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Presidential address

YOUR MENTAL HEALTH - YOUR RESPONSIBILITY

Dr Thomas John[1]*

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Respected President Dr Harish MT, distinguished Chief Guest Dr Abraham Varghese, President I M A Kerala State Branch, esteemed past leaders of the society, my bellowed teachers, senior members, fellow members, members of the press, ladies, and gentlemen,

I am honoured and delighted to be here and humbled by the faith you all have reposed in me and electing unanimously and directly without being a vice president, as the 36th President of IPS Kerala state branch. Thirty-six years ago, the first conference of our prestigious state branch was held in this historical city of Kochi in a hall of Lourde Hospital with 28 psychiatrists which is much more than today's gathering in person. Professor James T Antony and Dr S.D Singh were the first president and secretary. Much water has flowed under the bridge, and the big fat conferences have shrunk in size all over the world due to the unexpected pandemic. We also adopted the 'New Normal' way to see that every constitutional responsibility of our association is completed in time. The outgoing team, under the leadership of Prof. Harish, left no stone unturned to make every constitutional activity are done in time. COVID -19 accelerated the digital revolution and hundreds of our members, including key office bearers, are viewing this ceremony from their office missing our social gathering, which is inevitable for our wellbeing.

COVID-19 AND MENTAL HEALTH

The virus SARS-CoV-2 which started its journey from China in November 2019 affected people all over the world and being a pandemic, we have to suffer the impact and lead a careful living for a few more months. Even though it is a physical illness, the social, economic and mental health issues related to this pandemic is unimaginable and it will last for a few more years. Many of our patients with mental illness who were stable with or without medication showed signs of relapse. New cases of mental illness were reported among those who are genetically vulnerable in different forms like phobia, obsession, depression, mania and psychosis. More number of suicides in various age groups are reported.

Every day in print and social media, we witness mental health issues related to COVID -19. Let me quote a few of such reports. The Bollywood celebrities like Amitabh Bachan, Mohena, Shrenu Parikh and Additi Gupta, who were affected with the virus, had different reactions to this illness. "A pariah syndrome driving COVID patients into depression and loneliness- Amitabh." "I felt like an alien whom nobody wanted to speak with - Mohina Kumari. "The stigma attached with the disease is such a big problem that people are scared of admitting that they are COVID positive – Shrenu Parikh", "It does take a toll on your mental health – Additi Gupta". "Uncertainty, loss of income, job-related pressure and COVID related fears took a toll on mental health – TOI". All these show the public awareness and the role of psychiatrists and other mental health professionals in times of stress from any source.

NATIONAL CRIME RECORDS BUREAU REPORTS-2019

The report of NCRB 2019 on suicide in Kerala should be an eye-opener for our policymakers. Kerala recorded the fifth highest suicide rate of 24.3 per lakh (8566 persons) well above all India rate of 10.2. Our state does

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not have a proper suicide prevention policy. Bio-psycho-social factors have to be adequately addressed. Most of the time, the public go after the causative issues, which is more sensational than scientific. A psychological autopsy than a police enquiry is the need of the hour in such situations. Except in impulsive acts, the role of depression has to be emphasized. The role of serotonin, a neurotransmitter which elevates mood and creates a feeling of wellbeing should not be ignored. The fundamental thing is to develop resilience, i.e., the ability to withstand adversities of life in adolescents and adults. Whatever may be the cause, spending time and listening patiently to persons with suicidal intend has a definite role. In Kerala, we have a few such centres run by NGOs under the guidance of our member Psychiatrists. I hope more such centres will come in the near future wherever it is lacking.

WORLD HAPPINESS REPORT 2020

India's position in the World Happiness Report (March) 2020 is 144th, worse than our neighbouring countries and it is steadily worsening since 2013. Determinants of wellbeing are closely related to mental health. You might have noted the active discussion in our e-ips group where the majority of our seniors mentioned the need of bringing it to the attention of health policymakers.

ALCOHOL, PSYCHOACTIVE SUBSTANCE AND CYBER ABUSE

The abuse and addiction of the above three things is a growing social and mental health issue which we are facing. These three entities spoil many adolescents and energetic youths. It is a challenging issue, and we have to take proper steps for harm reduction from them.

TELEMEDICINE AND PSYCHIATRY

Modes of health care delivery are evolving, and telepsychiatry is a major mode at present. In the year 2004 telemedicine service started in General Hospital Ernakulam, for the first time in Kerala under Government to help patients of Lakshadweep where speciality services were lacking. At that time, the GPs of Lakshadweep hospitals brief the history and relevant points, and I used to recommend medications and proper psychoeducation. Our challenge is to reach the unreached, and now rules are relaxed, and it is directly between the patient and doctor. Dear members, unless we change, we do not grow and use it as per rules.

TACKLING CHALLENGES

We are facing several challenges apart from above problems in our daily practice. The contradicting sections of IPC, MHC Act, RPWD Act, Clinical Establishment Act, Consumer Protection Act etc. are a few of them. Elaborating them in this presidential address is beyond the scope as it needs wider discussion. MHCA 2017 is not a solution for everything that is encountered in the course of Psychiatric Practice. There are 21 specified disabilities in the RPwD act 2016, but all except SLD have a scale which helps to quantify in percentage. The existing and the forthcoming scales from NIMHANS Bengaluru do not quantify SLD. Without a quantifying scale, how can the authorities insist on medical officers to mention forty per cent disability for SLD. Such an action may unnecessarily lead to litigation. Inclusion of Psychiatrists in SLD board is recommended and forwarded from the ministry of Social Justice but not yet approved by Law Dept. Stigma to mental illness is yet another challenge.

