients reported that they felt life is more meaningful and enjoyable, they had lesser negative feelings, were more satisfied with personal relationships and sexual activity and further expressed a sense of safety and security. This finding corresponds to the reports of Kebede D et al[6] who found being married is associated with a better QoL. The authors proposed that marriage relationships may signify increased familial and social support enhancing better follow-up and treatment compliance leading to better outcome. However, Gutie´rrez-Rojas L et al[4] found that among female patients those currently married showed worse physical QoL than those non married. The authors interpreted this as an effect of the family burden on the physical health in married women. In our study no significant difference was found in the physical domain scores, this could be because in the WHOQOL-BREF social relations domain had highest content validity whereas physical domain had low content validity.[23] Our study found a significant correlation between educational status and the environmental domain of QoL (p= 0.023) indicating that cases with higher education had a better QoL as compared those with lower educational status but no significant correlation was found in the physical, psychological and social relationships domains. These findings are partly concurrent with the findings of Sofia Brissos et al. who reported that educational level correlated positively with all the WHOQOL-BREF domains, indicating that BPAD patients with higher educational level report a better global QoL.[16] Low QoL in the environmental domain among the lesser educated cases can be explained as lower educational status may result in reduced opportunities to earn well, financial problems in turn lead to poor housing and lesser opportunities for leisure leading to lower perception of QoL in the environmental domain. Patients with BPAD experienced significantly lower QoL in all the domains as compared to controls when living in a nuclear family (p=0.000). Among the subjects living in a joint family setting there was a significant difference in the QoL in the physical health and psychological domains of QoL (p<0.001), but no significant difference in the social relationships (p=0.250) and environmental domains (p=0.322). The lack of statistically significant differences in the scores of social and environmental domains between patients and controls may be because, in the WHOQOL-BREF used for measuring QoL in our study, the environment domain does not contribute strongly as a component in the QoL measurement. Other validation studies have also shown that the ability of the WHOQOL to distinguish between and across populations is mainly observed in the physical health and psychological health domains rather than in the environment and social relationships domains.[24-26] On corelating the QoL of cases living in nuclear families with that of the cases in joint families, a statistically significant difference was found in the domain 3 (social relations) and domain 4 (environmental) indicating that QoL is better for cases hailing from a joint family as compared to those hailing from a nuclear family (p=0.005 social relations; p=0.018 environmental domain). This could be because a joint family system is conducive for better social support and patients hailing from joint families reported more satisfaction with personal relationships and social support. Also, joint families may provide the patient a sense of safety and security and perhaps pooled financial resources in the

joint family system provide the patients with better financial resources, thereby contributing to improvement in the environmental domain of QoL. A comparison of the QoL of unemployed cases with unemployed controls revealed that the scores in the physical health and the psychological domains ($p<0.001$) were significantly lower in the patients as compared to controls. However, there was no significant difference in the social and environmental domains in cases and controls. Literature states that unemployment adversely affects life satisfaction, no single aspect of the job is important in itself rather, it is the presence or absence of a job that is crucial.[27] Thus unemployment adversely effects the QoL irrespective of the health status (of being mentally ill or healthy). This finding is reflected in our study where in unemployed cases had impaired QoL in the social and environmental domains which did not differ significantly from that of the controls. However, there was a statistically significant difference in the QoL in physical and psychological domains of patients when compared to controls indicating that patients may have had impaired energy levels, unsatisfactory sleep, increased dependence on medication and reduced working capacity (which are assessed under the physical domain) and psychological factors like negative feelings, reduced self-esteem and poor learning memory and concentration was more likely to affect the patients' perception of wellbeing as compared to the controls. Though, among the cases, when the QoL of employed and unemployed subjects were corelated, no significant correlation of the employment status with the QoL domain scores was noted. A comparison between cases and controls hailing from the urban areas, revealed that the physical and psychological domain scores were significantly lower for cases but no significant difference was found in the social and environmental domain. Patients hailing from the rural areas had significantly lower scores in all the four QoL domains as compared to the controls. Further on corelating the rural and urban patients with various domains, a statistically significant difference was found in the in QoL scores on the psychological and social relations domain of WHOQOL-BREF ($p= 0.043$ psychological domain; $p =0.007$ social relationships domain). In the Indian scenario the rural population have to deal with poor infrastructure, less financial resources, poor access to health care and reduced opportunity to recreation and leisure activities leading to impairment of the QoL.

Comparison & correlation of QoL domains with clinical variables: (Table 7 & 8)

The study found that cases with early onset (<18years) scored lower in all the domains of QoL. However statistically significant difference was detected only in the psychological domain of QoL ($p=0.047$) and Environmental domains ($p=0.014$). These findings are similar to the findings of studies conducted by Perlis et al.,[28] Suominen K et al[29] and Carlson et al[30] who reported that subjects with earlier onset had more lifetime manic, depressive, and mixed phases, suggesting that they have more phases during their mood episodes. Also, the delay in seeking treatment for mood symptoms is longer among early onset BPAD patients. One possible reason for this might be that subjects who had their first mood symptoms at a young age might have got accustomed to these symptoms, regarding them as part of their temperament or personality, not as representing a disorder. Furthermore, children and adolescents with severe mood symptoms are dependent on the adults around them to initiate the referral process. Judith C. Hays[31] found that stressful life events were more frequent among BPAD subjects with earlier age of onset while patients with later onset had more instrumental and subjective social support. All these factors have a bearing on the QoL of patients with early onset. Our study found that though QoL is lower in patients with early onset as compared to late onset, the most significant impairment was in the psychological domain. This could be probably be because psychological aspects of QoL which involve assessment of positive feelings, self-esteem, body image, thinking and learning are much more effected when the illness begins at a younger age than in cases when the onset occurs in older individuals. No significant correlation was found between the duration of illness and any of the four domains of QoL scores. Our finding that longer duration of the illness is not significantly correlated to the QoL domains, can be explained as patients in the stable phase of the illness may have come to terms with their limitations and may have lowered expectations and aspirations as the years progress. Thus, we can conclude that though early onset is associated with a worse QoL, longer duration of illness may not always result in further impaired QoL. In our study the average number of depressive episodes was 2.10 ± 1.630. The study found a highly significant correlation between the number of depressive episodes and domain scores in the physical health, psychological and environmental domains of WHOQOL ($p=0.002$ physical health; $p<0.001$ psychological; $p=0.001$ environmental domain). This is similar to the findings of Perlis et al,[28] Singh et al[32] and Maina G et al[33] who found that past depressive episodes led to poorer quality of life. Research have indicated a preponderance of depressive symptoms over hypomanic or manic symptoms in patients with both bipolar disorder types I and II. Much of the morbidity in BPAD appears to be a consequence of the depressive phase of the disorder. Studies have shown that subsyndromal symptoms of depression is markedly prevalent in inter episode patients with BPAD and can be predictive of significant functional impairment, specifically impairment in work, home functioning roles, as well as impairment in relationship with family and friends. Peter J.J. Goosens et al proposed that symptoms of depression may be the most important cause of reduced QoL for individuals living with BPAD and residual symptoms of depression contribute to decreased QoL.[34] The study did not find any significant correlation between the number of manic episodes and the QoL domain scores. The shorter duration of the manic episodes and faster recovery from these episodes as compared to the depressive episodes, and the apparent "supranormal" QoL reported in patients with mania or hypomania[35] may partly explain the failure to find

a significant impairment of QoL in BPAD patients following manic episodes. The mean number of hospitalizations was 1.28 ± 0.996. The number of admissions had a highly significant correlation with the psychological domain (p=0.004) and significant correlation with the physical health (p=0.020) and environmental domains of QoL (p=0.025). Repeated hospitalizations indicate a more severe illness. It affects the activities of daily living, results in greater dependence on medications, causes negative feelings and reduced self-esteem in the patient besides causing additional burden on financial resources of the family. All these factors explain the significant negative correlation of the QoL to the number of hospital admissions. The time elapsed from the last episode varied from 3 months to 5yrs, the mean time elapsed from the last episode was 0.759 years ± 0.8292. There was a highly significant correlation between the time elapsed from last episode and the QoL domain scores in the physical health domain, social relationships domain and in the psychological domain (p=0.002, p=0.001, p=0.044 respectively). This indicates that the longer duration the patient is in remission the better is the QoL. In the current study presence of psychotic symptoms in the past episodes did not result in a significant difference in the QoL domain scores. This finding corresponds to the findings of MacQueen GM et al[36] who concluded that psychotic patients were more symptomatic during the index episode, but did not differ from the non-psychotic patients on ratings of function and wellbeing when euthymic. This could be because our study was a cross sectional study conducted in the euthymic period and the instrument used (WHOQOL-BREF) considered a time frame of 4 weeks for the assessment QoL. Therefore, it is possible that a past episode of psychosis may not have significantly influenced the QoL at the time of examination when the patient was symptom free. In our study 19% of the cases attempted suicide. On comparing the QoL of suicide attempters with the non-attempters there was a highly significant difference in the psychological domain, physical health and social domain (p=0.001, p=0.009 and p=0.004 respectively). Similar findings have been noted by Leverich et al[37] who concluded that most patients with a history of suicide attempts, had a greater personal history of early traumatic stressors and poorer prognosis in the longitudinal course and Perlis et al[28] found that suicide attempts had a significant correlation with early onset BPAD which in turn is associated with poor functioning and QoL. Among the patients 21% had a family history of psychiatric illness. It was found that the QoL scores in psychological, social and the environmental domains were significantly lower among those with positive family history as compared to those patients with no family history of psychiatric illness. This corresponds to the findings reported by Ross J Baldessarini et al[38] who showed that positive family history is associated with poor functional outcomes. Niki Antypa et al[39] found patients reporting family history of a mood disorder had an earlier age at onset of depression/mania, more phases, rapid cycling and more suicide attempts and further had lower quality of life as compared to patients without family history. Thus, it is possible that presence of family history of psychiatric illness may lead to earlier onset of illness, more severe course, and more hospitalizations besides the added psychosocial impairment of the family having more than one person effected by mental illness. These factors in turn have a negative effect the QoL.

Conclusion

The emerging body of research has shown that the BPAD has a negative effect on the QoL even during periods of euthymia and remission. A number of socio-demographic and clinical variables have a bearing on the QoL of patients with BPAD. Further, measuring QoL provides additional important information from the patients' point of view and a knowledge of the predictors related to the quality of life, can contribute to the design of future clinical interventions which can favourably influence the QoL of BPAD patients.

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Conflicts of Interest

Nil.

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Suicide attempt among adolescent in Tamil Nadu: A case-control study

Vinoth Krishna Dass[1], Arun Prasanna Chandrasekaran[2], Vinayagamoorthy Venugopal[3*], Asokkumar Muthu[4], Gandhibabu Ramanathan[5]

[1,2]Associate Professor, [3]Associate Professor, [4]Professor and Head, [5]Professor, [1,2,4,5]Dept. of Psychiatry, [3]Dept. of Community Medicine, [1,3]Sri Manakula Vinayagar Medical College & Hospital, Puducherry, [2]Government Theni Medical College, Theni, Tamil Nadu, [4,5]Rajah Muthiah Medical College and Hospital, Annamalai University, Tamil Nadu, India

***Corresponding Author: Vinayagamoorthy Venugopal**
Email: drvinayagamoorthy@gmail.com

Abstract
Introduction: Suicide is a complex social issue and a serious global health problem. Its incidence among adolescents is increasing. Understanding of risk factors helps early detection and prompt treatment of high-risk youngsters.
Materials and Methods: It was a hospital-based case-control study carried out among 60 adolescent suicide attempters and 60 of their normal counterparts for the period of one year. Pretested structured questionnaire was used to collect information. Ethical principles were followed throughout the study. SPSS version 24 was used to do the analysis. Odd's ratio (OR) and its 95% confidence interval (CI) were calculated as a measure of the strength of association between risk factors and suicide attempts.
Results: Among the study participants, 70% were in the age group of 16 – 18 years and 45% were males. The identified risk factors for suicide attempt were, presence of psychiatric illness (OR-7.8; 95% CI: 3.3-19), substance abuse among family members (OR-4.3; 95% CI: 2-9.3), family history of attempted suicide (OR-7.2; 95% CI: 1.5-3.3), family history of completed suicide (OR-3.6; 95% CI: 1.2-1.1) and residence at rural areas (OR-2.8; 95% CI: 1.2 – 6.3). Suicide intent score was significantly correlated with various standard scoring tools for stress and depression among cases.
Conclusion: The established risk factors should be considered in creating an effective intervention program and strategies with intersectoral collaboration and coordination to prevent suicide among high-risk adolescents.

Keywords: Adolescent, Attempted suicide, Case-control study, Risk factors.

Introduction
Suicide is a complex social issue and a serious public health problem. Suicidal behavior is a spectrum that ranges from suicidal ideation at one end to completed suicide at the other end. World Health Organization reports that every year nearly 800,000 deaths occur due to suicide worldwide.[1] Suicide is the second leading cause of death among youngsters (15 to 29 years old) globally and its incidence rate is increasing.[2] More than 78% of global suicides occur in low and middle-income countries.[3] In India, over one lakh lives are lost every year due to suicide and in the last three decades, the suicide rate was found to be increased by 43%.[4] The National Crime Record Bureau, report reveals that South Indian states has the highest suicide rate among India and Tamil Nadu stands in third position with 18.6/100,000 population.[5]

As there is no effective protocol to predict suicide among adolescents in routine clinical practice, improving the recognition and understanding of clinical, psychological, sociological, and biological factors could help in the detection of high-risk youngsters so as to assist in treatment options. Therefore the present study was designed with the objectives to assess the association of childhood adversity, demographic factors and psychiatric co-morbidities with adolescent suicide attempt. We also tried to identify the correlation between suicide intent score with stressful life events, hopelessness and depressive scores among suicide attempters.

Materials and Methods
Study setting and design
Our study was an age and gender-matched case-control study that was carried out in a tertiary care teaching hospital situated in Cuddalore district of Tamil Nadu. It is a 1000 bedded teaching hospital. The average outpatient and inpatient load of Psychiatry department per day is 80 and 20 respectively. The department admits and provides care to nearly 150 attempted suicide patients every year.

Study population
Cases were adolescents belonged to both genders and in the age group of 13 to 18 years, admitted with the history of attempted suicide in the emergency department and were referred to the Department of Psychiatry for providing care and support during the year 2012. Subjects with the stable physical condition who could undergo detailed assessment were included. Those who were in the state of disorientation and confusion which interfered with the administration of rating scale to them and those without a reliable informant were excluded. Controls were the adolescents who accompanied those patients admitted to any other departments of the hospital with complaints other than the psychiatric disorder. They were selected in such a way their age and gender were matched with the selected cases.

Sampling and sample size
Sample size was calculated to be 60 cases and 60 controls using OpenEpi software version 3.0, taking the exposure of cases to worrying issues in family as 65% and exposure of controls to same risk factor as 35.3% and odds ratio of 3.4,

based on previous study[6] with 95% confidence interval and 90% power. Expected number of cases in a year based on previous records is around 150 in numbers. Cases fulfilling the eligibility criteria were consecutively selected into the study till the calculated sample size was reached during the data collection period of one year. Once a case was selected control was selected in the ratio of 1: 1 as per the eligibility criteria.

Study tool and study variables

Pretested structured proforma was developed for collecting information on socio-demographic details like age, gender, education, occupation, socio-economic status and marital status. Socio-economic status was decided based on modified Kuppuswamy's scale for urban residence and BG Prasad's scale for the rural setting, for the year 2012.[7] Information on any past history of physical illness and the previous attempt at suicide among participants was collected. History of selected childhood adversities like substance abuse among family members attempted and completed suicide in family members was recorded. Cases and controls were clinically examined for any psychiatric morbidity and diagnosis were made according to ICD-10. The degree of suicidal intent of cases was measured with the help of Suicide Intent Scale (SIS) developed by Beck (1979).[8] For both cases and controls, Presumptive Stressful Life Events Scale (PSLES),[9] Hopelessness Scale (HS) by Beck (1974)[10] and Hamilton Depression Rating Scale (HAM-D)[11] were administered. PSLES is used to capture the stressful life events in the past one year. It is simple to use, can be administered to both, literate and illiterates, and is designed for use in Indian population. HS by Beck (1974) is used to assess the spectrum of negative attitudes. HAM-D (1960) is used to assess the most important symptoms of depressive disorders. The severity of their depression is rated by probing mood, feelings of guilt, suicide ideation, insomnia, agitation or retardation, anxiety, weight loss, and somatic symptoms.

Study procedure and data collection

Cases and controls were selected as per the selection criteria mentioned above. Then interview was conducted with the study subject to obtain information on risk factors using predesigned pilot-tested questionnaire. Their family caregivers were also interviewed as and when required. It was carried out in two to three sessions, each consisting of forty-five minutes to one hour. Age and gender-matched controls were recruited from medical and surgical wards as and when a case was registered to the study. They were also interviewed using the similar proforma adopting same methods and following ethical principles similar to that of cases.

Ethical consideration

Institute Human Ethics Committee clearance was obtained before initiating the study procedure. As participants were adolescent assent were obtained from them and the parental consent were also obtained from their parents. All ethical principles have adhered throughout the study.

Data entry and statistical analysis

Data were entered into EpiInfo software version 7.2.2.6 and analyzed using SPSS software version 24. Description of categorical variables was done in frequency and proportion. Chi-square test was used to find out the association between various risk factors and suicide attempt. The Pearson correlation coefficient was used to correlate suicidal indent score with other scores. Binary logistic regression was carried out with those risk factors that were significantly associated with suicide attempt in bivariate analysis to find out the adjusted Odds ratio (OR), a measure of the strength of association and presented with its 95% confidence interval (CI). All tests were two-tailed and p-value < 0.05 was considered statistically significant.

Results

Thirty percent of both cases and controls were in the age group of 13 – 15 years and remaining were in the age group of 16 – 18 years. Male constituted 45% of the participants in both case and control group and the rest were females. Among cases 13 (21%) were illiterate and only 4 (6.7%) had studied above high school level of education. Among controls 4 (6.7%) of them were illiterate and 10 (16.7%) had studied above high school level of education. Majority of the participants were the student by occupation in both groups, 32 (53.3%) in cases and 30 (50%) in control group. 15% of the cases and 8.3% of the controls were unemployed. As per their residence status, 81.7% of the cases and 61.7% of the controls were from the rural setting. According to modified socio-economic scale for the year 2012, 81.7 % of the cases and 83.3% of the controls were from lower (Class-V) category. Majority of them were unmarried in both groups. Among the cases, 35 (58.4%) had some psychiatric illness, whereas among controls only nine (15%) had psychiatric morbidity. The details of which were presented in the Table 1.