THE WAY FORWARD

'All things are difficult before they become easy'– Thomas Fuller. We have to go ahead with proper psychoeducation to the public, policymakers, officials, other professional groups and various stakeholders. Improvement of infrastructure and more fund allocation for the cause of mental health is the need of the hour. Dr Daniels, President of World Federation of Mental Health in her advance message for the World Mental Health Day October 10th, 2020 says 'during this time more than ever greater investment in mental health is needed to ensure that everyone, everywhere has access to mental health care to deliver mental health for all'. Stigma reduction to mental illness is possible only by giving dignity in mental health. WFMH, through its slogan of the year 2015, gave novel ideas to tackle the stigma related to mental illness. I translated that description to Malayalam in the form of a handbook in 2016. This book describes how people, like any other illness, accept breast cancer which was a stigmatizing illness in the nineteen seventies.

ACTION PLAN FOR THE ASSOCIATION YEAR

Rights of the people go hand in hand with responsibilities. Hence, we choose the Slogan "Your

Mental Health is Your Responsibility" by which an individual is helped to develop positive mental health by himself. The five warning signs of mental illness viz; 1) long-lasting sadness or irritability, 2) extremely high and low moods, 3) excessive fear, worry, or anxiety, 4)social withdrawal, 5) dramatic changes in eating or sleeping habits (newroadstreatment.org) as followed in some developed nations to educate the public can be applied for public awareness here also. We will continue with the actions taken by the previous team

CONCLUSION

My humble submission to this august body to have a critical appraisal of these matters and guide us. I would like to conclude with a maxim that I follow in my life. "Do not walk in front of me; I may not follow. Do not walk behind me; I may not lead you. Do not walk away from me; I need you. Let us walk together. This 'new normal way' of installation will be remembered forever in the history of our society due to its simplicity and the change in mode.

Jai IPS, Jai Hind

Delivered at the 36th annual conference (SIPSCON, 2020) of the branch of Indian Psychiatric Society (Kerala), Ernakulam, October 4th, 2020.

Research Report

WILLINGNESS AND PSYCHOLOGICAL PREPAREDNESS AMONG HEALTHCARE WORKERS TO ATTEND TO COVID-19 PATIENTS IN A TERTIARY CARE PRIVATE HOSPITAL IN KERALA - A MIXED METHOD STUDY

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ABSTRACT

Background: The COVID-19 pandemic has made an unprecedented psychological impact on healthcare workers. The objective of this study was to appraise the willingness, attitudes and psychological preparedness of the frontline healthcare workers to respond to the COVID-19 pandemic. **Methodology:** This was a mixed-method study combining a web-based cross-sectional survey, focus group discussions and semi-structured interviews. The cross-sectional survey covered 202 healthcare workers, and the qualitative assessment was done on 16 frontline healthcare workers. **Results:** The willingness to respond to the pandemic was found to be significantly higher among doctors and nurses compared to medical interns. Among demographic factors increasing age and female gender were the key factors in determining willingness and positive emotional response. While anxiety was the most common emotional response, the fear of infecting family members was found to be the most common risk perceived in qualitative analysis. The study highlights the altruistic attitude of frontline health workers to be the most important contributing factor for psychological preparedness. **Conclusion:** This study outlines the fact that willingness to respond in a pandemic is an innate response in healthcare workers. Considering the risks, workload and socioeconomic stressors, proactive psychosocial support should be given to frontline healthcare workers by the institutions, governments, and society.

Keywords: willingness to respond, psychological preparedness, COVID-19, health care workers, qualitative

INTRODUCTION

Pandemics are the simultaneous global transmission of emerging and re-emerging infectious disease epidemics affecting a large number of people across continents, often causing substantial deaths and socioeconomic disruption.[1] COVID -19, which was detected in Wuhan, China in late last December, fits this description and has been declared as a pandemic on 11th March 2020 by WHO.

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Being in the frontline of battling pandemics, health care workers are the most vulnerable to health risks. It was reported from West Africa during the Ebola epidemic that health workers were 20 to 30 times more likely to get infected than the general population.[2] Similar were the figures during SARS and MERS outbreaks.[3] Working with pandemic can affect mental

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health adversely. Investigations during the SARS and MERS found that high levels of stress in frontline medical staff led to posttraumatic stress disorder (PTSD).[4,5] Incidence of depression (38.5%), insomnia (37%) and PTSD (33%) were reported from Taiwan among nurses who cared for SARS patients.[6]

For an effective response to infectious disease emergencies, willingness and readiness of the public health workforce are equally important as their competency.[7] During SARS, a Canadian study reported that 25% of nurses stayed out of work to avoid exposure.[8] Health care worker's willingness to report to work ranged from 25% to 82%% in studies done during the influenza pandemic.[9]

Maintaining an adequate health care workforce with maximum ability and willingness is important during the times of COVID-19 pandemic. High risk of exposure, higher workload, moral dilemmas and an uncertain, unfamiliar work scenario and uncertainty of the duration of COVID-19 pandemic can influence the willingness and attitude of healthcare workers. These can even redefine their outlook towards the profession.[10] In this context, we attempted to find out the attitudes and emotional responses of health care workers in a tertiary care hospital.

MATERIALS AND METHODS

A combination of quantitative and qualitative methods was used in this research. The descriptive study (quantitative) preceded the qualitative component to facilitate the recruitment of subjects for the Focus Group Discussions (FGDs) and interviews. The study setting was a tertiary care teaching hospital with 1800 beds and 1900 health care workers in Thrissur district of Kerala, where the first case of COVID-19 was reported in India. The study was undertaken during the last week of March 2020 coinciding with the implementation of nationwide lockdown.

Quantitative assessment.

Three categories of health workers, namely doctors, medical interns and nurses, were selected for the study. Individual participation in the survey was voluntary, and all the participants were guaranteed anonymity. A twenty-one item tool was developed by compiling a set of potential items selected by the investigators after discussion among the authors. The survey tool assessed self-reported perceptions of attitudes and emotions regarding the following: willingness to respond, personal safety, psychological readiness and personal preparedness. The content validation of the questionnaire was done by a panel of five experts, and the mean item-level content validity was 0.81. The questionnaire was then pilot tested on a group of five physician colleagues who were not in the sample. The final questionnaire had a total of ten questions, first five questions exploring attitude and the other five examining emotions. After getting clearance from the ethics committee of the institution, an online version of the survey tool was sent to all the selected groups of employees of the institution via e-mail. The purpose of the survey was mentioned in the tool and consent sought for online participation. The survey links were closed after seven days.

Statistical Package for Social Sciences software (version 25.0; SPSS, Inc, Chicago, IL) was used for all analyses. Pearson chi-square test was used to compare the age groups, gender and job categories of the respondents and the dichotomised questions in the survey. A p-value of less than 0.05 was considered statistically significant.

Qualitative assessment

In the second component, a methodology combining Focus Group Discussions and In-depth interviews were used to gather data regarding the emotions and perceptions of healthcare workers regarding COVID-19. Participants for focus groups were selected by convenient non-probabilistic sampling to ensure a mix of job category, age, gender and roles in COVID-19 response. A series of open-ended questions which concentrated on the following areas related to COVID-19, like staff preparedness, support from hospital management and superiors; willingness to work in COVID ward, difficulties encountered during COVID duty and concerns about family were prepared. The reactions of the participants were, and key themes were noted down by the moderators. All focus groups/interviews were transcribed verbatim and were formally reviewed by three of the authors (nv, rt, cv). The general themes that emerged out of the discussion were coded by the inductive approach, as there were no pre-determined frameworks.

RESULTS

Characteristics of the study population

Table1. The response rate among doctors, interns and nurses to the e-mail questionnaire

Category of staff	e-mails sent	e-mails reached(%)
Doctors	110	50(45.4)
Medical Interns	100	40(40)
Nurses	700	112(16)
Total	910	202(22.2)

There were 202 responders from 910 Health Care Workers (HCW) who were mailed. The response rate was highest among doctors, followed by interns and lowest in nurses. Amongst the responders, 45 were males, and 157 were females. A total of 50 doctors, 41 interns, and 111 nurses participated in the survey.

Most of the responders were ready to participate in COVID-19 management in the capacity as volunteer, isolation room staff or caring diagnosed cases (Table 2) irrespective of their gender. They were willing to support the public health sector, and the majority disclosed that social media influenced them. Though not statistically significant, the positive attitudes were seen to be higher among females in most of the areas enquired.

The first emotional response to COVID-19 in the majority was anxiety, and this was found to be more in females. Nevertheless, the majority expressed psychological readiness with more positive responses from females. (p-value=0.001) (Table 3). Denial of leaves and entering self-quarantine were not taken well by the males. (p-value-0.055).

Age: The willingness to treat COVID-19 cases increased with age in all domains studied, and it has statistical significance in three out of four domains (Table 4).

As the age advanced, the emotional responses also tilted towards positivity (Table 5). Conversely, participants below thirty years showed more anxiety and had lesser psychological readiness than the other groups. On curtailing privileges like leave, the younger generation was the most enraged (21.7%) as compared to the other two age groups making it statistically significant (p-value<0.001).

Job category: Majority of the respondents in all groups showed willingness, though there were significant differences in domains (Table 6). Compared to doctors and nurses, a lesser number of interns expressed willingness to be part of the COVID response team. This difference was statistically significant (p value=<0.001). However, willingness to part take in isolation ward duties was highest among the nurses compared to interns and doctors (p-value -0.001). Doctors and nurses believed that the private sector should support the public health system when the need arises. Relatively few interns shared the same attitude (p value=<0.001). Willingness to receive a COVID positive patient into their care was also less among interns as compared to doctors and nurses.

When emotional responses towards COVID-19 were examined among the three professions, there were significant differences (Table 7). Compared with doctors and nurses, a lesser number of interns showed

Table 2. Presence of willingness to take responsibility for COVID-19 patient care according to gender.

attitude domains	Total N (%)	Males	Females	P-value
Will you volunteer to be a part of the COVID response team?	188 (93.1)	40 (88.9)	148 (94.3)	0.21
Are you willing to undertake duty in COVID isolation ward?	177 (87.6)	37 (82.2)	140 (89.2)	0.21
Do you think the private Health Care Workers should help the public health system & supplement their work?	192 (95)	41 (91.1)	151(96.2)	0.17
Would you be willing to receive patients with confirmed COVID-19 in your hospital/clinic/ward?	178 (88.1)	41 (91.1)	137(87.3)	0.48
Has social media influenced your attitude towards COVID-19?	71 (35.1)	20 (44.4)	51(32.5)	0.33

Table 3: Emotional responses to COVID-19 according to gender

Domain- Emotion		Total (%)	Males	Females	P-value
What will you feel when you hear that there is a patient in Govt. Medical College, Thrissur tested positive for COVID-19?	Ready to take up any challenge	188 (93.1)	37(82.2)	151 (96.2)	0.001*
	Relieved but scared	14(6.9)	8(17.8)	6 (3.8)	
The hospital has not given you leave. How do you feel in the event of a community spread?	Anxious	95 (47)	19(42.2)	76 (48.4)	0.105
	Enraged	26 (12.9)	10 (22.2)	16 (10.2)	
	Not bothered	81 (40.1)	16 (35.6)	65(41.4)	
What did you feel when you first heard about COVID-19?	Anxious	178 (88.1)	37 (82.2)	141(89.8)	0.166
	Not bothered	24 (11.9)	8 (17.8)	16 (10.2)	
How would you feel if you had to self-quarantine oneself	Frustrated	14 (6.9)	6 (13.3)	8 (5.1)	0.055
	Willing for Quarantine	188(93.1)	39 (86.7)	149 (94.9)	
Has friends and relatives been reluctant to come to you as you work in a healthcare facility?	Yes	47(23.3)	9(20)	38 (24.2)	0.020*
	No	155(76.7)	36 (80)	119 (75.8)	