The association of various clinic-social factors with the attempt to commit suicide was shown in Table-2. Among those who stayed in the rural area, 49 (57%) had attempted suicide whereas of those who stayed in urban areas, 11 (32.4%) had attempted suicide. The odds of staying in the rural area were 2.8 times statistically more among those who attempted suicide compared to those who had not attempted it. Subjects belonged to higher SES had got 1.1 times higher risk of attempting suicide than those from lower SES but this was not statistically significant (p=0.81). Similarly unmarried adolescent had 1.8 times higher risk of attempting suicide than their married counterparts but this association was again not statistically significant. No one from case group had any current medical illness because of which odds ratio could not be computed. Subjects with any psychiatric illness had 7.2 times significantly higher chance to attempt suicide than those without any psychiatric morbidity. Among the participants who gave the positive history of substance abuse in the family, 42 (66.7%)

attempted suicide and 21 (33.3%) did not. Those who gave the positive family history of addictions were 4.3 times at higher risk of attempting suicide compared to those who have no such history in the family (p-value 0.001). The odds of attempting suicide was 7.2 and 3.6 times higher among those who had the positive history of attempted suicide and positive history of completed suicide in their family respectively, compared to those who had negative histories. These strengths of associations were statistically significant too. Among those who attempted suicide four of them had the positive history of previous suicide attempts and among controls, none had such history. The median score of cases that explains their mental status in terms of depression, hopeless attitude, and stressful life event using standard tools were significantly higher than the controls (Table 3). Suicidal indent score was strongly correlated with stressful life events, hopelessness and depressive scores with the correlation coefficient of 0.74, 0.76 and 0.79 respectively among cases. These correlations were positive and also statistically significant (Table 4).

Binary logistic regression analysis carried out with those risk factors found statistically associated and correlated with adolescent suicide attempt showed that only three factors were independently associated with suicide attempt. They were the positive family history of substance abuse, increasing PSLES score and HS score. These findings were statistically significant (Table 5).

Discussion

The risk factors identified in the current study for attempting suicide among adolescents were the history of substance abuse, attempted suicide and completed suicide in the family. Other significant risk factors associated with the risk of suicide attempt were the rural residence and psychiatric illness among subjects. Stressful life events, hopelessness and depressive scores of cases were significantly higher than controls. Stress, hopelessness, and depression score were strongly and significantly correlated with suicide intent score among cases.

In the present study adolescents residing in the rural area were found at more risk for the suicide attempt than the urban residents (OR: 2.8; 95% CI: 1.2 – 6.3). The study done in the United States also conveyed the similar result.[12] The possible explanation could be less availability and accessibility of health services in rural areas especially mental health services, low mental health literacy, low family income, less recreational facilities, lesser penetration of modern technologies and the difference in the method of suicide in terms of easy availability and accessibility of various methods. Cultural factors also play a significant role in the observed rural-urban disparity in terms of the help-seeking behavior, and the stigma associated with mental illness.

The childhood related risk factors identified from the previous studies for suicide attempts were the history of past suicide attempt, substance abuse, psychiatric disorder, serious physical illness, history of suicides in family or friends, and parents not living together.[13–15] All these studies were cross-sectional in nature. Though they established the association between those risk factors and suicide attempt, they could not estimate the strength of association between those risk factors and suicide attempts. The present study also identified similar risk factors but our study was case-control in nature that usually generates higher evidence than cross-sectional study.

A study done in Shimla found adolescents with worrying issues in the family had adjusted OR of 2.5 to attempt suicide.[6] A study done in Delhi among adolescents reported adverse family events like fight among parents (OR-1.6; 95% CI: 0.9-2.8), physical abuse by parents (OR-1.5; 95% CI: 1.1-2.1), neglected by parents (OR-1.8; 95% CI: 1.1-3.2), not enjoying time spent with parents (OR-0.9; 95% CI: 0.5-1.4), severe financial problems in family (OR-1.1; 95% CI: 0.7-1.6) as risk factors.[16] The current study also captured that adverse family events in the form of substance abuse (adjusted OR-3.8; 95% CI: 1.2 – 11.8), attempted suicide (OR-7.2; 95% CI: 1.5-33), completed suicide (OR-3.6; 95% CI: 1.2-10) among family members were associated with risk of suicide attempt among adolescent.

A cohort study done in Sweden showed childhood adversities like death in family (OR-1.9; 95% CI: 1.3–2.8), suicide in family (OR-2.9; 95% CI: 1.4–5.9), parental substance abuse (OR-1.9; 95% CI: 1.4–2.4), parental psychiatric disorder (OR-2.0; 95% CI: 1.5–2.8), substantial parental criminality (OR-2.3; 95% CI: 1.7–3.0) and parental separation or single parent (OR-1.4, 95% CI: 1.2–1.7) were associated with suicide attempts among young adults.[17] A case-control study in Australia also confirmed that family history of substance abuse had an OR of 3.21 with 95% CI of 1.51-6.82 for attempting suicide among adolescent.[18] Studies done in France and Iran also revealed that adverse family events had the higher risk for suicide attempt.[19,20] These findings are again in alignment with the current study findings.

The meaning of suicidal thoughts and adolescence normative attitudes towards suicide varies across diverse cultural, religious and economic settings.[21] Hence the family environment where the adolescent is exposed to various socio-cultural factors plays a vital role in creating and shaping the thoughts of suicide. This could be the reason for higher suicide attempt among adolescent exposed to the adverse family situation. It is consistently evident that genetic factors play an important role in the predisposition to suicide and suicidal behaviors.[22] It is possible that part of the predisposition to suicide may be transmitted via the presence of impulsive and impulsive-aggressive behaviors from parents to children. Some molecular genetic studies support the role of some genes that code for components of the serotonergic pathway in the etiology of suicidal behavior.[23] This could be a possible reason for the observed higher risk for suicide attempt among adolescent who had the positive family history of completed and attempted suicide in the present study.

In the current study subjects with psychiatric illness has 7.8 times higher risk of attempting suicide (95% CI: 3.3-19).

The similar finding was recorded in a case-control study in Australia (OR: 3.1 to 18.7).[18] Cross-sectional studies from Atlantic region of the United States (OR-1.7; 95% CI: 1.3, 2.1),[24] and New Zealand[25] also identified psychiatric illness as the risk factor for suicide attempt. Previous studies showed lower SES was associated with suicide attempt but in the present study middle and the high-income group had a higher chance (OR-1.1; 95% CI: 0.4 – 2.8) to attempt suicide. But the finding was not statistically significant. Stressful life events, hopelessness, and depression were more among those who attempted suicide in the present suicide and this finding was consistent with previous studies.[4,26,27] The transition from childhood to adolescence, which in itself is accompanied by physical and psychological challenges such as depression, anxiety, and loneliness. During this transition period if other risk factors especially family psychopathologies occur concurrently then it could lead to suicidal behaviors among them.

Strengths and Limitations

In the current study apart from identifying the association between risk factors and suicide attempt, we estimated the strength of association as well. The interview to identify the risk factors happened over a period of two days and this reduced the chance of information bias by the patients. Some information on risk factors was cross-checked with the parents and this reduced the reporting bias. Hospital-based studies usually suffer generalization of findings as the participants are not real representatives. In the current hospital-based study, those cases of attempted suicide who had developed serious complications were excluded hence the selected cases may not be the real representative of all attempted suicide adolescents admitted in the hospital.

Conclusion and Recommendations

In conclusion, this study identified children from rural areas, exposed to childhood adversities, suffering from mental illness were associated with an increased risk for suicide in adolescent period. Hence it is important to understand the social mechanisms of mental health morbidity and suicide in order to develop effective interventions, aiming to alleviate the risk of suicide in children. Those identified risk factors need to be the specific target for prevention of national policies and strategic plans related to suicide and mental health. Professionals like general practitioners, pediatricians, school teachers, school counselors, social workers and social psychologists need to be trained in identifying depression and suicidal behaviors in adolescents. If required they can refer them to a mental health professional or mental health service for thorough assessment and effective management. Suicide is preventable; hence a social and public health approach created by the integration of stakeholders across multiple levels within society including the individual, the family, the community, and the health care system is to be developed.

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Conflict of Interest

None.

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The prevalence and correlates of social phobia among undergraduate medical students

Kandula Somabala Charishma[1], Pramod KR Mallepalli[2*], Ravulapati Sateesh Babu[3], Pavani Narukurthi[4], Manjula Sakamudi[5]

[1]Post Graduate, [2]Professor and HOD, [3]Professor, [4]Senior Resident, [5]Clinical Psychologist, Dept. of Psychiatry, Mamata Medical College, Khammam, Telangana, India

***Corresponding Author: Pramod KR Mallepalli**
Email: dr_mpramod@yahoo.co.in

Abstract
Introduction: Social phobia is the fear of social situations that involve interaction with others. It is highly prevalent among high school, college and university students. The impact of social phobia among students leads to decreased educational performance, dependence to take alcohol, avoidance of oral presentations, weak performance at clinical examinations, and development of depressive symptoms.
Aims & Objectives: The aim of this study is to assess social phobia and associated factors among undergraduate medical students to contribute towards their optimal care.
Materials and Methods: This cross-sectional study consisted of a total of 600 medical undergraduate students. Data was collected using the Oslo 3-item social support scale and Social phobia inventory (SPI) scale.
Results: A total of 600 participants were interviewed with a response rate of 100%. The results revealed that as high as 78% of the students reported some form of social phobia and about 31% of these students reported severe social phobia. Regression study show that female students have a higher chance of social phobia.
Conclusions: Study concludes that social phobia is more prevalent among female gender. The overall proportion of students who reported social phobia was much higher than averages from studies in other countries.

Keywords: Social phobia; Prevalence; Undergraduate.

Introduction
Social phobia is the irrational fear in social situations that involve interaction with others. According to ICD 10 the following criteria should be fulfilled for a definitive diagnosis: (a) the psychological, behavioral, or autonomic symptoms must be primary manifestations of anxiety and not secondary to other symptoms such as delusions or obsessional thoughts; (b) the anxiety must be restricted to or predominate in particular social situations; and (c) the phobic situation is avoided whenever possible.[1] There is a recent increase in interest regarding this due to higher cases and the severe effects that it has on the people who suffer from it. It is now the third most diagnosed illness after depressive disorder and alcohol addiction.[2] It's prevalence in adolescents is 1-3%, while about 27-47% of them have reported at least one symptom of the disorder.[3] It is highly prevalent among high school, college and university students.[5] The symptoms typically include slurred speech, tremors, palpitations, increased sweating and nausea.

The impact of social phobia among students leads to decreased educational performance, dependence on alcohol, avoidance of oral presentations, weak performance in viva and development of depressive symptoms.[5] Anxiety and panic attacks may also occur in severe cases. The major source of social phobia amongst students was exam, presentation, language, parental anger, criticism in front of others, exaggerated protection, maltreatment, and family provocation.[2] The context in which educational institutions are situated also often played a large role in social phobia. A less diverse, uncomfortable campus environment led to higher cases of social phobia.

The symptoms however start showing up in late childhood and often are related to the social demographics in which the child is being raised.[6] Whether it be gender, economic status, educational status, surroundings etc. all of the factors play a crucial role in a child's diagnosis with social phobia.

While it is highly prevalent amongst students across the world, very little attention is given to its diagnosis and treatment.

Aim
1. To study prevalence of social phobia among undergraduate medical students.
2. To study correlates of social phobia.
3. To study sociodemographic factors associated with social phobia.

Materials and Methods
A study was conducted among 600 undergraduate medical students from October 2019 to December 2019 in Telangana, India. The sample included students currently enrolled in the undergraduate medical course ranging from 1st year to 4th year and who are willing to participate in the study. All the students who had pre-existent psychiatric illness and those who were not willing to participate in the study were excluded from the sample. Required permission from administrator medical college and ethics committee approval was taken.

The data was collected using a pre-tested self-administered questionnaire which included their social demographics such as gender, religion, marital status and residence. The scales used in this study are Social Phobia

Inventory Scale and Oslo 3- Item Social Support Scale. The Social Phobia Inventory Scale uses 17 items to measure the social phobia with cut off points that are greater or equal to 21. 0-68 is the range of the total score and each question is rated between 0 (not at all) - 4 (extremely).[7] The Oslo 3 Item Social Support scale comes with a score ranging between three categories - "Poor support" 3–8, "moderate support" 9–11, and "strong support" 12–14 and the total score ranges between 3-14.[8]

The questionnaire was distributed using two separate mediums to ensure that that it covered a large number of responders. The first medium used was a traditional hardcopy of a questionnaire which was handed out to students during their classes and dropped off at a decided point to ensure anonymity. The second medium was a google form that was circulated amongst students of the sampled university. All of this data was then collated and analyzed using excel data interpretation methods. To understand correlation and effects of variables on the social phobia score - a multiple regression was run by taking social phobia as the dependent variables and other demographic factors as independent variables.

Results

Socio-demographic characteristics

A total of 600 students were included in the study from which 36% of the respondents are male and the remaining 64% of the respondents are female. The average age of a respondent is 19.4 years. Students in their first year of education are 21.5%, second year are 38.6%, third year are 14.5% and final year are 25.1%. A majority of the students (90.3%) recognized as Hindus and the remaining 10% ranged between Christians, Muslims, Others and Atheists. Amongst the students, 14.5% of the students scored between 50-60%, 49% of students scored between 61-70%, 25% of the students ranged between 71-80% and 10.3% of the students scored above 80% in the last medical exam they had written (Table 1).

Substance characteristics

It can be seen that there is a higher tendency for substance usage amongst students in this age. 12% of the students consumed alcohol, 1% consumed cannabis and 2% smoked cigarettes. 83% of the students reported no usage of any of these items (Table 1).

Table 1: Demographic variables of the study sample

			Frequency	Percentage
1	Sex	Female	382	63.66
		Male	218	36.33
2	Age	17-21 years	431	71.83
		22-24 years	160	26.67
		25 years and above	9	1.50
3	Religion	Hindu	542	90.33
		Christian	27	4.50
		Muslim	25	4.17
		Atheist	3	0.5
		Other	3	0.5
4	Marital status	Single	595	99.17
		Married	5	0.84
5	Residence	Urban	517	86.00
		Rural	83	14.00
6	Year of study	1st Year	130	21.67
		2nd Year	232	38.67
		3rd Year	87	14.67
		4th Year	151	25.17
7	% scored in the most recent examination	50-60%	88	14.67
		61-70%	299	49.83
		71-80%	150	25.00
		Above 80%	63	10.50
8	Substance use	Alcohol	76	12.67
		Cigarette	15	2.50
		Cannabis	10	1.67
		None	499	83.17

Prevalence of Social Phobia

The answers provided by the respondents were summed and a value was generated. This number was categorized between 5 sections - students in whom social phobia cannot be observed (score>30); students in whom mild social phobia was observed (31<score<36); students in whom moderate level of social phobia was observed (37<score<42); students who exhibited a severe level of social phobia (43<score<58); students who experienced very severe levels of social phobia (score>58). As can be observed, the distribution between the categories is quiet even. It was observed that 22% of the students had no observation of social phobia. 18% and 17% of the students reported mild and moderate levels of social phobia respectively. A staggering 31% reported severe social phobia while 10% of the respondents reported very severe social phobia (Fig. 1).

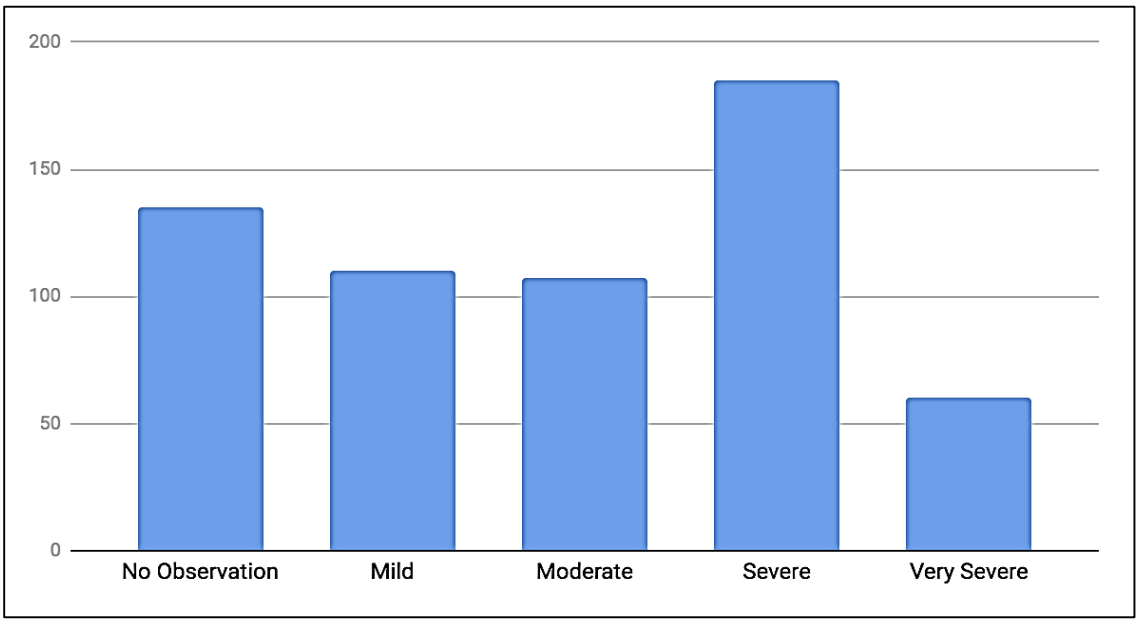

Fig. 1: Prevalence of social phobia in the study sample

The (Table 2) shows the mean of the individual scores in SPI scale and it was observed that two factors in particular, I avoid talking to people I do not know (mean = 3.02) and I avoid having to give speeches (mean = 3.02) had the highest scores.

Table 2: SPI scale questionnaire values

S. No.		Mean	SD	P-Value
1	I am afraid of people in authority	2.53	1.018	0.001
2	I am bothered by blushing in front of people	2.20	1.125	0.001
3	Parties and social events scare me	2.22	1.710	0.001
4	I avoid talking to people I don't know	3.02	1.285	0.001
5	Being criticized scares me a lot	2.96	1.361	0.001
6	I avoid doing things or speaking to people for fear of embarrassment	2.96	1.609	0.001
7	Sweating in front of people causes me distress	1.96	1.180	0.001
8	I avoid going to parties	2.12	1.468	0.001
9	I avoid activities in which I am the centre of attention	2.34	1.563	0.001
10	Talking to strangers scares me	2.12	1.659	0.001
11	I avoid having to give speeches	3.02	1.626	0.001
12	I would do anything to avoid being criticized	2.74	1.346	0.001
13	Heart palpitations bother me when I am around people	1.98	1.151	0.001
14	I am afraid of doing things when people might be watching	2.55	1.469	0.001
15	Being embarrassed or looking stupid are among my worst fears	2.72	1.372	0.001
16	I avoid speaking to anyone in authority	2.24	1.195	0.001
17	Trembling or shaking in front of others is distressing to me	2.12	1.164	0.001

Regression analysis

To understand the effect that socio demographic factors have on the social phobia, a multiple regression was run using the dependent variable as the total social phobia score and independent variables as the year of study, gender, residence, percentage in most recent examination and substance usage. Gender, residence and substance usage were converted into dummy variables for ease of analysis where 0-male, 1-female; 0-rural, 1-urban; 0-no substance usage, 1-substance usage. The analysis shows that being a woman, belonging to an urban residence and using alcoholic substances was positively correlated with a higher social phobia score. The percentile in which students typically fell into is negatively correlated with social phobia.

For every one unit increase in their total exam score, there was a 0.133 reduction in the social phobia score. Females scored 3.46 points higher in their social phobia score as opposed to their male counterparts. Students from urban residences scored 0.55 points higher as opposed to their rural counterparts. It needs to be taken into account that the total number of rural students in the sample were low. The regression also showed that for every 1 year increased in year of study, there 0.76 points drop in the social phobia score. For substance use, it was observed that for people who engaged in any form of substance use had a 0.02 chance higher of having social phobia. The mean score, as expected also had a negative correlation with the social phobia score. For every increase in percentile, the student experienced lower social phobia (Table 3).