*P<0.05

Table 4. Willingness to respond to COVID-19 according to age

Attitude domains	response	Total N (%)	Age <30	Age 31-50	Age >50	P-value
Will you volunteer to be a part of the COVID response team?	Yes	188(93.1)	94 (88.7)	88 (97.8)	6(100)	0.035*
	No	14 (6.9)	12 (11.3)	2 (2.2)	0 (0)	
Are you willing to undertake duty in COVID-19 isolation ward?	Yes	177(87.6)	89 (84)	82 (91.1)	6 (100)	0.205
	No	25 (12.4)	17 (16)	8 (8.9)	0 (0)	
Do you think the private Health Care Workers should help the public health system & supplement their work?	Yes	192 (95)	96(90.6)	90(100)	6 (100)	0.009*
	No	10 (5)	10 (9.4)	0 (0)	0 (0)	
Would you be willing to receive patients with confirmed COVID-19 in your hospital/clinic/ward?	Yes	178 (88.1)	88 (83)	84 (93.3)	6 (100)	0.04*
	No	24 (11.9)	18 (17)	6 (6.7)	0 (0)	

*P<0.05

a positive response. To the possibility of 'no leaves during the pandemic', more interns were enraged, doctors were anxious, and nurses were not bothered.

Most participants in all the groups shared the same emotion, i.e., anxiety when they first came to know about the COVID-19 pandemic. But a significantly

Table 5. Emotional response according to age group

Domain- Emotion		Total (%)	Age <30	31 to 50	>50	P-value
What will you feel when you hear that there is a patient in medical College, Thrissur tested positive for COVID-19?	Ready to take up any challenge	188 (93.1)	98(92.5)	84 (93.3)	6(100)	0.77
	Relieved and scared	14(6.9)	8(7.5)	6 (6.7)	0(0)	
The hospital has not given you leave. How do you feel in the event of a community spread?	Anxious	95 (47)	52(49.1)	40 (44.4)	3 (50)	<0.001**
	Enraged	26 (12.9)	23 (21.7)	3 (3.3)	0 (0)	
	Not bothered	81 (40.1)	31 (29.2)	47 (52.2)	3 (50)	
What did you feel when you first heard about COVID-19?	Anxious	178 (88.1)	94 (88.7)	78 (86.7)	6 (100)	0.60
	Not bothered	24 (11.9)	12 (11.3)	12 (13.3)	0 ()	
How would you feel if you had to self-quarantine oneself	Frustrated	14 (6.9)	9(8.5)	5 (5.6)	0 (0)	0.574
	Willing for Quarantine	188(93.1)	97 (91.5)	85(94.4)	6 (100)	
Has friends and relatives been reluctant to come to you as you work in a healthcare facility?	Yes	47 (23.3)	20 (18.9)	25(27.8)	2 (33.3)	0.284
	No	155(76.7)	86 (81.1)	65 (72.2)	4(66.7)	

**P<0.001

Table 6. Willingness to respond based on the job category

Attitude domains	response	Total (%)	Doctors	Medical interns	Nurses	p-value
Will you volunteer to be a part of the COVID response team?	Yes	188(93.1)	50 (100)	31 (75.6)	107 (96.4)	<0.001**
	No	14 (6.9)	0 (0)	10 (24.4)	4 (3.6)	
Are you willing to undertake duty in COVID-19 isolation ward?	Yes	177 (87.6)	38 (76)	32 (78)	107 (96.4)	<0.001**
	No	25 (12.4)	12 (24)	9 (22)	4 (3.6)	
Do you think the private Health Care Workers should help the public health system & supplement their work?	Yes	192 (95)	50 (100)	31 (75.6)	111 (100)	<0.001**
	No	10 (5)	0 (0)	10 (24.4)	0 (0)	
Would you be willing to receive patients with confirmed COVID-19 in your hospital/clinic/ward?	Yes	178 (88.1)	45 (90.0)	30 (73.2)	103 (92.8)	0.004*
	No	24 (11.9)	5 (10.0)	11 (26.8)	8 (7.2)	

*P<0.05, ** P<0.001

greater number of nurses experienced more anxiety compared to the other groups. (p-value=0.007). Majority of all subjects were willing to follow quarantine in case of exposure. But only a lesser number of interns were willing for it. However, there was no statistical significance. 23.3% of responders felt

Table 7. Emotional responses according to job category

Domain- Emotion		Total (%)	Doctors	Interns	Nurses	P-value
What will you feel when you hear that there is a patient in medical College, Thrissur tested positive for COVID-19?	Ready to take up any	188 (93.1)	48(96)	33 (80.5)	107(96.4)	0.002*
	Relieved and scared	14(6.9)	2(4)	8 (19.5)	4(3.6)	
The hospital has not given you leave. How do you feel in the event of a community spread?	Anxious	95 (47)	26(52)	17 (41.5)	52 (46.8)	<0.001**
	Enraged	26 (12.9)	4 (8)	18 (43.9)	4 (3.6)	
	Not bothered	81 (40.1)	20 (40)	6 (14.6)	55 (49.5)	
What did you feel when you first heard about COVID-19?	Anxious	178 (88.1)	40 (80)	33 (80.5)	105 (94.6)	0.007*
	Not bothered	24 (11.9)	10 (20)	8 (19.5)	6 (5.4)	
How would you feel if you had to self-quarantine oneself	Frustrated	14 (6.9)	3(6)	5 (12.2)	6 (5.4)	0.328
	Willing for Quarantine	188(93.1)	47 (94)	36 (87.8)	105 (94.6)	
Has friends and relatives been reluctant to come to you as you work in a healthcare facility?	Yes	47 (23.3)	12(24)	3 (7.3)	32 (28.8)	0.02*

*P<0.05, ** P<0.001

alienation from family and friends, being a worker in health care during the pandemic. This was expressed by relatively few interns, the difference being statistically significant (p-value = 0.02).