Table 3: Regression analysis of the factors for social phobia

S. No.	Total	Coef.
1	Gender	3.465012
2	Residence	0.5532478
3	Year of study	-.7647629
4	Substance Use	.0249963
5	Mean	-.1337736
6	_cons	49.57762

The (Fig. 2) shows the social support in the undergraduate medical students. In the sampled students, 474 (79%) of them feel that they have poor social support and 118(19.7%) of them feel that they have moderate social support. Only 8(1.3%) of them feel that they have strong social support.

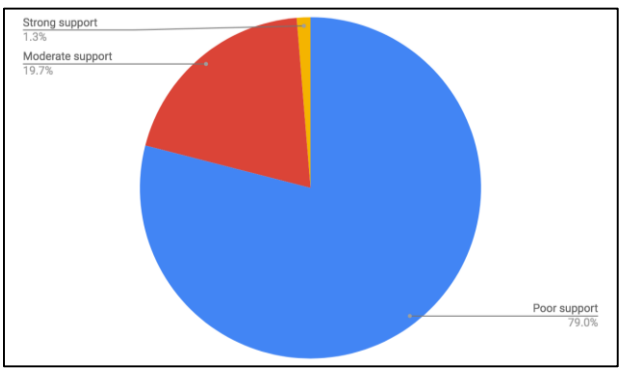

Fig. 2: Social support in the study sample

Discussion

The study aimed to understand the prevalence of social phobias amongst undergraduate medical students in the sampled university. The results revealed that as high as 78% of the students reported some form of social media and about 31% of these students reported severe social phobia.

Similar tests conducted in other countries have on average shown a much lower level of social phobia amongst students. A study conducted in Ethiopia showed that about 31.7% of the students had some form of social phobia. Similar studies conducted previously in India also had an estimation of about 28.6%.[9] The higher rate of social phobia of students in this study could be attributed to different factors. The first being that they are students attending MBBS while students in these other studies came from a variety of backgrounds. It has been time and again been stated that medical education in education with its large competition pool, tedious exams is much more stressful on students than other average degrees.[10] The lack of social interactions, co-curricular activities etc. during the time of study further pushed students pursuing medical education towards developing social phobia.[11]

The results of the regression study as predicted show that female students have a higher chance of social phobia. Typically belonging to conservative families in a country like India, often leads to women being less confident in public situations and having social phobias. This result very much aligns with the general trend that is noticed in our society.

Students with social anxiety disorder are more likely to experience depression and poor quality of life and vice versa.[12] Our study shows who engage in alcohol use have been known to have a higher tendency towards social phobia and depression. Several studies have correlated the use of substances with social phobia, anxiety and depression.[13] Students who have difficulty coping with their studies typically turn to alcohol, cigarettes as a method of coping to help relieve stress. This in several cases leads to further more social phobia.

Students who score higher percentiles in examinations and are in a higher year of study both exhibited a negative correlation with the total social phobia scores. As the year progresses, students tend to have higher confidence while facing exams, interacting with seniors out of habit which leads to lower levels of social phobia Students who score higher also similarly face lower social phobia as a result of their confidence. The correlation between social phobia and social support is almost 0 and insignificant which could lead us to believe that despite having the option of getting support, several students continue to talk less to their peers and the social phobia score continues to increase.

Conclusion

In line with several studies in the past, this study too concludes that being a female student leads to higher prevalence of having social phobia. The overall proportion of students who reported social phobia was much higher than averages from studies in other countries. This comes to show that the current competition and pressure that medical

students face in India is much higher than an average student from another country.

Limitations

The samples were a small number of students. The diversity in the sample was also limited in some other areas such as residence etc. Broader and a more diverse sample would give us regression results with much higher significance. Further research must be considered on risk factors for social phobia to strengthen the results.

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None.

Conflict of Interest

None.

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A cross-sectional and comparative study of impulsivity and personality profile in euthymic bipolar affective disorder patients and controls

K Sandhya[1], S Sireesha[2*], Sudharani[3]

[1]Assistant Professor, [2]Professor, [3]Associate Professor, Dept. of Psychiatry, Institute of Mental Health (IMH), OMC, Hyderabad, Telangana, India

***Corresponding Author: S Sireesha**
Email: sireeshasvmc@gmail.com

Abstract
Introduction: Bipolar patients show increased impulsivity during symptomatic period. Impulsivity during euthymic phase is not much studied. Impulsivity is a risk factor for future episodes of BPAD, suicidality, poor functional outcome and mortality.
Aims and Objectives: The current study conducted during euthymic phase to study impulsivity compared with controls and to assess any particular personality trait manifests in the disorder. It is also aimed to study the correlation between the variables "impulsivity and personality" profiles among cases.
Materials and Methods: This study was conducted on patients of euthymic bipolar disorder (n=50) and healthy controls (n=50). Patients were assessed using Hamilton Depression Rating Scale (HDRS) and Young Mania Rating Scale (YMRS) to diagnose remission. They were administered Barratt Impulsiveness Scale-11(BIS-11) and Eysenck Personality Inventory (EPI).The healthy attendants of bipolar patients without any psychiatric disorder were taken as controls.
Results: All three facets of impulsivity of test and control sample were found to be statistically significant. The difference between test and control scores of extraversion was found to be statistically significant (p=.002). Among test sample the extraversion scale and total score of Barratt impulsivity scale and its subscale facets i.e., attentional, motor and non-planning showed positive correlation. Among test sample, correlation between extraversion, BIS total score (p=0.018) and non-planning impulsivity (p=0.026) was found significant. The neurotic scale also showed positive correlation with BIS total and sub scales but none of them found statistically significant among test sample.
Conclusions: Impulsivity was found to be increased during euthymic phase of bipolar patients. It is associated with substance abuse, suicide and poor functional outcome. Hence it is very important that impulsivity has to be assessed in all bipolar affective disorder patients.

Keywords: Bipolar disorder, Impulsivity, Euthymic.

Introduction
Bipolar affective disorder (BPAD) is a severe affective syndrome characterized by a cyclical pattern of mood changes (e.g. depression, mania/ hypomania and euthymia) and a high likelihood of comorbidity with other disorders (PAULO 2012).[1] This disorder is characterized by repeated (i.e. at least two) episodes in which the patient's mood and activity levels are significantly disturbed, this disturbance consisting on some occasions of an elevation of mood and increased energy and activity (mania or hypomania), and on others of a lowering of mood and decreased energy and activity (depression). Characteristically, recovery is usually complete between episodes (ICD-1O).[2] The World Health Organization (WHO) labelled BPAD as one of 10 major causes of disability (Mather's C2004).[3] It is estimated to affect between 0.3% and 1.5% of individuals worldwide (Weissman MM1996).[4] Bipolar spectrum disorders have been less extensively studied but are likely to be more prevalent, affecting up to 8% of the population (Angst 1998).[5] This disorder has been associated with high rates of episode relapse and hospitalizations (Erin E Michalak 2005)[6] financial and social impairments.

Impulsivity definition by Daruna and Barnes (1993)[7]who stated that 'impulsivity encompasses a range of actions which are poorly conceived, prematurely expressed, unduly risky or inappropriate to the situation and that often result in undesirable consequences'. Researchers agree that impulsivity was found to be multi-faceted (Barratt 1994; Reynolds et al. 2006),[8,9] it had many relationships with bipolar disorder and depends on the way in which it was measured (F. Gerard Moeller 2001).[10] Related to susceptibility: adolescents at risk for mania as more "impulsive" than their peers (Sunohara GA 1999).[11] Related to episodes of illness or to prodromes of episodes: increased impulsivity may accompany episodes. Related to pathophysiology of illness: impulsivity could result from some combination of increased norepinephrine (Gray JA1995,[12] CoccaroEF1989),[13] decreased serotonin (Linnoila M1983),[14] or impaired prefrontal cortex function (Jentsch JD. 1999).[15] In bipolar disorder, impulsivity and depression, leads to an increased use of maladaptive coping strategies and impair functionality. Therefore, it seems appropriate in the treatment of bipolar disorder patients to focus on aims like impulse control in order to improve functionality (Dusunem Adam 2018).[16] Impulsivity in bipolar disorder (BD) has been linked to poorer outcome, including a more severe course and suicidality. As a result, there has been a lot of interest in the relationship between impulsivity and BPAD.

Personality makes individuals prone to particular affective states, it may have a role in the etiology of mood disorders(Luke D Smillie 2009.[17] The interaction between personality and affective disorder is complex with many unresolved issues (TimeaSparding 2017, Kraepelin 1921)[18,19] and other pioneers in psychiatry, hypothesized that deviant personality profile of the average bipolar patient may constitute a premorbid vulnerability for the illness**.**The five factor model (FFM) is composed of five broad domains

of dimensional personality traits i.e., neuroticism, extraversion, openness/intellect, agreeableness, and conscientiousness. David Watson,[20] evidence established that traits are strongly and systematically linked to psychopathology. Highly extraverted individuals are assertive and sociable, rather than quiet and reserved. Agreeable individuals are cooperative and polite, rather than antagonistic and rude. Conscientious individuals are task focused and orderly, rather than distractible and disorganized. Neurotic individuals are prone to experiencing negative emotions, such as anxiety, depression, and irritation, rather than being emotionally resilient. Open individuals have a broad rather than narrow range of interests, are sensitive rather than indifferent to art and beauty, and prefer novelty to routine (Christopher J 2015).[21] The level of personality functioning had a significant impact on global functioning during the euthymic period of BPAD (2018 Kizilkurt OK1, Gulec MY).[22] BPAD has a unique personality profile being associated with palpable and significant increases in all three of Neuroticism, Aggressiveness, and Disinhibition (Timea Sparding, 2017).[18] A specific personality profile during euthymia might be a milder, subclinical manifestation of bipolar disorder and assumed that personality and affective episodes express the same genetic endowment (Akiskal HS, Hirschfeld R1983).[23] A recent review done by (Hereufuah 2019)[24] found no single dimension of personality qualified as a psychological marker for bipolar disorder and opined that the most promising candidate for marker or endophenotype would seem to be "mpulsivity" as measured by the BIS-II.

There exists a long history of investigation regarding the relationship between personality and affective disorders, specifically, bipolar disorder. A better understanding of this relationship can lead to more accurate diagnoses, improved prognosis and possible improvement of quality of life. For those with the disorder studying personality is also important in bipolar disorder as it can interact with the disease by serving as vulnerability or predisposing factor to a particular disorder. It may be modified, distorted or serves as a direct expression by the presence of the disorder. The current study conducted during euthymic phase to rule out any particular personality trait manifests in the disorder. As it is related to many factors studying impulsivity is important, which the current study focused on this variable and its relation with personality profile during euthymic phase of bipolar disorder compared with healthy controls.

Aims

1. To study the impulsivity in euthymic bipolar cases
2. To study the personality profile in cases.
3. To compare impulsivity and personality across cases and healthy controls
4. To study the correlation between the variables like impulsivity and personality profiles among cases.

Null hypothesis

There is no significant difference in impulsivity, quality of life and personality profile between euthymic bipolar subjects and healthy controls.

Materials and Methods

The study design was cross – sectional and comparative study. The sample size was 50 bipolar disorder euthymic patients and 50 control subjects. Institutional ethical committee approval for study was taken. Convenient sampling technique was used to collect test sample.

Sample description

Male and Female patients attending review outpatient (op) and discharge committee wards were considered for study. All cases included in test sample were seen by a committee of psychiatrists consisting of one junior postgraduate, checked by one senior postgraduate, one assistant professor and one professor also headed by superintendent. Cases were examined by serial mental status examination over a period of one month. Through this process if any organic mental disorder, dementia, mental retardation if detected were excluded from our study. Current or lifetime diagnosis of a major psychiatric disorder also were excluded by taking history and ICD-10 criteria. Any features suggestive of meeting criteria for personality disorder were referred to clinical psychologist for personality assessment. During this process any diagnosed personality disorder if found were ruled out. All the patients in test sample were pre-morbidly well adjusted. Alcohol abuse not amounting to dependence only were included among test sample because alcohol dependence syndrome would have been confounding factor. Because alcohol dependence syndrome patients may develop alcohol induced mood disorder and psychotic disorder. We wanted to take pure BPAD under remission as our test sample.

Inclusion criteria

1. Bipolar disorder diagnosis as per 1CD 10.
2. Age between 18 and 60 years.
3. Euthymic at the time of enrolment.
4. Concurrent alcohol and/or other substance abuse with no dependence pattern as per ICD-10

Exclusion criteria

1. Diagnosed organic mental disorder.
2. Mental retardation.
3. One who diagnosed with personality disorder.
4. Presence of any other serious medical condition
5. Current or lifetime diagnosis of a major psychiatric disorder other than BPAD.
6. Not cooperative and not giving consent.

Procedure

This study which has a cross-sectional design is conducted after obtaining written informed consent from the patients who were diagnosed Bipolar Disorder according to ICD 10.In this study, 50 euthymic BPAD patients 50 controls

will be recruited. Euthymia for the purpose of the study was defined as study sample showing scores of Hamilton Depression Rating Scale (HDRS; Hamilton, 1960[32]) ≤ 7 and Young Mania Rating Scale (YMRS; Young, Biggs, Ziegler, & Meyer, 1978[33]) ≤ 6, for at least 1 month (Brissos[34]) were taken for study. Both test and control sample were administered BIS-11 and Eysenck Personality Inventory (EPI). The healthy attendants of bipolar patients without any psychiatric disorder were taken as controls.

Materials

1. Written informed consent form in Telugu, English and Urdu.
2. Semi structured intake proforma.
3. ICD10 clinical descriptions and diagnostic guidelines.
4. Young Mania Rating Scale (YMRS)
5. Hamilton Depression Rating Scale (HDRS)
6. Barratt Impulsiveness Scale (BIS-11)
7. The Eysenck Personality Inventory (EPI)

Young Mania Rating Scale (YMRS)

The scale has 11 items and is based on the patient's subjective report of his or her clinical condition over the previous 48 hours. There are four items that are graded on a 0 to 8 scale while the remaining seven items are graded on a 0 to 4 scale (YMRS; Young, Biggs, Ziegler, & Meyer, 1978).[25]

Hamilton Depression Rating Scale (HDRS).[26]

HDRS form lists 21 items. The scoring was 0-7 = Normal, 8-13 = Mild Depression, 14-18 = Moderate Depression, 19-22 = Severe Depression and ≥ 23 = Very Severe Depression.

Barratt Impulsiveness Scale (BIS-11) (Patton JH 1995)[27]

It was developed in 1959 to assess impulsivity. It was Self-report measurement of trait-impulsivity. This test consists of three subscales- 1. Attentional 2. Motor 3. Non planning. The possible scores range from 30 to 120; Total BIS scores generally range from 50 to 60 in healthy persons (Lee SR 2012,[28] Lewis 2009,[29] Swann AC 2002[30])

Eysenck Personality Inventory (EPI) (EYSENCK, H. J., 1968)[31]

Measures two pervasive, independent dimensions of personality, Extraversion-Introversion and Neuroticism-Stability. Each form contains 57 "Yes-No" items with no repetition of items.

Statistical analysis

Statistical analysis was done using SPSS version 17. Descriptive statistics was used to measure means, percentages and graphs. Analytical statistics like chi square test, independent "t"test were used .p value was set below 0.05.

Results

Mean age of test sample was found to be 37.12 ± 10.804 SD years, control sample was 38.06 ±10.773 SD years.

Table 1: Socio-demographic variables of test and control sample

Variables		Sample		Chi Square	P Value
		Test	Control		
Sex	Male	40	27	7.644	.006
	Female	10	23		
Education	Illiterate	26	23	13.469	0.019
	School	9	5		
	Intermediate	3	9		
	Undergraduate	3	9		
	Graduate	6	0		
	Post Graduate	3	4		
Marital Status	Unmarried	18	9	4.110	0.043
	Married	32	41		
Family History	No	37	45	4.336	0.037
	Yes	13	5		
Total		N =50	N =50		

Table 2: Showing mean and standard deviation of EPI and BIS-11 of test and control sample

	Sample	N	Mean	Std. Deviation	Std. Error Mean
Extrovert Scale	Test	50	15.44	3.157	.446
	Control	50	13.58	2.508	.355
Neurotic Scale	Test	50	11.04	4.682	.662

	Control	50	10.38	4.481	.634
Lie Scale	Test	50	3.22	1.093	.155
	Control	50	2.90	1.111	.157
BISTotal	Test	50	76.26	10.089	1.427
	Control	50	55.22	2.999	.424
Attentional	Test	50	19.94	3.755	.531
	Control	50	15.76	1.756	.248
Motor	Test	50	26.94	5.343	.756
	Control	50	17.78	3.334	.471
Non-Planning	Test	50	28.86	5.559	.786
	Control	50	21.68	2.824	.399

Table 3: Showing correlation between EPI and BIS-11 of test sample

		t-test for Equality of Means		
		T	**Df**	**Sig. (2-tailed)**
Extrovert Scale	Equal variances assumed	3.262	98	.002
	Equal variances not assumed	3.262	93.231	.002
Neurotic Scale	Equal variances assumed	.720	98	.473
	Equal variances not assumed	.720	97.812	.473
Lie Scale	Equal variances assumed	1.451	98	.150
	Equal variances not assumed	1.451	97.975	.150
BISTotal	Equal variances assumed	14.135	98	.000
	Equal variances not assumed	14.135	57.590	.000
Attentional	Equal variances assumed	7.130	98	.000
	Equal variances not assumed	7.130	69.459	.000
Motor	Equal variances assumed	10.285	98	.000
	Equal variances not assumed	10.285	82.131	.000
Non-Planning	Equal variances assumed	8.143	98	.000
	Equal variances not assumed	8.143	72.720	.000

Table 4: Showing correlation between EPI and BIS-11 of test sample.

		Neurotic Scale	**Extrovert Scale**
Neurotic Scale	Pearson Correlation	1	.140
	Sig. (2-tailed)		.333
	N	50	50
Extrovert Scale	Pearson Correlation	.140	1
	Sig. (2-tailed)	.333	
	N	50	50
BISTotal	Pearson Correlation	.214	.335*
	Sig. (2-tailed)	.136	.018
	N	50	50
Attentional	Pearson Correlation	.268	.078
	Sig. (2-tailed)	.060	.590
	N	50	50
Motor	Pearson Correlation	.208	.045
	Sig. (2-tailed)	.147	.756
	N	50	50
Non-Planning	Pearson Correlation	.064	.315*
	Sig. (2-tailed)	.660	.026
	N	50	50

*. Correlation is significant at the 0.05 level (2-tailed)
**. Correlation is significant at the 0.01 level (2-tailed).

Table 1 male and female test and control sample chi square was 7.644 with significant value p=.006. The literates and illiterates in test and control sample chi-square was 13.469 with significant value p=0.019.The marital status in test and control sample chi square was 4.110 with significant value p=0.043.With and without family history in test and control chi square was 4.336 with significant value p=0.037.

Independent t – test between EPI and BIS

As shown in table 2 independent sample t-test was done between the test sample mean and control for Eysenck personality inventory scale (EPI) and Barrats Impulsivity Scale (BIS).For extroversion scale the difference between test and control sample mean was found to be statistically significant with values [t=3.262, p=.002].For neurotic scale the difference between test and control sample mean was not found to be statistically significant with values [t=.720, p=.473]. For Lie scale the difference between test and control sample mean was not found to be statistically significant with values[t=1.451, p=.150].

BIS score

BIS total score [t=14.135, p<0.0001], attentional subscale [t=7.130, p<0.0001], motor subscale [t=10.285, p<0.0001] and non-planning subscale [t=8.143, p<0.0001] all were found statistically significant.

Correlation between personality profile and BIS

As shown in table 3 Pearson correlation test was done between neurotic scale and total score BIS its individual subscales among test sample. The neurotic scale has positive correlation with total score of BIS(r=0.214, p=0.136), attentional subscale (r=.268, p =.060), Motor subscale (r=.208, p=.147) and Non planning sub scale (r=.064, p=.660). None of the above findings was found statistically significant. Pearson correlation test was done between extraversion scale and total score BIS among test sample. The extraversion scale has positive correlation with total score of BIS(r=0.335, p=0.018), attentional score (r=.078, p=.59), motor subscale (r=.0.45, p=.756), non-planning subscale (r=.315, p=.026). Among the above scores only non-planning impulsivity was found significant.

Discussion

The aim of this cross-sectional study was to find Impulsivity and personality profile in euthymic bipolar affective disorder patients compared with controls.50 cases were taken for assessment after meeting inclusion criteria along with 50 controls were taken for the study. In the current study for 50 test sample mean age is 37.12 with SD 10.804. For 50 control sample the mean age value is 38.06 with SD 10.773. Mean age of both test and control is in line with Lauren E Lombardo, 2012[35] Yoon-Seok Kim.[36] In the above mentioned study sample number of unmarried and married subjects almost equal, which is not in line with our study. Raman Deep Pattanayak 2012[37] an Indian study, sample among test with and without positive family history was in accordance with the current study sample. The results reported for trait impulsiveness assessments with the Barratt Impulsiveness Scale in euthymic bipolar patients are remarkably similar across studies, with higher scores for euthymic bipolar patients than for controls as seen in the below respective studies Ekinci et al., 2011 with p<0.001[38] Gilbert et al., 2011b p<0.01[39] Kathleen Holmes et al., 2009 p<0.0001;[40] Peluso et al., 2007 p<0.05;[41] Perroud et al., 2011 p<0.0001,[42] Swann et al., 2001 p<0.0001,[43] 2003 with p<0.001,[44] 2004 p<0.01],[45] 2009 with p<0.001,[46] 2010 with p<0.001.[47] Our study found that all three facets of impulsivity of test sample are increased when compared with control population. BIS total and subscales are statistically significant from control with value of p<0.0001 which in accordance with above studies. Our study is also in accordance with recent study by (Mustafa ozen 2019),[48] who found both inter episode bipolar and unipolar disorder patients had increased impulsivity compared to healthy individuals. Dusunemadam 2018 study[16] also found increased impulsivity in remission was affecting functionality in bipolar disorder.

There are only few longitudinal studies, one of them is Strawoski SM et al 2010[49] they followed up participants for one year and found increased impulsivity during euthymic phase compared to controls. Kirsten E. Gilbert, 2011[50] study tried to find out impulsivity across the course of bipolar disorder. In the above study non planning impulsivity was not significant which was significant in our study. Lewis et al. (2009)[38] study examined the relationship of impulsivity and personality characteristics in remitted bipolar disorder patients which is almost equal to our study by using same scales in our study. But they took syndromal, subsyndromal and remitted patients to know whether it is a trait marker. They found no difference in BIS-11 and EPQ scores between remitted patients and healthy subjects. Impulsivity, Neuroticism and psychoticism scores were increased in subsyndromal and syndromal patients and concluded that increased impulsivity may not be a trait feature of bipolar disorder. This study is not in accordance with our study which showed increased impulsivity and extroversion during remission. An increase is seen in both of the two elements of impulsivity, state and trait impulsivity (peluso 2007).[41] Particular trait impulsivity, which is of a permanent nature, is known to be related with suicide risk, substance use, and non-compliance with medication (Swan 2005,[51] 2007[52])can lead to a chronification of the disease (swan 2005)[51] and it predicts to reach euthymia.

Regarding the personality during remission, neuroticism scores have been found to decrease (Liebowitz et al 1979,[53] Perris 1971,[54] Platman and Plutchik 1970)[55] and extraversion scores to increase (Perris 1971, Platman and Plutchik, 1970).[54,55] Both extroversion and psychoticism increase during remission as per study by Okan Ekinci 2013).[56] In our study mean extraversion scores (SD) showed statistically significant difference between test and controls (p=.002). Neuroticism score mean (SD) in test and controls didn't find any significant difference (p=0.473). During euthymic phase, high neuroticism and low extroversion scores predicted a future depression-prone course Barnett J

H 2011.[57] Timiea Sparding 2017[18] did a 2-year follow-up study found Higher neuroticism at baseline predicted future depressive episodes and suicide attempts/violent behaviour, but this association disappeared when adjusting for baseline depressive symptoms as assessed with MADRS. Our study found high extroversion scores during remission compared with controls.

In our study we correlated between neurotic score and BIS to find out association, for test sample. The neurotic scale has positive correlation with total score of BIS, attentional, motor and non-planning sub scale but none of them found statistically significant. The extroversion scale also has positive correlation which found statistically significant with total BIS and non-planning sub scales.

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Strengths

1. Current study utilised strict criteria for remission of bipolar disorder
2. present study analyzed correlation between variables like personality and impulsivity which was not previously studied.

Limitations

1. Our study is a crossectional study. A longitudinal study design would have studied variables in a better manner.
2. Size of sample is small, hence cannot be generalized.
3. Our study used self rating scales for assessment of impulsivity and QOL.
4. Cases and controls could not be matched for sociodemographic factors like gender, education and marital status. Results have to be interpreted with caution keeping in view of this confounding factors.

Recommendations for Future Research

Further studies has to focus impulsivity on both during euthymia and the course of illness to delineate state from trait which was lacking in our current study, and also has to focus on increased impulsivity during euthymic phase to find out whether it is a residual symptom or previous mood related activity or vulnerability factor or whether inter episode impulsivity is a risk factor for the disorder or a consequence of multiple episodes (F. Gerard Moeller, M.D. Ernest 2001). Personality profile has to be studied further across the course of the disorder to know specific triats predicts manic and depressive symptoms in bipolar disorder patients (Brian E. Lozano 2001) where limited research is available presently in this area. Understanding specific personality profile in bipolar patients across the course will be helpful to know why some individuals have more frequent relapses, poor drug compliance, more severity of symptoms, chronic course and poor outcome, so that further psychological interventions may be beneficial to address the above issues.

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Conflict of Interest

None.

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Psychopathology, quality of life and life satisfaction in patients with rheumatoid arthritis

Charmi Mehul Dedhia[1], Sushma Sonavane[2], Sagar Karia[3], Nilesh Shah[4], Avinash De Sousa[5*]

[1]MBBS Student, [2]Addl. Professor, [3]Assistant Professor, [4]Professor and Head, [5]Research Associate, [2,5]Dept. of Psychiatry, Lokmanya Tilak Municipal Medical College, Mumbai, Maharashtra, India

***Corresponding Author: Avinash De Sousa**
Email: avinashdes888@gmail.com

Abstract
Background: Rheumatoid arthritis (RA) is a chronic autoimmune disorder characterized by pain stiffness and swelling in the joints with long standing effects on quality of life and is complicated by the presence of medical and psychiatric comorbidity. The current study was aimed at comparing the psychopathology, quality of life and life satisfaction between patients with RA and healthy controls.
Methodology: There were two groups in the study – a study group with RA patients (n=97) and control group with their first-degree relatives (n=93). A semi-structured proforma collected data related to socio-demographic variables and RA. The groups were assessed using the Mini International Neuropsychiatric Interview, WHO Quality of Life scale brief version and Satisfaction with Life Scale. The scores were statistically analyzed and presented.
Results: The mean age of the sample was 44.94 ± 13.02 years (range 18-82 years) and that of the control group was 23.02 ± 8.41 years (range 18-55 years). The mean duration of illness of the group was 7.2 ± 16.9 years (range 1-40 years). Major depression was the commonest disorder seen in 73.1% (n=73) patients with RA. Generalized anxiety disorder, panic disorder and suicidal feelings were also detected. The RA group had significantly lower QOL scores in the psychological and environmental domains of QOL Life satisfaction scores were also significantly lower in the RA group (p=0.0001) when compared to controls.
Conclusion: Patients with RA have significant psychopathology that warrants attention and this affects their quality of life and life satisfaction. Further longitudinal studies in this area to gain clinical and epidemiological Indian data are warranted.

Keywords: Rheumatoid arthritis, Depression, Psychopathology, Quality of life, Life satisfaction.

Introduction
Rheumatoid arthritis (RA) is a chronic autoimmune disorder causing inflammation of the joints and surrounding tissues where patients experience pain, stiffness, swelling, and deterioration of joints and progressive joint destruction, disability, and disfigurement.[1] The disease has a continuous progressive course and may have exacerbations and remissions during its course and patients with the disorder may experience physical pain and disability with a greater risk of experiencing emotional disturbances.[2] The disorder may also produce significant changes in their quality of life and well-being as they experience more losses in function in every domain of human activity including work, leisure and social interactions along with severe physical limitations and deformities that may ensue.[3] The presence of a psychiatric disorder in patients with RA has many negative health consequences with increased risk of mortality and morbidity which in turn also affects their quality of life (QOL).[4]

In one of the earliest studies on psychopathology in patients with RA, it was found that the prevalence of any psychiatric disorder in patients suffering from RA in the preceding 6 months was 24.7% and that of a lifetime psychiatric disorder was 42.2% compared to 17.5% and 33.0% in the general population.[5] An observational study in 80 patients with RA found that moderate to high anxiety was found in 37.5% of the sample and severe depressive symptoms in 35%.[6] Researchers have pointed out two sets of contributory factors to depression amongst patients with RA viz. the social context of the individual and the biological disease state of the person's RA.[7] Studies have shown that the most significant predictors of depression in RA were high tension and low self-esteem followed by fatigue, pain, physical disability and the perceived impact of RA.[8] Depression in RA has also been associated disease severity, functional disability, counts of swollen and/or tender joints, duration of RA, frequency of arthritis surgery and C-reactive protein levels.[9]

Patients with RA may also experience reduced quality of life in several domains, such as physical health, level of independence, environment and personal beliefs, compared with the healthy population.[10-12] The aim of current study was to study the psychopathology, quality of life and life satisfaction in patients with rheumatoid arthritis and compare the same with healthy controls.

Methodology
The study was a single center, cross-sectional, case-control study from the rheumatology out-patient department of a tertiary general teaching hospital in Mumbai. The study was carried out over a period of 3 months from January to March 2019. The study population had two groups i.e. the study group which were patients suffering from RA (n=97) and the control groups which were first degree relatives accompanying these patients and not suffering from RA (n=93). Written informed valid consent was obtained from all subjects participating in the study. All subjects of all groups were assessed using a semi-structured proforma that addressed various socio-demographic data and details of rheumatoid arthritis were also noted in the same. Educational qualifications and other medical comorbidities and medication history were also be noted. Basic demographic data and other facts were collected for the control group as well. The inclusion criteria for the study

group included a diagnosis of RA according to 2010 Classification of the American College of Rheumatology/ European League Against Rheumatism (ACR/EULAR) Criteria], patients of either gender, age > 18 years and who expressed willingness to participate in the study. The inclusion criteria for the control group were first degree relatives, one each of these patients above the age of 18years, accompanying the patient and expressing willingness to participate in the study. The exclusion criteria were presence of a pre-existing psychiatric disorder and having taken psychiatric treatment in the past, pregnancy and lactation for female patients and lack of willingness to participate in the study. This exclusion was for both cases and controls.

The following scales were used to assess both the groups –

1. **Mini International Neuropsychiatric Interview (MINI):** The Mini International Neuropsychiatric Interview (MINI) is a short diagnostic structured interview to explore 17 disorders according to Diagnostic and Statistical Manual (DSM-IVTR) diagnostic criteria. It is fully structured to allow administration by nonspecialized interviewers. In order to keep it short it focuses on the existence of current disorders. For each disorder, one or two screening questions rule out the diagnosis when answered negatively. Probes for severity, disability or medically explained symptoms are not explored symptom-by-symptom.[13-14]
2. **WHO-Quality of Life Scale (WHO-QOL BREF):** It is an instrument that comprises 26 items, which measure the following broad domains: physical health, psychological health, social relationships, and environment.[15]
3. **Satisfaction with Life Scale (SWLS):** The SWLS is a short 5-item instrument designed to measure global cognitive judgments of satisfaction with one's life. The scale usually requires only about one minute of a respondent's time.[16]

The data obtained was entered into an MS Excel sheet and was statistically analyzed using SPSS Version 20.0 computerized software. Chi square test and Student 't' test were used where appropriate. 2–tailed p value was obtained for all analyses and $p \leq 0.05$ was considered as statistically significant. The study was approved by the Institutional Ethics Committee of the hospital.

Results

The mean age of the sample was 44.94 ± 13.02 years (range 18-82 years) and that of the control group was 23.02 ± 8.41 years (range 18-55 years). The case and control groups were not very well matched due to the fact that most first-degree relatives accompanying the patients with RA were their children or younger relatives (Table 1). The main characteristics of the RA in the study group is in Table 1. The mean duration of illness of the group was 7.2 ± 16.9 years (range 1-40 years). Diabetes was seen in 18 (18.55%) and hypertension was seen in 15 (15.46%). 3 patients had a past history of tuberculosis. The joint symptoms of the RA group are described in Table 1.

When the study and control groups were compared for psychopathology, major depression was the commonest disorder seen in 73.1% (n=73) patients with RA. The other disorders seen were generalized anxiety disorder, panic disorder and suicidal feelings were also noted. The control group had far less psychopathology than the RA group (Table 2). The RA group had significantly lower QOL scores in the psychological (p=0.0001), environmental (p=0.001) and total score domains (p=0.01) compared to the study group while the two groups did not differ on overall QOL scores. The perception of life satisfaction was also significantly lower in the RA group (p=0.0001) (Table 3).

Table 1: Socio-demographic data and Disease Variables of the sample

Parameter	RA group (n=97)	Control group (n=93)	Statistics
Age (years)	44.94 ± 13.02	23.0 ± 8.41	t = 13.73 (df = 188) p = 0.0001*a
Education (years)	5.66 ± 4.84	11.9 ± 4.55	t = 9.119 (df = 188) p = 0.019*a
Gender			
Male	15	42	X2 = 19.94 (df=1) p = 0.0001*b
Female	82	51	
Occupation and Work Status			
Employed	9	22	X2 = 104.737 (df=2) p = 0.0001*b
Unemployed	72	5	
Housewife	12	70	
Marital Status			
Married	94	21	X2 = 109.78 (df=1) p = 0.0001*
Unmarried	3	72	
Phenomenological Data of Rheumatoid Arthritis (n=97)			
All Joints involved Both UL and LL	67 (69.07%)		NA

Either UL or LL alone involved	30 (30.93%)	
Pain	96 (99%)	
Swelling	94 (96.9%)	
Stiffness	65 (67%)	
Redness of Joints	37 (38,1%)	

*significant ($p<0.05$), [a]Unpaired t test, [b]Chi square test

Table 2: Psychopathology in Both Groups

Psychiatric Disorder	**RA group (n=97)**	**Control group (n=93)**
	N (%)	
Major Depressive Episode with or without melancholic features	71 (71.3)	15 (15.4)
Generalized Anxiety Disorder	21 (21.6)	7 (7.2)
Suicide Risk- Low or Moderate	35 (36)	10 (10.3)
Panic Disorder	29 (29.8)	4 (4.1)
Agoraphobia	13 (13.4)	---
Social Phobia	5 (5.1)	---
Anorexia Nervosa	4 (4.1)	---
Psychotic Disorders / Mood Disorders with Psychotic Features	6 (6.2)	---

Table 3: Quality of Life and Life Satisfaction Scores in both groups

WHO-QOL Scores	**RA group (n=97)**	**Control group (n=93)**	**Statistics (For t test, df=188) Unpaired t test**
	Mean (SD)		
Physical domain	43.18 (15.17)	70.97 (15.22)	t= -12.600, p=0.767
Psychological domain	50.46 (12.77)	71.10 (8.39)	t = 13.101, p=0.0001*
Social domain	57.68 (16.61)	68.68 (12.26)	t= 4.609, p=0.764
Environmental domain	52.49 (10.95)	70.55 (6.65)	t= -13.671, p=0.001*
Total score	203.04 (48.33)	281.94 (39.73)	t= -12.264 p= 0.014*
Life Satisfaction Score	N(%)		Statistics
Extremely Dissatisfied	3 (3.09)	3 (3.32)	p = 0.0001* (df=6) Fischer's exact test
Dissatisfied	9 (9.27)	6 (6.45)	
Slightly dissatisfied	9 (9.27)	3 (3.32)	
Neutral	2 (2.06)	0	
Slightly Satisfied	43 (44.32)	12 (12.91)	
Satisfied	26 (26.81)	45 (48.39)	
Extremely Satisfied	5 (5.15)	25.81)	

*significant ($p < 0.05$)

Discussion

In our study the control group was relatives that accompanied the patients with RA. Usually children and younger family members accompany patients with RA who are invariably older and hence difference between two groups were noted.[17] Major depression was the most common psychiatric disorder reported. This is in keeping with studies where depression has been found to have a high prevalence in patients with RA.[18] Anxiety disorders have been seen to be common patients with RA and this was also seen in our sample. The prevalence of depression in our study was 73.1% which was much higher than that reported in previous studies that range from 30-56%.[19-20] Suicide risk has been under studied in patients with RA and our study reported suicidal feelings in the RA group. This is an area that warrants further exploration and research.[21] Many other factors could have accounted for both the higher depression rates and the suicidal feelings which have not been accounted for by the study. Pain in RA is also a marker for depression and suicidality that has not been explored in our data.[22]

Researchers have reported that RA affects all domains of quality of life in patients.[23-24] However in our study we found that mainly the psychological and environmental domains of QOL are affected, physical and social domain, slightly but not significantly affected. Increased unemployment noted in the previous studies due to long term RA was also seen in our population which in turn affects QOL.[25] Larger number of RA patients tend to be dissatisfied or lesser satisfied with life than they were before having the disease. This was noted in our study as well.[26] The long duration of the disease is accompanied by loss of

will, energy and ability to work. The patient loses interest in activities that were previously enjoyed by him/her. The inability to achieve simple joys of life makes their life miserable adding to the dissatisfaction.[27]

The experimental design and the method of data collection used proved to be helpful in aptly and appropriately classifying and grading the psychiatric co-morbidities in a sample population of RA in an Indian setup. The addition of a control group helped to compare the results obtained for the diseased population with that of the general population. Probably a better matched control group would have given even better accuracy to the study. A larger sample size and taking account other factors that affect psychopathology and quality of life would have added more value to the study. Depression has an immunological corelate as seen in many immunological disorders and this aspect was not attended to in the study. In the control group, majority of the participants were housewives and a large proportion were employed, thus some bias may have arisen. Further studies into these domains for patients with RA are needed to establish the clinical and epidemiological factors that play a role in course and prognosis of the disorder.

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Conflict of Interest
None

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Impact of psychiatry clinical rotation on attitude of interns towards psychiatry

Dinesan N[1], Rahul Bansal[2], Arya Jith[3*]

[1]Professor and HOD, [2]Junior Resident, [3]Assistant Professor Dept. of Psychiatry, Amrita Institute of Medical Sciences, Kochi, Kerala, India

***Corresponding Author: Arya Jith**
Email: aryaji2008@gmail.com

Abstract

Background: Internship is a vital phase in medical student's training which can have a bearing on the attitude they develop towards various specialities. Limited studies have tried to assess the effect of clinical rotation on the attitude of interns towards Psychiatry. This study was planned to assess the same before and after a 2 week posting in Psychiatry.