Qualitative analysis

This was undertaken in the later part of the lockdown when restrictions were mitigated. The basic themes which emerged were emotional responses, stifling experience, altruistic attitude, and societal stigma.

Attitudes and emotional reactions to COVID-19

The nursing staff expressed many apprehensions and the commonest being the fear of infecting one's family and loved ones. The nursing staff emphasised that their main fear was not about contracting COVID-19, but rather the fear of transmitting it to their children while being asymptomatic. Many shared their anxiety due to unfamiliarity with treatment guideline, the inadequacy of infrastructure and unavailability of personal protective equipment (PPE). Possibility of patients concealing relevant history was reported as a matter of concern as expressed by a head nurse.

"*Compared to doctors, we are more closely involved in patient care and have longer periods of exposure. My child is just three years old. My father in law is diabetic and hypertensive. My greatest fear is taking care of patients who deliberately hide the history of travel or contact for fear of being denied care.*"

A few nurses expressed suffocating experience when working in isolation wards. None of these hampered their working spirit.

"*Forget eating and drinking; we cannot even urinate for 6 to 12 hours. It is very hot inside the PPE, and sweat keeps dripping on to our eyes. Getting out from the suit is like getting out of the sea.*"

The altruistic attitude and professional obligation were evident during the interviews.

"*I volunteered to take duty in the COVID isolation ward. Many of my colleagues have children and elderly at home. Me, being a nun, had no such concerns. This will be a great relief to my superiors as well."*

Doctors also expressed readiness to treat but with adequate precautions. At the same time, they also said that they wouldn't shy away from any emergencies as it comes as an instinct being a doctor. Fear of infecting the family was the major concern for them also.

The most common theme that evolved from the discussion with both groups was the lack of teamwork and uncertainty about the guidelines between various medical fraternities. There was a lot of appreciation for the support and care given by colleagues and the management though there were few instances where negative comments caused pain and despair.

"*I cannot turn away from our duties, but I have to admit that there is no collective responsibility among doctors. Being in the emergency department, I can say that we are at a higher risk than the rest of the consultants. One consultant asked me to ensure that all patients admitted to his department do not have any respiratory symptoms. That is unprofessional behaviour*."

A few reported being stigmatised by the non-frontline health care workers, and the reason attributed to this was their lack of knowledge and anxiety.

A nurse said, "*I felt that some of my colleagues are distancing from me after my isolation ward duty*."

Doctors, though with anxiety regarding contracting the illness, continued their clinical practice as usual. None of them expressed much effect of the pandemic on their personal life. A notable positive change in their practices was the strict adherence to protective measures. Some planned to stay in the hospital in case of exposure. Lesser number of duties gave them more time with family, which was welcomed by everyone. The families were supportive and understanding. The financial constraints caused by lesser remuneration were accepted gracefully as "*it's not the time to complain*."

DISCUSSION

The main objective of our study was to bring out various perspectives and emotional responses to COVID-19 in different classes of healthcare workers in a tertiary health care hospital in Kerala. This study was conducted during the initial phase of the epidemic; so, the focus was on the willingness and psychological preparedness to be in the frontline of care delivery during the pandemic. Not many studies have examined this perspective.

There is a higher representation of females in our study group. This is understandable because nurses constituted the majority of the survey participants, and they are mostly females, as in any other hospital in Kerala. This disproportion in gender distribution has also been noted in other studies done exclusively in nurses[11], indicating a female dominance in the field of nursing globally. Also, a rising number of female medical professionals in Kerala in both undergraduate and postgraduate level[12] might have influenced the present gender distribution.

All healthcare workers were willing to partake in COVID care irrespective of their age, sex or profession. Whether this response is due to altruism or professional commitment has not been differentiated in this study. Perhaps both altruism and professional obligation might have contributed to it. The choice of one's profession itself may be influenced by altruistic elements in the personality.[13] Those who start their career after taking Hippocratic Oath[14] or Nightingale pledge[15] are bound to uphold their professional ethics.

Females showed more positive attitudes in all the areas inquired. Compassion in care by females in the profession has been reported earlier.[16] Holding of key posts by nun sisters in the Missionary hospital might have contributed to set the pattern.

In contrast, studies done in Hong Kong, and Yemen during the influenza pandemic showed males to be more willing to take part in patient care. Females showed unwillingness due to anxiety and fear for their loved ones.[17,18] In our study also, anxiety was the dominant emotional response in females. But this never dampened their enthusiasm. This may throw light on the resilience of Indian females.

The willingness to support public health sector is shared by all healthcare workers and is an eye-opener. A well-organised healthcare model adopted by the state government and its efficiency in handling Nipah pandemic in the recent past might have influenced this attitude.[19]

Both doctors and nurses were enthusiastic about being a part of the COVID response team. But, a metanalysis

done during the influenza pandemic in the UK showed greater response from doctors.[18,20] A disproportionately higher number of nurses in our study group may be responsible for this skewed result. Also, the fact that nurses had intense training sessions cannot be overlooked.