Aim: To study the change in attitude of interns towards Psychiatry before and after clinical rotation in Psychiatry.

Materials and Methods: The study sample comprised of 100 interns in a tertiary care teaching hospital. Written informed consent was taken from the interns before the study. Appropriate ethical approval procedures were followed while taking consent from subjects and also in conducting the research. Attitude towards Psychiatry-30 was used to assess the attitude of interns towards Psychiatry before and after a 2 week Psychiatry rotation. Semi structured questionnaire was filled by interns regarding socio-demographic details and views about psychiatry. Non parametric tests were used to analyze the data obtained using SPSS software.

Results: This study showed favourable improvements in the ATP-30 score following exposure to the clinical rotation. There was a statistically significant change in mean difference of total global ATP 30 scores in males and females. Female gender found to have more positive attitude than males. The responses to 11 statements from ATP -30 scale showed statistically significant improvement after the posting.

Conclusion: The attitude of interns towards Psychiatry improved following a 2 week clinical rotation in Psychiatry. Further studies are needed to better understand the factors that may influence the attitude of interns.

Keywords: Attitude, Interns, Psychiatry, ATP-30.

Introduction

The overall weighted prevalence for any mental morbidity was 13.7% lifetime and 10.6% current mental morbidity in the National Mental Health Survey of India 2015-2016[1] Alarming finding was that the treatment gap for mental disorders ranged between 70% and 92% for different disorders.[2] The World Mental Health Atlas 2014 mentions the number of psychiatrists in India as 0.30 per 100,000 population, while the desirable number is around above 3 Psychiatrists per 100, 000.[3] Considering this as the desirable number, 36,000 is the number of psychiatrists required to reach that goal. India is currently short of 27,000 doctors based on the current population of country.[3] Data available showed the shortage of psychiatrist is varied and improvement is not uniform in the country.[3] According to NMHS 2015-2016, Kerala had 1.2 psychiatrists per 100,000 population.[1] The alarming shortage of number of psychiatrists can be estimated from the fact that all the other states fall short of 1-2 psychiatrist per 100,000 population which is the minimum requirement.[1]

Therefore, it is absolutely vital that more and more young doctors need to be trained as psychiatrists to bridge the gap. For that to happen effectively, a positive attitude towards psychiatry needs to be developed among medical students and young doctors besides increasing the opportunities available for training.

Internship is a vital phase during medical student's life and exposure to different specialities during this tenure is a good opportunity to understand student's inclination towards a specialty for future. Factors like personality, previous experience with a person with mental illness and influence of faculty members of psychiatry have been found to affect the attitude of medical students towards psychiatry.[4] It is noteworthy that psychiatry patients have been stigmatised by society since ages and depicting the psychiatry ailments as violent, unpredictable and dangerous have contributed to stigma and this negative attitude.[5] Such a negative attitude has been reported even in medical students which is a major point of concern.[6] Such a negative attitude will, besides influencing students' future career choices, affect the care of psychiatry patients when dealt by other specialists at some point of time in their career.[7-11] Therefore immediate attention towards destigmatization is the need of the hour. The medical curriculum in most Indian Universities provides a rotation of varying duration in psychiatry during internship. During the rotation they are expected to evaluate and manage the patients under the supervision of senior faculty. Building a positive attitude during this short duration may lead to more students opting for psychiatry as specialization.[12] Understanding the impact of psychiatry clinical rotation on interns' attitude may give us valuable insight to further improve the current scenario. In our hospital, interns during the mandatory two week posting get adequate exposure in OPD and attend daily rounds of in-patients along with post graduates and consultants. Every intern posted in psychiatry gets an equal opportunity on the 24 hours duty to tag along the post graduates and consultants to see referrals from other departments. They get invaluable exposure to consultation-liaison psychiatry and imbibe the knowledge to manage psychiatry patients with co-morbidities. They, during the 24 hours on call day, attend the Emergency calls along with post graduates and consultants and learn to manage psychiatry patients in crunch situations.

Besides, they accompany the post graduates and consultants for the ECT sessions which help them resolve the myths about the shock therapy. Apart from such vast clinical exposure, interns also attend the seminars, case presentations and journal clubs held during the academic session daily along with post graduates and consultants. Daily attempts are made to add to their psychiatry knowledge so as to enable them to have a positive attitude towards psychiatry.

Existing literature is limited as few studies have been conducted in India to assess the attitude of medical students or interns towards psychiatry and results have been conflicting. Most of the previous studies have assessed the attitude in general without considering the impact of clinical rotation in psychiatry. A study has shown overall favourable attitude towards psychiatry patients when compared with medical patients.[13] Few other studies have shown that such short duration was not sufficient to influence the attitude towards psychiatry significantly. Another study reported changes in certain aspects of attitude towards psychiatry patients.[14] With this background, the current study was conducted to assess the impact of a 2 week clinical rotation on the attitude of interns towards psychiatry.

Materials and Methods

The present study is a cross sectional study done at the department of Psychiatry of ***** Institute of Medical sciences over a period of 12 months. It is a tertiary care teaching hospital located in city ***** of **** state. The Institutional Ethical committee clearance was obtained before starting the data collection. We examined the effects of two week psychiatry posting of House surgeons in their attitude towards psychiatry. After explaining them the aim of the study and obtaining their informed consent, participants filled up the semi structured socio demographic profile. The questionnaire did not include any identifying information and participants were asked to drop the folded questionnaires into a designated box, whether completed, partially completed or not filled up at all, ensuring the students' anonymity. A standardized and structured questionnaire, Attitude Towards Psychiatry (ATP 30), was offered to all participants (n =100) on the first and last day of clinical rotation in psychiatry. All 100 house surgeons returned the completely filled up questionnaires before and after the psychiatry posting.

ATP 30 is a 5-point Likert-type scale designed and validated in Canada by Burra et al.[15] The scale consists of thirty positively and negatively phrased items that measure the strength of the respondent's attitude to various aspects of psychiatry. A score of 1 denotes a highly positive attitude, 5 denotes a highly negative attitude and 3 denotes a neutral response. The score of each positively phrased item is converted by subtracting it from 6. The ATP score is the sum of total scores for positive and negative phrased items. The total global score ranges from 30 to 150. A total global score of < 90 suggests a negative attitude towards psychiatry, > 90 suggests a positive attitude towards psychiatry while a global score of 90 is considered to represent a neutral attitude. Each question of ATP-30 was analyzed independently and thematically with groups of questions together. The responses were recorded and the data so obtained was analyzed using SPSS version 21.For discussion purpose the questions in the ATP questionnaire have been divided under the following headings.

a) Attitude towards patient and illness b) Attitude towards knowledge and teaching c) Attitude towards psychiatry treatment and hospitals d) Attitude towards psychiatry and psychiatrists.

Results

100 house surgeons, females (n = 51) and males (n = 49), completed both the semi-structured questionnaire and ATP-30.The pre-posting overall mean ATP-30 score was 90.17 (SD = 9.62) and 22 students scored below the neutral point (90) indicating negative attitude towards psychiatry. The post-posting overall mean ATP-30 score was 120.35 (SD = 15.90) and only 9 students scored below neutral point. The difference in overall mean ATP-30 scores was statistically significant ($p<0.05$).The mean of Female and Male students pre-posting were 91.82 and 88.44. The post posting mean of Female and Male students increased to 121.58 and 119.06 which was a statistically significant improvement in attitude towards psychiatry. Besides four positively framed and seven negatively framed ATP-30 statements (total = 11) showed statistically significant change after the two weeks posting in psychiatry rotation ($p<0.05$).None of the statements showed change in negative direction.

Of the 100 interns who also completed semi-structured questionnaire, 70% of the interns think psychiatrists make lesser money than other specialists. 65% interns marked psychiatrists are not valued equally as other specialists in the society. Alarmingly, 81% interns think their family members would not allow them to pursue psychiatry as PG course even though 88% marked in favour of need of more psychiatrists in the country. 98% interns think Mental Health in India needs to be focussed upon and 85% marked implying that the scope of psychiatry in India is not bright. 76% interns think psychiatry patients are mismanaged by other specialties [Table 1].

Results of the ATP questionnaire are included in Table - 2,3,4,5

Table 1: Responses to the semi-structured questionnaire

S. No	Questions	Response	
		Yes	No
1	Do you know any one personally suffering from psychiatry disorder?	32	68
2	Have you ever suffered from psychiatry disorder?	0	100

3	Do you think psychiatrist make lesser money when compared to other specialities?	70	30
4	Do you feel ECT is gruesome?	83	17
5	Do you think psychiatrist are valued equally in our society?	35	65
6	Will you marry a psychiatrist?	30	70
7	Do you think your family members would allow you take psychiatry as post-graduation course?	19	81
8	Do you think India needs more psychiatrist?	88	12
9	Do you think patients are reluctantto meet psychiatrist?	85	15
10	Do you think Mental Health needs to be more focussed upon in India?	98	2
11	Do you think scope of psychiatry in India is bright?	15	85
12	Do you think psychiatry patients are mismanaged by other specialities?	76	24

Table 2: Responses to items measuring attitude toward psychiatric patients and illnesses

Items	Pre posting Agree	Pre posting disagree	Post posting Agree	Post posting disagree	P value
Psychiatric illnesses need attention (12)	18.07%	81.93%	26.05%	73.95%	0.06
Interesting to unravel the cause (18)	38%	62%	39.5%	60.5%	0.11
Psychiatry patients are human (27)	96%	4%	97%	3%	0.12
Psychiatric patients are interesting (29)	15%	85%	15.7%	84.3%	0.14

Table 3: Responses to items measuring attitude toward psychiatric knowledge and teaching

Items	Pre posting Agree	Pre posting Disagree	Post posting Agree	Post posting Disagree	P value
Psychiatric teaching increases our understanding of medical and surgical patients. (9)	37.7%	62.3%	39.2%	60.8%	0.16
Students report that their psychiatry undergraduate training has been valuable (10)	17%	83%	81.9%	18.1%	0.01
Psychiatry has very little scientific information to go on (13)	84%	16%	26.2%	73.8%	0.01
These days psychiatry is the most important part of the curriculum in medical schools (23)	27.3%	72.7%	30.2%	69.8%	0.15
Psychiatry is so unscientific that even psychiatrists can't agree to what it's basic applied sciences are.(24)	69.5%	30.5%	28.2%	71.8%	0.01
Most of the so-called facts in psychiatry are just vague speculations. (26)	79.2%	20.8%	29.6%	70.4%	0.01
Psychiatry is so amorphous that it cannot really be taught effectively.(30)	92%	8%	38.28%	61.72%	0.01

Table 4: Responses of items measuring attitude toward psychiatric treatment and hospitals

Items	Pre posting Agree	Pre posting Disagree	Post posting Agree	Post posting Disagree	P value
Psychiatric hospitals are little more than prisons. (3)	34%	66%	12%	88%	0.02
It is quite easy for me to accept the efficacy of psychotherapy (5)	69.2%	30.8%	59.8%	40.2%	0.12
Psychotherapy basically is fraudulent	66%	34%	6.1%	93.9%	0.01

(8)					
With the form of therapy, most psychiatric patients improve (14)	13%	87%	73.6%	26.4%	0.01
Psychiatric treatments causes patients to worry too much about their symptoms (16)	79%	21%	13.9%	86.1%	0.02
There is very little that psychiatrist can do for their patients(19)	59.5%	40.%	18.6%	81.4%	0.01
Psychiatric hospitals have a specific contribution to make to the treatment of the mentally ill (20)	37.2%	62.8%	78.7%	31.3%	0.01
In the recent years psychiatric treatment has become quite effective (25)	19%	81%	79.27%	20.73%	0.01

Table 5: Responses to items measuring attitude toward psychiatrists and psychiatry

Items	**Pre-posting Agree**	**Pre posting Disagree**	**Post posting Agree**	**Post posting Disagree**	**P value**
Psychiatry is unappealing because it makes so little use of medical training.(1)	79.7%	20.3%	21.7%	78.3%	0.01
Psychiatrists talk a lot but do very little (2)	87%	13%	17.2%	82.8%	0.01
I would like to be a psychiatrist (4)	16%	84%	23%	77%	0.11
On the whole, people taking up psychiatric training are running away from participation in real medicine. (6)	67%	33%	49.4%	50.6%	0.01
Psychiatrist seem to talk about nothing but sex. (7)	12%	88%	7%	93%	0.12
Psychiatry is a respected branch of medicine. (11)	29%	71%	52%	48%	0.03
Psychiatrist tend to be at least as stable as the average doctor (15)	37%	63%	73%	27%	0.01
Psychiatrist get less satisfaction from their work than other specialists (17)	84%	16%	15.5%	84.5%	0.02
If I were asked what I considered to be the 3 most exciting medical specialities, psychiatry would be excluded table (21)	94%	6%	22.3%	77.7%	0.01
At times it is hard to think of psychiatrist being equal to other doctors.(22)	47%	53%	58%	42%	0.12
The practice of psychiatry allows the development of really rewarding relationships with people (28)	37%	63%	78%	22%	0.01

Attitude towards psychiatry questionnaire (ATP-30)

The following questionnaire is designed to ascertain the attitudes ot students toward the field of psychiatry. On the following pages you will find thirty (30) statements for which you are asked to indicate your own agreement or & agreement on the IBM answer sheet.

There are live possible answer choices for each statement and you are asked to mark only one per statement. The answer categories are as follows:

A B C D E

A - Strongly agree
B - Agree
C - Neutral (no opinion)
D - Disagree
E - Strongly disagree

Thus, if you strongly disagree with a question. You will mark in the E space (as shown above). Please use an ordinary lead pencil and if you wish to change an answer. Please erase the first answer completely. Try to ensure that the statement number corresponds with the answer number

you are marking Sometimes you may feel as though you have had the same item before on the questionnaire. This will not be the case so please do not try to remember how you checked similar items earlier on. Make each item a separate and independent judgement. Since this an attitudinal questionnaire it is important that your answers be "off the- top-of-the-head" rather than deliberately thought out.

Please answer all the questions
1. Psychiatry is unappealing because it makes so little use of medical training
2. Psychiatrist talk a lot but do very little.
3. Psychiatric hospitals are little more than prisons.
4. I would like to be a psychiatrist.
5. It is quite easy for me to accept the efficacy of psychotherapy.
6. On the whole, people taking up psychiatric training are running away from participation in real medicine.
7. Psychiatrists seem to talk about nothing but sex.
8. The practice of psychotherapy basically is fraudulent since there is no strong evidence that it is effective.
9. Psychiatric teaching increases our understanding of medical and surgical patients.
10. The majority of students report that their psychiatric undergraduate training has been valuable.
11. Psychiatry is a respected branch of medicine.
12. Psychiatric illness deserves at least as much attention as physical illness.
13. Psychiatry has very little scientific information to go on.
14. With the forms of therapy now at hand most psychiatric patients improve.
15. Psychiatrists tend to be at least as stable as the average doctor.
16. Psychiatric treatment causes patients to worry too much about their symptoms.
17. Psychiatrists get less satisfaction from their work than other specialists.
18. It is interesting to try to unravel the cause of a psychiatric illness.
19. There is very little that psychiatrists can do for their patients.
20. Psychiatric hospitals have a specific contribution to make to the treatment of the mentally ill.
21. If I were asked what I considered to be the three most exciting medical specialties, psychiatry would be excluded.
22. At times it is hard to think of psychiatrists as equal to other doctors.
23. These days psychiatry is the most important part of the curriculum in medical schools.
24. Psychiatry is so unscientific that even psychiatrists can't agree as to what its basic applied sciences are.
25. In recent years psychiatric treatment has become quite effective.
26. Most of the so-called facts in psychiatry are really just vague speculations.
27. If we listen to them, psychiatric patients are just as human as other people
28. The practice of psychiatry allows the development of really rewarding relationships with people.
29. Psychiatric patients are often more interesting to work with than other patients
30. Psychiatry is so amorphous that it cannot really be taught effectively.

Discussion

This study showed a relative positive attitude towards psychiatry before two week psychiatry rotation which can be attributable to the way the subject is taught during the undergraduate days. In the fourth semester all students have compulsory two week clinical rotation in the department of psychiatry. Ten students will be posted at once, where students are taught how to communicate with the patient and how to elicit history and symptoms from the patients. During this period they are asked to work up cases and discuss it with the faculty. Besides this, twenty four hours of lecture time spread across six months is included in the sixth semester.

Among the hundred responses to the semi-structured questionnaire, 88% reported yes to "Do you think India needs more psychiatrist?" Surprisingly, only 23% reported to agree with Item number 4 of ATP-30 "I would like to be a psychiatrist" after the posting. This can be attributed to the fact that the interns think psychiatrists earn lesser money than other physicians, are respected lesser, do not have a bright future and their parents won't allow them to pursue Psychiatry as post graduation course as shown by their responses to the semi-structured questionnaire[Table 1]. This clearly implies that the interns understand the need for more Psychiatrists in the country but are themselves reluctant to pursue their career in Psychiatry. In a study conducted in Nigeria, the positive impact of clinical rotation on attitude towards psychiatry did not translate into their intention to specialize in psychiatry.[4] In one study conducted in Spain which administered "Balon et al questionnaire", the percentage of students willing to choose psychiatry as their profession showed an increase from 4.2% before the psychiatry posting to 10.4% after the posting.[8]

Attitude towards patient and illness [Table 2]

We found that the interns showed positive attitude towards psychiatric patients and illnesses as 96% agreed that psychiatric patients are human just like other people.39.5% agreed after posting that it is interesting to unravel the cause of psychiatry illnesses which was statistically significant ($p<0.05$).This shows that stigma towards Psychiatry patients has reduced among interns but still the students are not willing enough to consider as their career choice. In an Indian study conducted among medical students and interns, Beliefs towards Mental Illness scale (BMI) and Attitudes to Mental Illness Questionnaire (AMIQ) were used. Females constituted 99% of the subjects and interns showed more positive attitude towards psychiatry patient and illness than medical students.[13]

Attitude towards knowledge and teaching [Table 3]
In this area, all interns agreed that psychiatry is the important part of the curriculum. 81.9% agreed after the posting that their psychiatry undergraduate training has been valuable (Item 10). After the posting, 73.8% disagreed that "Psychiatry has very little scientific information to go on (Item 13). Most of the interns disagreed after the posting to "Psychiatry is so amorphous that it cannot really be taught effectively (Item 30)" showing that they had better understanding of the subject after the posting. Results of our study are encouraging in comparison to various studies conducted in Pakistan and Sri Lanka.[16,17]

Attitude towards Psychiatric treatment and hospitals [Table 4]
Further, students showed positive attitude towards psychiatric treatment and hospitals. Only 13% agreed to "With the form of therapy now at hand, most psychiatric patients improve (Item-14)" before posting which after the posting changed to 73.6% which was statistically significant ($p<0.05$). After the two week rotation, 79.27% agreed that in recent years psychiatric treatment has become effective, almost all interns disagreed that psychotherapy is fraudulent and disagreed that psychiatric treatments cause patients to worry too much about their symptoms which were statistically significant. This significant improvement in their attitude can be attributed to the direct exposure of Interns to the management of the patients during the rounds and observing the improvement in them. These results are contradictory to the results showed by the study conducted in Bahrain and Nigeria which showed that there was no significant change in beliefs and that greater exposure to psychiatry changes the attitude of medical students.[18,19]

Attitude towards Psychiatry and psychiatrists. [Table 5]
After the posting, interns had better understanding about how psychiatry treatment improves all the domains of patient's life. Existing literatures shows inconsistent findings.Yadav et al found that continuous education and training improved the attitude of medical students towards psychiatry patients.[13] On the contrary, Rajagopalan M et al showed that 2 weeks exposure to Psychiatry as per the current curriculum was not sufficient to significantly influence students' attitude in a positive direction.[19] In this study, results showed how vital is the Psychiatry clinical rotation in the curriculum as it improved their attitude significantly. Such a negative attitude before the posting can be subjected to ridiculous stereotypic comments and remarks by none other than medical practitioners belonging to other specialty branches. Al- Ansari et al reported the same issue in their study in 2002. It is not uncommon to find medical teachers suggesting poor public image of a psychiatrist. Remarks like psychiatrists do nothing more than prescribing sedatives and tranquilizers and their job is neither intellectually stimulating nor financially rewarding are commonly heard. It has also has been suggested that psychiatrists themselves are more susceptible to develop psychiatric disorders.[20]

To reduce this prevailing stigma globally and to make Psychiatry a preferable career option some remedies and possible interventions could be suggested. Duration of psychiatry posting should be increased rather than curbing it. Students will come to fully appreciate the work done by psychiatrists through their in depth exposure to the field. Students should be exposed to different subspecialties such as child psychiatry, addiction psychiatry, geriatric psychiatry and sleep and headache clinics. Emphasizing on the nature, prognosis and treatment of psychiatric illnesses having more chances of relapse such as substance dependence and schizophrenia can change their negative perception that psychiatrists cannot do much about their patients. Psychiatry should be introduced to the students in an innovative way. Demonstrating neurobiological basis of psychiatric illnesses with the help of modern neuro-imaging techniques in under graduation can create positive perception of Psychiatry.[21]

The limitations of this study include small sample size and inclusion of interns from one medical institution only. Therefore it is suggested that a study with larger sample having heterogeneous properties of subjects from different medical colleges across the country may be carried out or similar study may be conducted in the rest of the country to show the overall impression of the country. Besides, this improvement in attitude towards psychiatry might be a temporary change as the attitude was reassessed immediately after the commencement of the posting. To counter this limitation, studies assessing attitude towards psychiatry after a year or more after the psychiatry clinical rotation is completed can be conducted which will examine the long term effect of the clinical rotation.

Conclusion
The main aim of the study was to highlight the growing need for psychiatrist in our country; since the doctor patient ratio is very low. Our study showed that even though the stigma towards psychiatry and mentally ill patients was less in interns but still they were not willing to take it as a speciality. If the current National Medical commission takes steps to de stigmatise psychiatry and increase awareness among students, more students will consider taking Psychiatry as their profession.

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Conflict of Interest
Nil.

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Psychosocial skill development among community levels workers working with children in difficult circumstances

U Harikrishnan[1], P Kavitha[2], S Rajamanikandan[3], K Sekar[4*], E P Marykutty[5]

[1,3,5]Ph D Scholar, [2]Project Coordinator, [4]Professor, [1,5]Dept. of Social Work, [3,4]Dept. of Psychiatric Social Work, [1]School of Social Sciences, Mizoram University, Mizoram, [2]Kaval Project – Govt. of Kerala in Collaboration with NIMHANS, Bengaluru, Karnataka, [3,4]NIMHANS, Bengaluru, Karnataka, [5]Christ University, Bengaluru, India

***Corresponding Author: K Sekar**
Email: sekarkasi@gmail.com

Abstract
Community Level Workers (CLWs) are the first respondents to Children in Difficult Circumstances/Need of Care and Protection (CDCs/CNCP). The study aims to develop community resource building on preventive and promotive psychosocial interventions for children in difficult circumstances. The study adopted a quasi-experimental research design with pre & post assessment carried out among the trained CLWs after 16 hours of capacity building program conducted through two days residential training. The training programme was conducted in nine different places across Kerala where Jyothis Charitable Society, Kottayam, Kerala (Reg no: k368/2008) is extending its services. The training focused on Life Skills Education (LSE) & Student Enrichment Program (SEP) for CDCs/CNCP, facilitated by Master Trainers (MTs) with the hand holding support from NIMHANS. A total of 207 female with a mean age of 40.42 ± 12.64 years and had 10.30 ± 8.97 years of experience working as CLWs. Majority of the participants were teachers (64%). The mean knowledge score of the participants increased from 2.04 to 7.78 (P<000) after the training. Capacity building of the grass root level workers will aid in early identification of psychosocial problems among children in difficult circumstances. This will further support in developing skills to address the varied psychosocial issues faced by children in their daily life and education. Life skills educational program and student enrichment program would help children in dealing with challenges in daily life and cope with them effectively.

Keywords: Capacity building, Psychosocial interventions, Children in difficult circumstances, Community level workers.

Introduction
The curative, preventive and promotive aspects of mental health for Children in Difficult Circumstances and Children in Need of Care and Protection need to reach to the grass root level to ensure holistic care and protection of the most marginalized children. Added to stigma is the lack of mental health professionals that creates a gap in the provision of services which causes a major hindrance to reach out to the most marginalized children.[1] Children are vulnerable and look upon to the elders in challenging situations for support. Children in difficult circumstances experience multiple risks that affect their physical and mental health. Issues related to children are increasing in terms of sexual abuse, physical violence, poor parental care, poor support from family, school and community.[2] Children living in such insecure environment experience varied psychosocial problems that are beyond the level of coping which will be manifested as emotional and behavioral disturbances.

The chances of a child encountering difficulties leading to insecure, faulty and non-conducive environment are very high. These children experience lack of care and protection, as well as poor support system.[3]The preventive and promotive interventions among children in difficult circumstances through life skills education and student enrichment program enhances their mental health. A Meta analytical study on impact of enrichment programs among students from 1985 to 2014 where 26 studies across the world was analyzed showed positive impact on academic achievement and socio emotional development.[4] Enrichment programs promote individual and social development and minimize social problems faced by children. This highlights the need of enrichment programs and to ensure positive mental health among CDCs/CNCPs. Stephan (2009) highlighted the importance of gender roles that specifies the effective ways of dealing with child specifically the effective ways adopted by females that is being nurturing, sensitive and emotional.[5] A Study by Haji (2011) reported that life skills education is highly effective in enhancing happiness, quality of life, and emotional regulation among children.[6] The Mental health gap a challenge due to paucity in number of mental health professionals is a major block in reaching out to CDC's /CNCP's. Developing resource at grass root level by training community level volunteers at varied levels of care would address the issue and ensure the provision of services to the unreached child population in the rural community. CLWs that can be trained in the area include Teachers, Health workers, ASHA workers, Social workers, NGO or volunteers working among the CDCs /CNCP. The current study is to determine the impact of training on knowledge among community level workers working with children in difficult circumstances on life skills education and student enrichment program for children.

Methodology
The current study adopted quasi experimental research design with pre and post assessment among the 207 community level workers working with Jyothis Charitable Society, Kerala. The first phase of the program consisted of a five days TOT workshop on Psychosocial Care for Children in Difficult Circumstances to train the Master Trainers (MTs) from Jyothis Chartable Society at Department of Psychiatric Social Work, NIMHANS.[7] The current study is second phase of the program. The trained

MTs organized a 16 hours training spread across two days for the community level workers of Jyothis Charitable Society with the handholding support from NIMHANS. The major components of the two days training were NIMHANS model of LSE& SEP for Children in Difficult Circumstances.[8,9] The training program aimed at developing knowledge and skills among the community level workers to work with children in difficult circumstances. The evaluation of the same was conducted before and after the training to assess the impact of training in their in knowledge.

Participatory methodology such as activities, group discussion, brainstorming and role-plays were adopted in the training. The first day training focused on Life Skills Education i.e. Decision Making and Problem Solving; Creative and Critical Thinking; Effective Communication and Interpersonal Relationship; Empathy and Self-Awareness; Coping with Stress and Coping with Emotions and feedback. The second day focused on Student Enrichment Program that covered topics such as Study Habits; Exam Preparation; Healthy Life; Physical Health and Mental Health; and Time Management.

The MTs (CLVs) conducted the training programme in nine different field area of Jyothis Charitable Society across Kerala. Two training faculties from NIMHANS provided handholding support for the Master Trainers. The current study was a part of NIMHANS project and approved by institute project section with reference of GOKE/002/207/2017/00998.

Results

Assessment was carried out on the socio demographic profile and difference in the knowledge before and after the training among the community level workers to understand the effectiveness of the program.

Socio demographic profile

Table 1: Socio demographic details of CLWs - N=207

Domain		N	%
Religion	Hindu	25	12.1
	Christian	182	87.9
Education	SSLC	09	04.3
	Higher Secondary	45	22.7
	Under Graduate	96	46.4
	Post Graduate	57	27.5
Occupation	Teacher	133	64.3
	Social Worker	18	08.7
	Coordinator	56	27.1
Attended any training program	No	177	85.5
	Yes	30	14.5

Socio demographic profile of the participants assessed showed that all the participants who attended were female, and the mean age was 40.42 ± 12.64 (Mean ± SD) years. The mean years of experience working with children was 10.30 ± 8.97 and majority of the participants were from rural background. The distribution of religion among the participants (CLW's) showed that (88%) belonging to Christianity. A little lesser than half of the participants (46.4%) were under graduates (UG) and post graduates formed 27.5%. The results confirm good educational background among the community level volunteers where 3/4th of the population had educational back ground of more than 15 years. The occupational status of the participants showed that majority of them were teachers who had direct contact with children (64%), others were social workers and coordinator who had secondary contacts with children. Higher proportion of the participants (86%) had not attended training on the topic before.

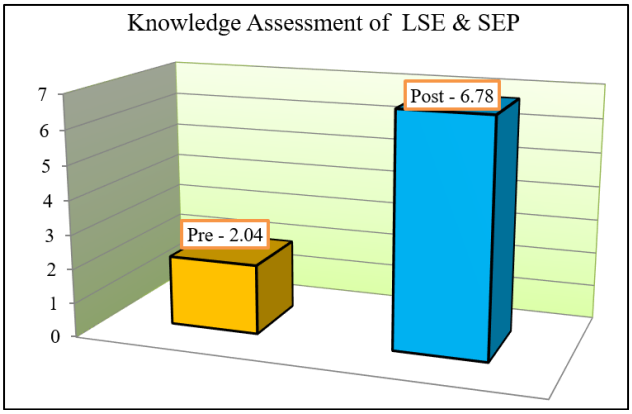

Fig. 1: Pre and Post-test assessment on LSE & SEP for CDCs among CLWs.

Fig. 1 gives the result of Pre and Posttest assessment among CLW's on Life Skills Education (LSE) and Student Enrichment Program (SEP). The results of the pre and post assessment conducted show that the knowledge has increased significantly among the participants. The mean knowledge among the participants after the training increased to 6.67±1.02 from 2.04±1.46. Paired sample t-test conducted identified that the increase in the knowledge after the training was highly significant (t = -45.93, df = 206, P=.000).

Table 2: Overall evaluation of workshop among CLWs

Variables	Very good	Good	Average	Poor
Structure & Organization	114 (55.1)	93 (44.9)	00 (0)	00 (0)
Usefulness	141 (68.1)	66 (31.9)	00 (0)	00 (0)
Practical Orientation	106 (51.2)	101 (48.8)	00 (0)	00 (0)
Overall program	90 (43.5)	117 (56.5)	00 (0)	00 (0)

A feedback was taken from the CLWs in four areas such as structure and organization, usefulness, practical orientation and overall impression about the program. The first area on "*structure and organization"* of the content of the program that included theoretical information of each session and methodology adopted for transfer of knowledge ranged from very good (55.1%) to good (44.9%). The "*usefulness*" of the program was assessed among the participants to understand the relevance of life skills education and student enrichment program in their regular work in addressing the issues of children. Positive result confirming the usefulness of the module was obtained that ranged between very good (68.1%) to good (31.9%). The training was activity based with specific activities on each topic followed by discussion after the activity to relate the topic with the real life situation towards making the concept clear and adaptable to real life situation. The results on the "*practical orientation"* focused on the skill achievement among the trainees to carry out the program with children showed a positive result where the respondents opined that the practicality of the program ranged between very good (43.5%) to good (56.5%).

The overall evaluation about the program among participants showed that the program was effective enough to answer the challenges faced by children as observed by the community level workers through life skills education as well as, study related issues among children through student enrichment program.

Discussion

Community level workers in NGOs and in Government sectors such a ASHA workers and ICDS workers play a major role in reaching out to children in communities. They need to be equipped with knowledge and skills to identify psychosocial issues and provide psychosocial first aid and interventions. This is very much essential to address the gap of mental health professionals to reach out to unreached populations. De professionalizing social work approaches to reach out to the unreached and underprivileged children and ensuring psychosocial interventions at curative, preventive and promotive levels are well documented by Kavitha and Sekar (2015). The current population of community level workers was working with underprivileged and highly vulnerable children in rural areas from backward communities were scarcity in provision of mental health services by professionals is reported. The trained community level workers will be able to provide psychosocial care and support for children as proved by the studies carried out in similar line previously. These community level workers were working as teachers in the schools and the community resource centers run by Jyothis Charitable Society who work with children on a regular basis as teachers as well as child supporters. The majority of the teachers being women may work out positively for the implementation of the program as reported by Stephan (2005) that emphasizes the significant role played by female teachers in dealing with children by being nurturing, sensitive and emotional.[5]

Professional competency is essential to address the psychosocial issues among children. The mental health gap in the area reported that there is a concern to reach out to the unreached children especially in rural communities. Kavitha and Sekar (2015) reported the method of de-professionalizing social work approach by building up capacity of the community level workers directly working with children to reach out to children in difficult circumstances and ensure the availability of psychosocial services that are curative, preventive and promotive in nature.[1] The current population trained was mostly from rural background working with children in rural area where the availability of mental health services is less. Moreover the majority of participants were teachers who have direct contact with children. Hence the occupation and the gender of the participants will work as positive factors to reach out the children in difficult circumstances.[5]

Teachers are the primary contact persons for children in school. Teachers will be able to identify the psychosocial problems in children as early as possible. For eg: a sudden drop in academics, which is an indicator of multiple problems faced by the child, can be identified by a trained teacher. The teacher can support the child to manage the problem at first level as well as addressing the issue of poor educational performance which is an offshoot of the multiple problems faced by the child. The NGO coordinators as well as psychiatric social workers can guide the teachers and community level workers by extending monitoring and support services in effectively carrying out the program.

The structure, organization, usefulness and practical orientating determine the effective ness of skill building program to enhance the confidence and ease to carry out the program with children. The activity-based approach is self-explanatory and proved to be the best methodology for training community level workers by many studies[8-11] was adopted in the current skill building program. The effectiveness of life skills programs to enhance positive mental health to uphold happiness,[12,13] emphasized on improving quality of life and emotional regulation,[6] deal effectively with demands and challenges of everyday life, positive actions to protect themselves and promote healthy and meaningful social relationship.[14] The effectiveness of enrichment programme is well explained through Meta analytical study[4] for three decades that identified a positive impact on students' academic achievement and socio-emotional development. The current module which is an amalgamation of life skills education and student enrichment program has dual effect on children i.e. promoting mental health and enhancing education performance among children which is essential as far as school going children are concerned to develop skills to address day to day stressors in life, ensuring positive mental health and performing well in academics by adopting good study habits preparing well for examinations there by ensuring academic achievements. The training not only enhances the academic performance the topics on maintaining good physical and mental health and daily scheduling will give children the perspective of holistic

living which is essential to maintain a well-balanced life. The feedback on the overall program confirms the understanding of the participants on the aspect that training reached to felt need of the participants while working with children. The contents were effective to address the felt needs of participants and the participatory methodology supported the effectiveness of the program in reaching out to CDCs. The results of the current study confirms the finding of the studies in similar lines carried out earlier by the researchers there by confirming the relevance of community resource building among community level workers to reach out to provide psychosocial care for children in difficult circumstance s

The most appropriate method of imparting knowledge on Life Skills & Student Enrichment program for children is through CLWs. Therefore, there essential to develop professional knowledge and skills among the CLWs to provide psychosocial care for CDCs.[1] The program will reach out to the children in need of support as the program is incorporated with the regular child care activities of Jyothis Charitable society thereby ensuring effective implementation of the program showing positive results comparable to that of previous works in the similar area,[1,3,11,13] there by confirming the effectiveness of two days module in enhancing knowledge and skill among the community level workers and supporting children in difficult circumstances through provision of psychosocial care.

Conclusion

Children especially in difficult circumstances face multiple problems in life which is psychosocial in nature. These multiple problems faced by the children are beyond their coping that will be manifested as behavioural and emotional problems. Children in difficult circumstances need care and support from responsible adults. Many a times they lack the support and care from the adults. This issue can be addressed by supporting children using available community resources i.e community level workers, working in Non-Governmental Organizations, ASHA workers, ICPS workers etc. The significance of training programs in social work is to assist the practice of psychiatric social work approach to people who need services. The social work practices should reach to the most needed population who are unreached due to socio economic, geographic and cultural factors. The trainings focusing on developing skills among the community level workers who directly support children and provide necessary services is the most effective way of reaching out to the unreached children and ensuring their holistic wellbeing there by breaking the cycle of psychosocial problems that hinders the growth and development of children in difficult circumstances.

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Conflict of Interest

None.

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Donald Woods Winnicott

D Ambuja

Post Graduate, Dept. of Psychiatry, SVS Medical College & Hospital, Mahbubnagar, Telangana, India

***Corresponding Author: D Ambuja**
Email: dachaambuja@gmail.com

Abstract
Donald Woods Winnicott was an English Paediatrician and a Psychoanalyst who contributed to the field of Object Relations Theory and Developmental Psychology.Winnicott described himself as a disturbed adolescent, reacting against his own self-restraining "goodness" trying to assuage the dark moods of his mother, which were the seeds of self-awareness and became the basis of his interest in working with troubled young people.[1] Winnicott's focus highlighted the very start of life as his psychoanalytic clinical findings illuminated the significance of the parental role in early object relations.[4] Thus, at the core of Winnicott's contributions are the Parent-Infant Relationship,[4] True Self And False Self and Play And Reality.[6]

Introduction
Donald Woods Winnicott was born on 7 April 1896 in Plymouth, Devon. He began pre-clinical studies at Jesus College, Cambridge in 1914 but, with the onset of World War I, his studies were interrupted when he was made a medical trainee at the temporary hospital in Cambridge. In 1917, he joined the Royal Navy as a medical officer on the destroyer HMS Lucifer. He studied in clinical medicine at St Bartholomew's Hospital Medical College in London where he learnt from his mentor the art of listening carefully when taking medical histories from patients, a skill which was foundation for his practice as a Psychoanalyst. He completed his medical studies in 1920.[1]

In 1923, he marriedAlice Buxton Winnicott (born Taylor). She had "severe psychological difficulties" and he arranged his own therapy for her to address the difficulties created due to the condition. He obtained a post as Physician at the Paddington Green Children's Hospital in London, where he worked as a Paediatrician and Child Psychoanalyst for 40 years. In 1923 he began a ten-year psychoanalysis with James Strachey, and in 1936a second analysis with Joan Riviere.[2]

During the Psychoanalytic movement between the Freudians and the Kleinians, Winnicott belonged to a "Middle Group" of the British Psychoanalytical Society (later called the "Independent Group"), along with Ronald Fairbairn, Michael Balint, Masud Khan, John Bowlby, Marion Milner, and Margaret Little.[2]

During the Second World War, he served as Consultant Psychiatrist to the evacuee program where he met and worked with Clare Britton, a psychiatric social worker who became his colleague in treating children displaced from their homes by wartime evacuation. He divorced his first wife in 1949 and married Clare Britton (1907–1984) in 1951.[3]

Three distinct phases of Winnicott's work
According to Winnicott, Psychoanalysis is a study of human nature as well as a therapeutic method. With concept of a sense of self as the center which evolves in the context of a facilitating environment i.e. the parent-infant relationship.[4.]