Lesser experience in the profession, lack of awareness regarding the treatment strategies adopted by the institution and greater anxiety regarding the pandemic may be the reason for lesser psychological readiness among the interns. The same may be the reason for their enragement regarding leave cancellation. Similar observations have been noted in a study by Khan and Johan.[21] Changes in ethical values in the newer generation[22] and the impact of commercialisation of medical education[23] also may be contributing factors.

The greater enthusiasm and willingness shown by the elder age group was noteworthy. This is probably because greater life experience gave them the confidence to face any crises. But, this cannot be generalised as the elder age group comprised a very small number in our study population.

In studies conducted in China during the COVID-19 pandemic, the elder age group showed more worries about seeing patients die, and regarding their safety[24] as opposed to our findings. There could be several reasons for this disparity. As participants in this age group are nearing the end of their career in s private institution, there is a need to project their enthusiasm to ensure continuity of their job. Or this could reflect our culture, where the elderly renounce all materialistic pursuits and engage in philanthropic activities.

The quantitative components explored the willingness to participate in the care of COVID patients while the qualitative aspect looked into the effect of COVID-19 pandemic on healthcare workers. Though both aspects were explored in different periods (one was in the beginning and the second was after suspected cases started coming into the hospital), the common observation is that the willingness and positive emotional response didn't change much. All of them were worried about the unfamiliarity of the condition, poor infrastructure and inadequate personal protective equipment. Most of the responders expressed concern over their family and loved ones getting infected by them. It is notable that world over, the concerns of HCW's in an infectious pandemic are the same.[9,17,25,26]

Despite having many COVID-19 cases around, the doctors didn't withdraw from practice, but more care was taken for personal protection. Stigma and exclusion experienced by the staff is a matter of concern, though they discarded it as arising from ignorance.

There are many limitations to our study. Our study was conducted in a private medical college in Kerala, where COVID-19 patients were not admitted during the study period. Also, when the study was conducted, the pandemic was well under control, and the 'no panic' situation may be the reason for perceived positive responses.

Our study population is limited to healthcare workers from a single institution; therefore, the results cannot be generalised. There is a huge disproportion in the representation of various groups within the study population which may cause skewing of the result. Another limitation is the lack of proper validation of the study tool; only content validation has been done due to time limitations. The study is descriptive and has not explored the reasons for the responses. There may be response bias as the authors are working in the same hospital where the study was conducted.

CONCLUSION

Our study concludes that willingness to engage in COVID-19 pandemic seems to be an innate response in most of the healthcare workers. This positive attitude needs to be recognised and encouraged. There's a need for further exploration into the various determining factors that are associated with the willingness of healthcare workers. This may reveal potential points of intervention and help improve the work environment of healthcare workers.

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REFERENCES

1. Madhav N, Oppenheim B, Gallivan M, Mulembakani P, Rubin E, Wolfe N. 2017. Pandemics: risks, impacts, and mitigation. In, Jamison DT, Gelband H, Horton S, Jha P, Laxminarayan R, Mock CN, and Nugent R, editors. Disease Control Priorities: Improving Health

and Reducing Poverty. 3rd ed. Washington (DC): The International Bank for Reconstruction/The World Bank:2017; pp.315.

2. World Health Organization. Health worker Ebola infections in Guinea, Liberia and Sierra Leone - a preliminary report. Geneva: WHO; 2015.
3. Peeri NC, Shrestha N, Rahman MS, Zaki R, Tan Z, Bibi S, et al. The SARS, MERS and novel coronavirus (COVID-19) epidemics, the newest and biggest global health threats: What lessons have learned? Int J Epidemiol. 2020;49(3):717-26.
4. Tam CWC, Pang EPF, Lam LCW, Chiu HFK. Severe acute respiratory syndrome (SARS) in Hong Kong in, 2003: Stress and psychological impact among frontline healthcare workers. Psychol Med. 2004;34(7):1197–204.
5. Lee SM, Kang WS, Cho AR, Kim T, Park JK. Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. Compr Psychiatry. 2018;87:123-127.
6. Su TP, Lien T C, Yang C Y, Su YL, Wang JH, Tsai SL, et al. Prevalence of psychiatric morbidity and psychological adaptation of the nurses in a structured SARS caring unit during outbreak: A prospective and periodic assessment study in Taiwan. J Psychiatr Res. 2007;41(1-2):119-30.
7. McCabe OL, Barnett DJ, Taylor HG, Links JM. Ready, willing, and able: a framework for improving the public health emergency preparedness system. Disaster Med Public Health Prep 2010;4(2):161-68.
8. Imai T, Takahashi K, Hasegawa N, Lim MK, Koh D. SARS risk perceptions in healthcare workers, Japan. Emerg Infect Dis. 2005;11(3):404-10.
9. Stergachis A, Garberson L, Lien O, Ambrosio LD, Sangaré L, Dold C, et al. Health Care Workers' Ability and Willingness to Report to Work During Public Health Emergencies. Disaster Med Public Health Prep. 2011;5(4):300-308.
10. Shanafelt T, Ripp J, Trockel M. Understanding and Addressing Sources of Anxiety Among Health Care Professionals During the COVID-19 Pandemic. JAMA. 2020;323(21):2133–34
11. Kim Y. Nurses' experiences of care for patients with Middle East respiratory syndrome-coronavirus in South Korea. Am J Infect Control. 2018;46(7):781-87.
12. Kuttichira P. Rising feminisation among students of Kerala medical colleges. Health Sciences 2014;3(1).
13. McGaghie WC, Mytko JJ, Brown WN, Cameron JR. Altruism and compassion in the health professions: a search for clarity and precision. Med Teach. 2002;24(4):374-78.
14. Hippocratic oath | Definition, Summary, & Facts [Internet]. Encyclopedia Britannica. [cited 2020 21st June]. Available from: https://www.britannica.com/topic/Hippocratic-oath
15. Buhnemann K. The Nightingale Pledge [Internet]. Florence Nightingale Museum London. [cited 2020 21st June]. Available from: https://www.florence-nightingale.co.uk/the-nightingale-pledge-1893
16. Christov-Moore L, Simpson EA, Coudé G, Grigaityte K, Iacoboni M, Ferrari PF. Empathy: gender effects in brain and behavior. Neurosci Biobehav Rev. 2014;46 Pt 4(Pt 4):604-27.
17. Al-Hunaishi W, Hoe VC, Chinna K. Factors associated with healthcare workers willingness to participate in disasters: a cross-sectional study in Sana'a, Yemen. BMJ Open. 2019;9(10): e030547. Published 2019,17th October. doi:10.1136/bmjopen-2019-030547
18. Aoyagi Y, Beck CR, Dingwall R, Nguyen-Van-Tam JS. Healthcare workers' willingness to work during an influenza pandemic: a systematic review and meta-analysis. Influenza Other Respir Viruses. 2015 May;9(3):120-30.
19. Dilip TR. Utilisation of inpatient care from private hospitals: trends emerging from Kerala, India. Health Policy Plan. 2010;25(5):437-46.
20. Damery S, Wilson S, Draper H, Gratus C, Greenfield S, Ives J, et al. Will the NHS continue to function in an influenza pandemic? A survey of healthcare workers in the West Midlands, UK. BMC Public Health. 2009 14th May; 9:142. doi: 10.1186/1471-2458-9-142 21.
21. Khan A, Al Johani M. Level of willingness to report to work during a pandemic among the emergency department health care professionals. Asian Journal of Medical Sciences 2014; 5(3):58-62.
22. Lim A, Epperly T. Generation gap: effectively leading physicians of all ages. Fam Pract Manag. 2013;20(3):29-34.
23. Shehnaz SI. Privatisation of Medical Education: Viewpoints with a global perspective. Sultan Qaboos Univ Med J. 2010;10(1):6-11.