- Phase One 1935 – 1944 - **The environment-individual set-up**

'There's no such thing as an infant.' This was built on Freud's recognition of the transference as a manifestation of psychic transmission related to the infant's early psychic history. Because of the infant's dependency on the object his evolving sense of self inevitably incorporated the parents' emotional transmissions.[4]

- Phase Two 1945 – 1960 – **Transitional Phenomena**

It is the interpsychic-intrapsychic dynamics of the subject's journey towards the capacity to distinguish Me from Not-me i.e. the capacity to symbolize. The young infant's use of a 'transitional object', was the way in which the infant worked out how to separate and develop an autonomous sense of self though founded on the internalization of the mother's care.[4] Transitional objects like security blankets, special dolls or toys, and other sentimental items can help a child feel safe and secure. It begins the process of individuation, or differentiation of self from others.[1]

- Phase Three 1960 – 1971 – **The use of an Object**

The object had survived the infant's intense instinctual communications. It offers an alternative way of understanding the fate of human aggression without resorting to the notion of a death instinct.[4]

True Self, False Self
He believed that the false self was a mannerly, orderly, external self that enables a person to fit into society and the true self is capable of creativity. Play helps a person develop this true self by which clients gain awareness into their authentic emotional selves. He encouraged play through creative outlets, such as art, sports, or movement.

He believed the therapist could help a client reveal the uninhibited child within and rediscover a true sense of being.[11]

True Self is a sense of being alive and real in one's mind and body, having feelings that are spontaneous and unforced. This experience of aliveness is what allows people to be genuinely close to others, and to be creative.[11]

False Self is a defence, a kind of mask of behaviour that complies with others' expectations. He thought in health, a False Self was what allowed one to present a "polite and mannered attitude" in publicwhich develops through the process of introjection.[11]

The Theory of Parent-Infant Relationship

i. An examination is made of infancy; this is not the same as an examination of primitive mental mechanisms.(5)

ii. The main feature of infancy is dependence; this is discussed in terms of the holding environment.(5)He referred "holding" to the supportive environment that a therapist creates for a client. Like nurturing and caring behavior a mother engages in with her child results in a sense of trust and safety. He believed that this "holding environment" was critical to the therapeutic environment and could be created through the therapist's direct engagement with a client. The delinquent child - he believed that antisocial behaviors developed from a person having been deprived of a holding environment in childhood and from feelings of insecurity.[1]

iii. Any study of infancy must be divided into two parts:

a. Infant development facilitated by good-enough maternal care; A good-enough parent is well enough attuned and responsive to protect the baby with an illusion of omnipotence, or being all-powerful.[5]

b. Infant development distorted by maternal care that is not good enough.[5]

iv. The infant ego can be said to be weak, but in fact is strong because of the ego support of maternal care. Where maternal care fails the weakness of the infant ego becomes apparent.[5]

v. Processes in the mother (and in the father) bring about, in health, a special state in which the parent is orientated to the infant, and is thus in a position to meet the infant's dependence. There is a pathology of these processes.[5]

vi. Attention is drawn to the various ways in which these conditions inherent in what is here termed the holding environment can or cannot appear in the transference if at a later date the infant should come into analysis.[5]

Playing and Reality

Winnicott considered that playing was the key to emotional and psychological well-being. Two of the techniques whereby Winnicott used play in his work. [6]

1. Squiggle game - drawing a shape for the child to play with and extend (or vice versa) – a practice extended by his followers into that of using partial interpretations as a 'squiggle' for a patient to make use of.[10]
2. Spatula game – placing a spatula (tongue depressor) within the child's reach for him to play with. He considered that "if he is just an ordinary baby he will notice the attractive object and he will reach for it, then in the course of a little while he will discover what he wants to do with it". From the child's initial hesitation in making use of the spatula, he derived his idea of the necessary 'period of hesitation' in childhood (or analysis), which makes possible a true connection to the toy, interpretation or object presented for transference.[10]

Honors

- Leading member of the British Independent Group of the British Psychoanalytical Society.[2]
- President of the British Psychoanalytical Society twice (1956–1959 and 1965–1968).[4]

Publications

- Clinical Notes on Disorders of Childhood (London: Heinemann, 1931).[7]
- Getting To Know Your Baby (London: Heinemann, 1945).[7]
- The Child and the Family (London: Tavistock, 1957).[7]
- The Child and the Outside World (London: Tavistock, 1957).[7]
- Collected Papers: Through Paediatrics to Psychoanalysis (London: Tavistock, 1958).[7]
- The Child the Family and the Outside World (London: Pelican Books, 1964).[7]
- The Family and Individual Development (London: Tavistock, 1965).[7]
- Maturational Processes and the Facilitating Environment: Studies in the Theory of Emotional Development (London: Hogarth Press, 1965).[7]
- Playing and Reality (London: Tavistock, 1971).[7]
- Therapeutic Consultation in Child Psychiatry (London: Hogarth Press, 1971).[7]
- The Piggle: An Account of the Psychoanalytic Treatment of a Little Girl (London: Hogarth Press, 1971) ISBN 0-140-1466-79.[7]

Posthumous

- Deprivation and Delinquency (London: Tavistock, 1984).[7]
- Human Nature (Winnicott Trust, 1988) notebooks.[7]
- The Collected Works of D. W. Winnicott (Oxford University Press, 2016).[7]

His theoretical writings emphasised empathy, imagination, and, in the words of philosopher Martha Nussbaum, who has been a proponent of his work, "the highly particular transactions that constitute love between two imperfect people.".[7]

Other Achievements

- He gave over sixty talks on the radio between 1943 and 1966. His first series of talks in 1943 was titled "Happy Children".[8]
- Published over 200 papers with his work been cited in 15,642 articles.[4]
- Squiggle Foundation established by Clare after his death.[9]

He died on 25 January 1971, following the last of a series of heart attacks and was cremated in London. Clare Winnicott oversaw the posthumous publication of several of his works.[9]

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Dr. Robert Brockelesby Davis

Sphurti Pusukuri

Postgraduate, Dept. of Psychiatry, Prathima Institute of Medical Sciences, Karimnagar, Telangana, India

***Corresponding Author: Sphurti Pusukuri**
Email: sphurti.psi@gmail.com

Abstract
Dr. Robert B. Davis was one of the eminent figures shaping the field of Psychiatry in India. He was one of the founding member of the Indian Psychiatric Society and served as the president. He drafted the first proposal of the Mental Health Act of India along with other eminent psychiatrists in 1949. He served as the Superintendent and developed the European Mental Hospital (now known as the Central Institute of Psychiatry) in Ranchi into a leading centre for Psychiatry in India. He started the Kishore Nursing Home (now known as the Davis Institute of Neuropsychiatry) along with his wife. He was a passionate postgraduate teacher and a pioneer for introduction of several significant treatment procedures in India. He was awarded the Padma Shree in 1966 for his contributions to the field.

Introduction
Dr. Robert Brockelesby Davis comes from a family of doctors, academicians and missionaries in England. He is regarded as a pioneer in the field of Psychiatry. He made significant contributions in various aspects to Psychiatry in India. He held prominent positions in various institutions and received many awards in his professional career.[1]

Early Life
He was born on 27th December 1911 in Amritsar, Punjab to Dr. George Brockelesby Davis and Lucy Gertrude Howard. He was the eldest of eight siblings. His father was an English doctor stationed in India as the chief surgeon in a missionary hospital in Amritsar and his mother was a missionary school teacher. His family had to relocate, when he was eight years old from Amritsar to Ely, a small village near Cambridge due to the growing Anti British movement in India.[2]

Education
He attended Stowe, a public school. He completed his B.A. in 1932 with anatomy, physiology and psychology (pre-medical training) from Cambridge and clinical training in a London hospital. In 1936, he got his MBBS degree from Cambridge with medals in Medicine and Surgery. He obtained his DPM degree by working in the Maudsley Hospital and Institute of Neurology, London whilst taking regular breaks from his work in Ranchi.[2]

Personal Life
He was married to Aleyamma Eapen in 1955, a Malayali Nurse who was the matron of the European Hospital. She was the first Indian nurse to be sent to the Maudsley Hospital for training in psychiatric nursing. He was earlier married to Ethel Amelia Tuffen and Eve Davis.[1]

He chose to become citizen of India in 1948 and was a great admirer of Gandhi. He passed away on the 8th of October 1980 at the age of 69 with a fatal heart attack in Virginia when he was visiting his sister.[2]

Professional Life
In 1937, he joined the Indian Medical Service, was posted to Rawalpindi and because of his interest in Psychiatry he was appointed as a Psychiatric Specialist to the Northern Command from 1938-1942. He worked as a medical officer in-charge of a parachute brigade during the second world war in the British Indian Army.[2]

In 1946, Dr Robert B Davis was appointed as the Medical Superintendent to European Mental Hospital in Ranchi, now known as the Central Institute of Psychiatry. The hospital changed its name twice during his tenure: As Inter-provincial hospital in 1948 and subsequently to Hospital for Mental Diseases in 1952. During his time, he made the hospital into a leading centre for Psychiatry in India.[3]

In 1955, he resigned from European Mental Hospital. He started the Kishore Nursing Home (now known as the Davis Institute of Neuropsychiatry) named after his friend Maharaj Kumar Raj Kishore Shahdeo along with his wife, which eventually became one of the reputed private psychiatric hospital in the country.[2]

Significant Contributions
In 1946, Dr. Nagendra Nath De consulted Major R. B. Davis and Brigadier Thomas Arthur Munro, Advisor in Psychiatry to the Indian Army and decided to revive the Indian division of the Royal Medico Psychological Association. Due to their efforts, the Indian Psychiatric Society was inaugurated in 1947. He first became it's secretary and then was elected as the President in 1954.[4] He regularly used to attend many national and international conferences and was a member of many international bodies.

The first draft of the Bill that subsequently became the Mental Health Act of India (1987) was written at C.I.P, Ranchi in 1949 by Dr R.B. Davis, then Medical Superintendent of CIP, S.A. Hasib, from Indian Mental Hospital, Ranchi and J Roy, from Mental Hospital, Nagpur.

Dr Davis was also a member of the Union Public Service Commission for many years.[5]

Among the many significant contributions to psychiatry in India, he was the first one to use EEG and performed the first neurosurgery in Ranchi, along with army surgeons from the Namkom Military Hospital. He also started doing the first modified Electroconvulsive Therapy and Insulin Coma treatment in India. Whenever new drugs were made available in India, he used to conduct drug trails to know how they work in our population. A pathology lab and radiology department were started at European Mental Hospital, Ranchi during his tenure.[2]

He modernized the hospital trying to make it into a therapeutic community. He was passionate about teaching and taught his post-graduate students in Psychiatry. He trained many of the leading psychiatrists in India and also arranged a visit for some of the eminent psychiatrists in the world to visit Ranchi.[2]

Areas of Interest

His areas of research interests were the epidemiology of psychiatric disorders like schizophrenia, major depression, catatonia, and cannabis psychosis.[2]

Dr. Davis was also interested in other areas apart from psychiatry. He founded the Rotary club of Ranchi and became the first president. He was also a member of the Ranchi Chapter of the Masonic Lodge. He used to visit Kolkata every week to see patients and took part in the foundation of Antara and Asha Niketan. He was very interested in gardening, farming, English literature, Western Classical Music and almost anything else that he came across. He could speak various languages like English, French, Hindi, Bengali and Urdu.[1]

He was a member of Rose Society and had a keen interest in agriculture and experimented with growing different varieties of rice.[1]

Awards

He was given the Distinguished Service Order (D.S.O) by Queen Elizabeth for leading an evacuation of wounded soldiers in Nagaland.[1]

He was awarded the Padma Shree by President Radhakrishnan in 1966 for his contribution to the field of psychiatry in India.[1]

Conclusion

Throughout his career, Dr. Robert B. Davis paved the way for several changes in the practice of Psychiatry. His introduction of various treatment methods changed the department extensively during his tenure in Central Institute of Psychiatry, Ranchi. He showed great interest in teaching his postgraduates and was always an inspiration for them. He was one among the founders of the Indian Psychiatric Association and served as it's president. He was also an important member of the committee which drafted the bill for the Mental Health Act in 1949. He was honoured with the prestigious Padma Shree award in 1966 for his significant contributions to the field of Psychiatry.

Even today, his enormous contributions and zeal to advance the field serves to inspire many young Psychiatrists throughout the world.

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Atypical presentation of CVST as bradycardia and psychosis

Neeta Sagar Bobba[1*], Sumati Kumatgi[2], Chytanya Deepak Ponangi[3]

[1]MBBS, [2]DPM, [3]Senior Consultant, [1]Sri Ramachandra Medical College and Research Institute, Chennai, Tamil Nadu, [2,3]ASHA Hospital, Hyderabad, Telangana, India

***Corresponding Author: Neeta Sagar Bobba**
Email: neetasagar11@gmail.com

Abstract
Cerebral venous sinus thrombosis (CVST) causing cerebral infarction is noted in the younger population in India and other countries, with a multitude of varying features at presentation. Typical features from mass effect due to acute and subacute complications of CVST, characteristically present with signs of neurological deficits due to raised intracranial pressure. In rare instances, patients afflicted with CVST present with isolated neuropsychiatric symptoms. We delve into this case of a middle aged woman with subacute complications whose neurological features were masked, with the sole findings of behavioral disturbance and bradycardia, who had no known previous documented psychiatric illness.

Keywords: Atypical, Cerebral, Venous, Thrombosis, Bradycardia.

Introduction
Cerebral venous sinus thrombosis (CVST) is an atypical cause of cerebral infarction, as strokes tend to stem frequently from arterial diseases. CVST tends to be more challenging to diagnose due it's widely variable clinical presentation. The incidence of CVST is thought to be higher in India than other countries, but estimated incidence is still relatively unknown.[1,2] Predisposing factors for CVST include hypercoaguable states, which may be either hereditary or acquired, such as genetic thrombophilias, systemic inflammatory diseases, puerperium, or infection in the CNS.[3] The mean age of afflicted patients was found to be 31.3 years,[4] with typical presentation of features of raised intracranial pressure (ICP), including headache, seizures, motor weakness and visual disturbances.[5] Documentation of behavioral changes at presentation have also been historically reported, with features of delirium, anxiety, and depression, although rarer when compared to neurologic deficits.[6] This middle aged patient's lack of classic features, presenting only with behavioral disturbances (in the absence of known psychiatric illness) and bradycardia with mass effect from edema and subacute hemorrhagic infarct makes this case unique.

Case Report
We report a case of a 55 year old woman hailing from a rural setting in South India. She was brought by her husband and son to the psychiatry outpatient department, with complaints of decreased sleep, fearfulness, suspiciousness, disorganized speech, agitation, increased aggression, along with the inability to recognize her relatives for the past 3 days. Patient had no known past history of trauma, loss of consciousness, headache, visual disturbances, depression, mania, co-morbid psychiatric illness, or suicidality.

Patient has a significant past history of consuming alcohol, spanning over the last 20 years. Patient initially consumed toddy fortnightly, which gradually progressed to a weekly basis in the initial decade. Over the past ten years, patient regularly consumed 200 - 400 ml of toddy on a daily basis, with brief interspersed periods of reluctant abstinence for 4 to 5 days. Patient experienced no symptoms of withdrawal, seizures, pain abdomen, jaundice or hematemesis during aforementioned timeframes. Patient reportedly decreased alcohol consumption abruptly over the past 2 weeks, her last alleged drink was 3 days ago, after which she started to experience present symptoms for which she was brought to the hospital. Patient has been regularly chewing tobacco with betel nut for the past 30 years, no known history of intravenous drug abuse. Patient had no past history of hypertension, diabetes, epilepsy, thyroid, autoimmune disease, hematologic-oncologic disease, previous surgeries or invasive procedures. Patient's brother and husband both have a significant history with alcohol dependence syndrome, her brother also has a history of epilepsy.

Vitals were as follows; pulse: 40 beats/min, BP: 100/70 mm Hg, respiratory rate: 17 breaths/min, temperature: 97.8 °F SpO2: 87%. On general examination, patient appeared to be of thin build, unkempt, mildly tremulous and restless while constantly gesturing in the air. Increased psychomotor activity was observed. Mental status examination: Patient had altered consciousness, was disoriented to time and place, and oriented to person only, with decreased attention and concentration and recent memory impairment. Speech was spontaneous, irrelevant and incoherent. Thought form was impaired, with presence of paranoia, with an insight of grade 1/6.

Systemic examination: CNS: 1. Cranial Nerves: Pupils were equal, round reactive to light, with intact ocular movement, no observed deviation or nystagmus. Face was symmetric at rest with intact sensation throughout. No dysarthria, full strength in sternocleidomastoid and trapezius bilaterally. 2. Motor: Muscle bulk and tone was normal with a strength of 5/5 in all four extremities, both proximally and distally, no pronator drift observed. 2 +, symmetric reflex

observed bilaterally in the biceps, triceps, brachioradialis, patella and achilles. Plantar response was flexor bilaterally. 3. Sensory: Sensation was intact to touch, pinprick, vibration and proprioception throughout. No evidence of Romberg sign was observed. 4. Coordination: Normal finger to nose and heel to shin, no observed truncal ataxia, tremor or dysmetria observed. 5. Gait: Narrow based with normal stride length with arm swing bilaterally, She was able to walk on heels and toes in tandem. Cardiovascular System: S1, S2 audible with no extra heart sounds, no carotid bruit. Respiratory System: Normal vesicular breath sounds heard. Abdomen: Soft, Bowel sounds present.

A differential diagnosis of Alcohol Dependence syndrome with withdrawal delirium tremens and organic psychosis was made in light of the above findings. Patient was started on Inj.Lorazepam 2mg IM immediately. Serum electrolytes, complete blood count and thyroid profile were within reference lab range, random blood glucose: 129 mg/dl. Patient was then initiated on Inj. Thiamine 150mg OD IM, Tab. Thiamine 100mg BD, Tab. Pantoprazole 40mg OD, T. Risperidone 1mg OD. After symptomatic improvement, patient underwent ECG, and 2D ECHO imaging which revealed no abnormality, patient was then scheduled for an MRI without contrast.

MRI revealed hemorrhagic venous infarct in the subacute stage in the left posterior parieto-temporal lobe with mass effect in the form of effacement of ipsilateral ventricle, basal cisterns and midline shift of 4mm to the right. There was diffuse cerebral edema involving the left supratentorial cerebral parenchyma. MR venography revealed complete absence of blood flow in left transverse and sigmoid sinuses with patchy flow in straight sinus along with the presence of dural venous thrombosis. Post MRI review, the diagnosis of CVST was made and patient was immediately shifted to an ICU at a general hospital, to seek appropriate treatment to prevent recurrence of hemorrhage and potential embolism.

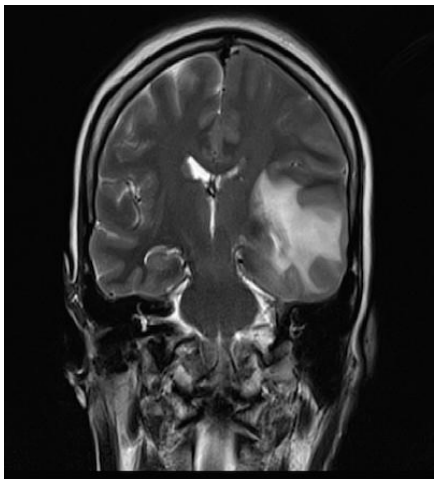

Fig. 1: MRI demonstrating mass effect noted in form of mild effacement of ipsilateral ventricle and basal cisterns with midline shift of 4mm to the right. There is mild left uncal herniation

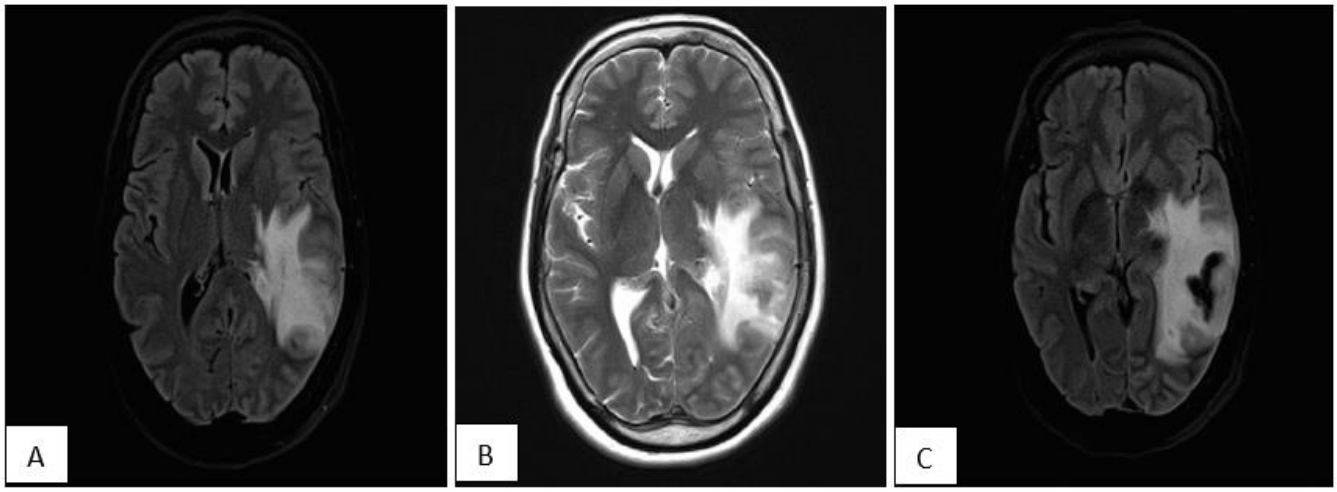

Fig. 2: Altered signal intensity with marked adjacent edema is noted in the left posterior parieto-temporal lobe. It is hypodense on T2W images, hyperintense on T1W images and shows blooming on GRE images. Focal areas of restriction noted on DW image

Discussion

The anatomical structure of venous outflow in the brain is encompassed by sinuses (spaces between meningeal dural membranes and periosteum) and veins, only the latter are regarded as true blood vessels, which are further subdivided into superficial and deep veins. The major sinuses coalesced with cortical veins to form an integrated venous drainage system include the superior (responsible for CSF absorption via arachnoid granules) and inferior sagittal sinus which drain the superficial surfaces of both cerebral hemispheres. The straight sinus, cavernous sinus, and lateral (transverse and sigmoid) sinus, which ultimately drain into the respective left and right internal jugular veins; forming the deep system.

Consequences of venous obstruction include decreased cerebrospinal fluid absorption, decreased capillary perfusion, venous and capillary rupture due to increased pressure, or blood brain barrier disruption, resulting in vasogenic, cytotoxic edema and ischemia which may initially be compensated by cerebral vein dilation via collaterals temporarily. When the aforementioned effects are not addressed within timeframe, features of raised intracranial pressure, characteristically present as headache, focal deficits (weakness of limbs, aphasia) seizures, altered consciousness, psychosis or coma.[7]

Complications include venous hemorrhagic infarct, transtentorial herniation[8] and sepsis. The patient's presentation of bradycardia (change in pulse, respiratory rate, and blood pressure are late signs of raised ICP usually associated to ischemia), in the absence of other typical signs of raised ICP and psychosis in this case, indicates the importance of establishing thorough assessment and examination early on.

Conclusion

CVST with progression to subacute venous hemorrhagic infarct is associated with a poor prognosis. Accurate neuroimaging, such as MR venography along with methodical therapeutic management with anticoagulation[9] with early diagnosis reduces the mortality and morbidity.[10] CVST has a favorable outcome if diagnosed and treated early, albeit its complexity of varying presenting signs and symptoms. This highlights the importance for clinicians to be familiar with different presentations of CVST, including isolated ICP with no focal neurological deficits, seizures or headache[11] as seen in this clinical scenario.

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Conflict of Interest

Nil.

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Young onset fronto-temporal dementia – A case report

Parijat Roy[1], Prashant Chaudhari[2], Heena Merchant-Pandit[3], Nilesh Shah[4] Sagar Karia[5], Avinash De Sousa[6*]

[1,2]Resident Doctor, [3]Associate Professor, [4]Professor and Head, [5]Assistant Professor, [6]Research Associate, Dept. of Psychiatry, Lokmanya Tilak Municipal Medical College, Mumbai, Maharashtra, India

***Corresponding Author: Avinash De Sousa**
Email: avinashdes888@gmail.com

Abstract
Dementia as a diagnosis at any age is a clinical challenge in psychiatric practice. In recent research reports there have been many case series and anecdotal case reports of dementia with an onset below the age of 45 years. In this case report, we present the case of a 23 years old female that presented with psychotic features initially and on clinical examination and imaging was diagnosed as young onset frontotemporal dementia.

Keywords: Dementia, Young onset dementia, Fronto-temporal dementia.

Introduction
The diagnosis of dementia at any age is a clinical challenge and more so when it is seen in younger people below the age of 45 years. Over the recent years there has huge clinical interest with more case reports of young onset dementias emerging where the presenting symptoms are like psychosis and mental illness rather than cognitive dysfunction and memory loss.[1] Most cases of frontotemporal dementia do not present with psychotic features though there are reports of young patients who have presented with schizophrenia like features but may actually have a young onset dementia process that is the cause.[2] The concept of dementia preacox for schizophrenia, the neuropsychological dysfunction described in various studies and clinical features all point towards a frontotemporal theory for the psychopathology in schizophrenia.[3] Recent studies in the clinical features and genetics of frontotemporal dementia have renewed interest in the psychological symptoms that may be seen in the disorder.[4]We present herewith the case of a 23 year old female that presented with psychotic features and on examination and revealed itself to be a young onset frontotemporal dementia.

Case Report
A 23 years old, Hindi speaking right handed Muslim married female, educated till 10th standard and homemaker was brought to the psychiatry outpatient department by her mother with chief complaints of claiming that her house and belongings are infested by spiders and cockroaches, decreased self-care, lack of empathy, passing urine and stool in clothes all since the past 8 months. These symptoms were insidious in onset, continuous and progressive in nature since they started.

The patient was apparently alright around a year and 8months back when her in-laws noticed a change in her behaviour following which her mother was informed. She would be seen reluctant to go to the washroom and not take a bath for days at a stretch. She however would be seen washing her hands repetitively often emptying the entire water tank in the process. On being confronted about the same, she started claiming that her house is infested with spiders and cockroaches and hence her behaviour was justified. She would demand thorough cleaning of the washroom and change of soap after which she agreed to take a bath. On being asked where the insects were seen, she would point to the ceiling, floor, racks, cupboards and even on her clothes and try to remove them with her hand. She would further be seen cleaning her children's clothes with a brush repetitively to remove the insects.Gradually the symptoms worsened, she would not do her household chores remain engrossed in the repetitive acts following which she was forced to leave for her maternal house.

In her maternal house, the symptoms persisted. The mother further noticed that there would be marked increase in her appetite, specially craving for carbohydrates and sweets. She would demand for pizza, burgers, colas, eat 6-8 eggs at one time which was not usual for her. On multiple occasions she would be seen going out of the house to nearby eateries, would ask random strangers to feed her and on occasions take food served in their plate and eat it at one go stating she was hungry. Due to her increased appetite she gained around 25-30kg in 2-3 months.

Around a year back there was further deterioration of her symptoms, she would be seen passing socially inappropriate comments and jokes. On occasions she would comment on the size of her grandmother's breasts in a room full of people and try to touch them. She would be seen asking the elderly in her house to go and beg in front of a mosque as they were a burden to the family. On one occasion, during the funeral of her uncle, she started laughing and claiming what good had he done in life to deserve such a grand funeral. She would often board autorickshaws, get down without paying claiming she did not need to pay anyone. In between, the patient would be seen having crying spells, wherein she would remember her kids and curse her in laws openly praying a speedy death to them for separating her from her kids. The patient would further be seen having spells of laughter interspersed with laughter for no apparent reason.

Around 8months back the patient started passing urine in clothes. On being confronted by her mother she would

state its not urine but water and try to make her mother smell the same. About 6months ago, she started passing stool in clothes, she would go out with soiled clothes and on being confronted pass more stools and try to smear it on the floor.She stopped doing even the basic household chores, started requiring assistance for self-care. She would further have difficulty in mentioning the date/day/time but would be able to tell whether it was day or night. She would often repeat a question again and again although she would have no difficulty in facial recognition or navigation. There was associated change in vocal tone wherein she would start speaking in a high pitch child like voice. There would not be any stuttering/stammering or having difficulty naming things however.

There was no associated abnormal movements or history of seizures. There was no history of preceding febrile illness or head trauma. There was no previous history suggestive of psychosis, depression, mania, OCD, substance use and other psychiatric disorder.

The worsening symptoms led them to try faith healing with no avail following which patient was taken to a private psychiatrist 8months after the onset of symptoms. She was diagnosed as suffering from Delusional Parasitosis andwas started on Trifluperazine 10mg per day in divided doses which was increased to 20mg/day with minimal benefit. She was taken to another psychiatrist and was started on Fluvoxamine 100mg, Trifluoperazine 10mg, Clonazepam 0.5mg, Divalproate Sodium 250mg (all in divided doses through the day). The treatment continued for 6months with good compliance but minimal benefit and gradual worsening of her behaviour following which routine blood investigations were carried out along with magnetic resonance imaging (MRI) of the brain.

Her thyroid function was abnormal and she was given thyroxine supplementation was done (25ug/day before breakfast). Her MRI revealed diffuse bilateral frontal temporal atrophy seen in the form of prominence of subarachnoid spaces, sylvian fissure and ventricles, following which a diagnosis of young onset Frontotemporal Dementia was made and the patient referred to our hospital for further treatment.

The patient was the 4th among 5 siblings. There was a history suggestive of neonatal deaths in 2 of her elder siblings due to low birth weight and death at 7months of age of another sibling because of seizure disorder. History suggestive of psychiatric illness was present in her maternal grand uncle and maternal uncle in form of irrelevant talk, wandering away behaviour, although further details were not available.

The patient was a full-term vaginal delivery, cried immediately after birth, birth weight was 3kg as per the mother and there was no history suggestive of any problems after the birth of the patient and in her developmental years. Age appropriate developmental milestones were achieved. She had studied till 10th standard in a Hindi medium school, was average in academics and had to stop academics due to an early marriage. There was history suggestive of conduct problems, school refusal, ADHD and enuresis. Currently she had no complaints suggestive of any sequel of the above problems.She was homemaker, would engage in a range of household activities and help husband with the finances. She was married at 16years of age and had a 4 years old son. The husband remarried another woman 2 yearago as per Islam without divorcing her and predominantly favoured the second wife. The patient achieved menarche achieved at 13years of age, and her monthly cycles were regular. Her premorbid personality was socially well adjusted

On physical examination her pulse, blood pressure and respiratory rate were normal and there were no medical signs evident. Even her systemic examination was normal. There were no tremors, rigidity or any other abnormal movements noted.

On mental status examination, the patient was seen dressed in hospital clothes, head covered with a scarf and was obese. The patient had to be requested multiple times to sit on the stool, would get up multiple times in between. She would interrupt her mother during the interview, get anxious if mother was asked to leave her side to sign documents insisting on the motherbeing with her always. She would play music in her mother's phone and laugh during the interview. She was conscious, uncooperative, communicative and rapport could not be established. Her eye to eye contact was initiated but not maintained. Her attention was arousable but ill sustained, passive attention decreased and mood was conveyed as happy. Her affect was observed to be silly, labile, reactive and inappropriate to thought and surroundings.

Her speech showed increased latency, high pitch and was childlike. She had thought derailment, delusions of infestation, tactile hallucinations related to the same and visual hallucinations of spiders and cockroaches. No auditory hallucinations were present. No other forms of delusions were mentioned. She did not cooperate for further mental status assessment and hence could not be assessed further. The patient did not cooperate for informal memory testing on MSE. Later she was unable to answer recall and retention on bedside testing after admission.Her judgement socially was impaired and insight was grade1. On bedside assessment her Mini Mental Status Examination (MMSE) score was 13/30 and her Frontal Assessment Battery (FAB) scores was 6/18. She was diagnosed as Major Frontotemporal Neurocognitive Disorder; Behavioural Variant – young onset as per DSM-5 criteria. She was started on low dose Risperidone 1mg twice a day, Trihexyphenydyl 2mg once a day, Piracetam 800mg twice a day and was started on Citicholine 500mg per day by the neurologist. She did not follow up and we have no further details on the progress of the case. Her MRI Imaging showed bilateral atrophy in the frontal and temporal regions which was not in keeping with age as per the report sent but her MRI plates were awaited.As we are not in contact with case her imaging pictures are not available for this case report. She had signed the consent forms for case report publication and was to return with her MRI plates for the photograph but did not follow up.

Discussion

The observed relationship between schizophrenia and frontotemporal dementia may be due to shared localisation of brain pathology, i.e. the occurrence of a pathological process in the same brain regions of young adults leads to a similar clinical phenotype.[5] There is also evidence for the overlap of clinical, neuropsychological and neuroimaging findings in schizophrenia and frontotemporal dementia.[6] This is coupled with deficits in social cognition, theory of mind, empathy and affect recognition have been identified in both disorders.[7] Our case presented more with delusions of infestation and some obsessive compulsive symptoms. It is important to note that frontal hypoperfusion on single photon emission tomography/positron emission tomography is one of the imaging criteria for the diagnosis of frontotemporal dementia, and is also one of commonest functional imaging findings in the schizophrenia (chronic and first-episode).[8] It has been reported in some patients diagnosed with schizophrenia, that they may have an insidious, slowly evolving frontotemporal dementia associated with motor neuron diseaselike pathology beginning in the hippocampus and then moving on the cerebral cortex.[9] Though rare, clinicians must be aware of young onset frontotemporal dementia and its diagnosis though rare may be seen in clinical practice.

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Conflict of Interest

None.

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Covid-19 pandemic implications from an addiction perspective

Naveen Kumar Dhagudu[1*], E. Omesh Kumar[2]

Dept. of Psychiatry, ESIC Medical College, Telangana, India

***Corresponding Author: Naveen Kumar Dhagudu**
Email: naveendhagudu@gmail.com

Sir,

People of the world are grappling with the pandemic coronavirus disease (COVID-19). Currently, as on May 10th, 2020, 05:30 GMT 3,884,434 people have been infected and 272,859 have died across the globe.[2] Given this public health emergency, many countries implemented measures like lockdown, social distancing, social isolation and home quarantine etc as means of containing the disease and decreasing its fatality. These measures have led to huge financial losses to the public and governments. It has left us in a state where it is difficult to address other medical conditions of public health, most importantly those arising from the process containment measures. Psychological health issues like anxiety, depression, stress reactions are inevitable consequences of such measures, especially among the vulnerable population.[2] Along with these, people with substance use disorders face unique challenges like poor COVID-19 infection recovery and substance withdrawals. This unique period also has the potential for new addictive behaviours like video gaming and digital addictions.

People who smoke and vape tobacco may have diseases like chronic obstructive pulmonary disease (COPD) which can adversely affect recovery from COVID-19 infection. There is emerging evidence suggests that exposure to aerosols from E-cigarettes harms the cells of the lung, enhanced tissue damage and inflammation diminish the ability to respond to infections like influenza-like viruses. Frequent touching of the mouth while smoking increases the risk of infection. The Centre for Evidence-Based Medicine at the University of Oxford reported that smoking seemed to be a factor associated with poor survival in Italy, where 24% of people smoke. Ex-smokers with rapid healing of lung health after quitting smoking have lower chances of COVID-19 morbidity and mortality.[6] However, a preliminary meta-analysis on Chinese patients contradicts the association between active smoking and an enhanced risk of progressing towards severe disease in COVID-19 infection.[5] Hence there is a need for biologically plausible studies to correlate the observation of higher mortality and increased infective rates in male smokers.

People with alcohol dependency may have severe withdrawals due to restricted measures taken by governments, though it's time-limited. However, people can procure through the black market with higher prices, whereas some with homemade brewing. As such consumptions reports surfaced in media. Majority of them may quit because of less conducive environment and less peer influence resulted from social distancing. However, prospective studies are required to know alcohol use trajectory in public once restricted public health measures are lifted off.

The prospect of self-quarantine and other public health measures may also disrupt harm reduction activities like access to syringe services, medications, and other support needed by people with Opioid Use Disorder. On the other side, people with opioid dependence and people who inject drugs face novel challenges of missing their daily medicine. people on agonist treatment face crippling withdrawals due to lockdown.[1] Whereas the availability of illicit opioids and drugs in society exists but in hiked prices of about 3 to 5 times than usual. People with opioid use disorder or who are on higher doses of opioids for medical reasons may face an additional risk of respiratory illness.[4] Since opioids act in the brainstem to suppress the respiratory drive, their use not only puts the user at risk of life-threatening or fatal overdose, it may also cause a harmful decrease of oxygen in the blood (hypoxemia).[7] These multiple or persistent states of hypoxemia can be damaging to the brain. However, the chronic respiratory disease is already known risk factor for increase overdose among people taking opioids and may diminish their lung capacity from COVID-19 Infection.

Another important area to look at is behavioural addictions like video gaming, internet or digital addictive behaviours. It takes an overwhelming toll on this generation because the pleasure sources are limited to indoor activities, people vest a substantial time while watching television and their electronic gadgets. In case of extension of lockdown, the binge-watching of television and excessive play with electronic gadgets are likely to persist which may later result in behavioural addictions. Since WHO also recommends the active video game use as a coping method to stay at home policy there are higher chances for the young generation to develop behavioural addictions, especially in developing countries.

Overall, other risks of people with substance use disorders include less access to health care, homelessness, and a greater likelihood for incarceration. Prevailing homelessness or incarceration can expose people to such environments where they are in close contact with others who might also be at higher risk for infections. Limited access to health care puts people with addiction at greater risk for many illnesses, if health infrastructure of any country is not pushed to their full capacity, people with addictive illnesses, who are already stigmatized and underserved by the healthcare system will experience even greater barriers to get treatment for COVID-19.Innovative modes of service delivery to the needy warranted at this

testing time like mobile medical treatment services, mobile testing labs etc.

Conflict of Interest

None.

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