24. Cai H, Tu B, Ma J, Chen L, Fu L, Jiang Y, Zhuang Q. Psychological Impact and Coping Strategies of Frontline Medical Staff in Hunan Between January and March 2020 During the Outbreak of Coronavirus Disease 2019 (COVID-19) in Hubei, China. Med Sci Monit. 2020 Apr 15; 26:e924171.

25. Khalid I, Khalid TJ, Qabajah MR, Barnard AG, Qushmaq IA. Healthcare workers' emotions, perceived stressors and coping strategies during MERS-CoV outbreak. Clin Med Res 2016;1303:1-22.

26. Sun N, Wei L, Shi S, Jiao D, Song R, Ma L, et al. A qualitative study on the psychological experience of caregivers of COVID-19 patients. Am J Infect Control. 2020;48(6):592-98.

Research Report

EMOTIONAL INTELLIGENCE, PERCEIVED STRESS, AND INTERNET USE BEHAVIOUR AMONG UNDERGRADUATE MEDICAL STUDENTS-A CROSS-SECTIONAL STUDY

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ABSTRACT

Aim: To find the pattern and characteristics of Problematic internet use and to determine the relationship between Internet Addiction, Perceived stress and Emotional Intelligence among medical students.

Materials and methods: In this cross-sectional study, using convenience sampling, 368 study participants were selected from the undergraduate medical students of a medical college in North Kerala. After getting written informed consent, socio-demographic data sheet, Internet Addiction Test (IAT), Schutte Self Report Emotional Intelligence Test (SSEIT) and Perceived Stress Scale (PSS) were filled up by the participants. Completed responses were scored and analyzed using SPSS 18.0.

Results: Problematic internet use among the participants was 65.7%. In the sample, 42.9% had mild internet addiction, and 22.8% had moderate internet addiction. There was a positive correlation between scores of IAT and PSS and a negative correlation between scores of IAT and SSEIT. A pattern of increased levels of perceived stress and decreased levels of emotional intelligence was noticed with increasing levels of internet addiction scores.

Conclusion: Young medical students were found to have mild and moderate levels of internet addiction and were high in perceived stress. Those with an addiction pattern of internet use also showed lower levels of emotional intelligence. It is crucial to identify those with lower levels of emotional intelligence and intervene effectively for stress management to reduce the internet overuse and emotional sequelae of it.

Keywords: Internet Addiction, Perceived stress, Emotional intelligence, Medical students

INTRODUCTION

The internet has become an integral part of our day to day life. According to the internet world stats, there are 4.6 billion internet users globally; who form 59.6% of the world population and 50.9% of this is in Asia. There was 1187% growth in internet usage worldwide in the past decade.[1]

With the emergence of clinical cases presenting with psychological problems and work difficulties associated with excessive internet use,[2] several studies were conducted in this area. The existence of an entity called Internet Addiction is a topic of debate among experts. Nevertheless, the inclusion of Internet Gaming Disorder in section III of the updated version of DSM-5 within the category of Non-Substance Related Addictive disorders points out that Internet Addiction could be another candidate for this category in future.

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Emotional intelligence is defined as the capacity to reason about emotions and for emotions to enhance thinking. It includes abilities to accurately perceive emotions, to access and generate emotions to assist thoughts, to understand emotions and emotional knowledge, and to regulate emotions to promote emotional and intellectual growth reflectively.[4] Literature shows that emotional intelligence can predict perceived stress.[5] A positive relationship exists between perceived stress and internet use behaviour according to a recent study.[6]

This study is put forth as an attempt to throw light on the relationship between internet use behaviour, emotional intelligence, and perceived stress among youngsters. We hypothesized that problematic internet use would be more in medicos, with high perceived stress and low emotional intelligence.

AIMS AND OBJECTIVES

- To study the prevalence, pattern, and characteristics of problematic internet use among medical students.
- To determine the relationship between Internet Addiction, Perceived stress, and Emotional Intelligence among medical students.

MATERIALS AND METHODS

A cross-sectional study was conducted among the undergraduate medical students of a medical college in north Kerala. Every year, around 250 students join for MBBS in this institution. Permission from the head of the institution, the institutional research committee, and the ethics committee were taken. A sample size of 336 was calculated using the formula $N=4pq/d^2$ N=sample size, p= prevalence according to a previous study (8.24)[7], q=100-p=91.76, d=an absolute precision of 3%). The convenience sampling method was used in enrolling the study participants. The study was started in July 2019 and completed in one month.

A semi-structured proforma specially drafted for the study which contains socio-demographic variables like age, gender, marital status, accommodation status, number of years in medical college and details of the substance use and internet accessibility. Young's Internet Addiction Test (IAT), a 20-item scale that measures the presence and severity of internet dependency, is used in this study. The maximum score of this scale is 100. The scores between 0 to 30 denotes a normal level of internet usage, 31 to 49, a mild level of internet addiction, 50 to 79, moderate level of internet addiction and 80 to 100, severe internet dependence.[8] A 33 item self-report scale, The Schutte Self Report Emotional Intelligence Test (SSEIT) is used for assessing Emotional Intelligence. The total score is the sum of the ratings for the 33 items after reversing the responses of three items (items 5,28 and 33).[9] The Perceived Stress Scale (PSS) is a 10 item rating scale, used for measuring the perceptions of stress. Scores are obtained by reversing responses to the four positively stated items (items 4,5,7,8) and then summing across all scale items.[10]

The concept, purpose and method of the study and the administration of the tools were explained to each batch of students by the principal investigator by visiting them in the lecture halls during the intervals between their theory classes. A total of 392 students, from various batches, had expressed interest in participating in the study and had given written informed consent, were enrolled. More participants were enrolled expecting the possibility of delayed, forgotten and incomplete submissions. Hard copies of the socio-demographic and clinical data sheet, IAT, PSS and SSEIT scales, in English, were distributed in each batch. On pre-decided dates, representatives of each batch collected all the forms filled up by the participants of their batch and handed over to the investigators. To prevent revealing the identity and to protect privacy, no participant could hand over the filled-up forms directly to the investigators and no personal information like name or contact number was collected from them. Data from 368 participants, which were available after excluding the incomplete forms, were used for the analysis.

STATISTICAL ANALYSIS

The data obtained were analyzed using the statistical package for social services version 18.0 (SPSS 18) for windows. Descriptive data for categorical variables were computed in terms of frequency and percentages, and for the continuous variables, mean and standard deviations were calculated. Comparisons were made by Chi-square test and analysis of variance (ANOVA). Correlation between different variables was studied by using Pearson's correlation coefficient.

P-value <0.05 was considered significant for this study.

RESULTS

Out of the 392 enrolled participants, 368 returned completed forms giving a response rate of 93.9%. Around 70% of our study participants were between 21 and 23 years of age, and 66.8% were females. About 91.3% were staying in hostels, and 98.9% were unmarried. The socio-demographic characteristics of the sample are given in Table 1.

No evidence of any substance dependence was identified, but 4.8 % of the participants had experimented on various substances including tobacco, alcohol and cannabis.

Table 1: Socio-demographic characteristics of the sample

Socio-demographic Variables	No of subjects (N=368)	Percentage
Age groups		
18-20	99	26.9
21-23	262	71.2
24-28	7	2
Gender		
Male	122	33.2
Female	246	66.8
Accommodation		
Hostel	337	91.6
Home	4	8.4
Year of study (MBBS)		
4th	122	33.2
3rd	76	20.7
2nd	112	30.4
1st	58	15.8
Marital Status		
Unmarried	364	98.9
Married	4	1.1
Substance experimented		
Tobacco	5	1.4
Alcohol	9	2.4
Cannabis	2	0.5
LSD	1	0.3
Opioids	1	0.3
Other substances	8	2.2
Internet use on their smartphone		
Yes	366	99.5
No	2	0.5
Years online		
1-5	259	70.4
5-10	102	27.8
10-14	7	1.8
Using the internet for academics		
Yes	305	82.9
No	63	17.1

Table 2: Percentage of time spent on various non-academic online activities

Online activity	Percentage
Adult entertainment sites	
>40% of time	5.1
<40 % of time	26.9
Not using	67.9
Chat room	
>40% of time	21.8
<40 % of time	34.6
Not using	43.8
Instant messaging	
>40% of time	23.1
<40 % of time	45.6
Not using	31.3
Online gaming	
>40% of time	6
<40 % of time	26.6
Not using	67.4
Online shopping	
>40% of time	4.9
<40 % of time	56.3
Not using	38.9
Recreational surfing	
>40% of time	24.5
<40 % of time	38.3
Not using	37.2

Table 3: Internet addiction severity

Severity of internet addiction (IAT Score Range)	No of subjects	Percentage of subjects
No Addiction (0-30)	126	34.2
Mild (31-49)	158	42.9
Moderate (50-79)	84	22.8
Severe (80-100)	0	0

Table. 4 Comparison of PSS and SSEIT scores among different groups as per IAT (N=368)

	No internet addiction (n =126) Mean (SD)	Mild internet addiction (n =158) Mean (SD)	Moderate internet addiction (n =84)	Sum of Squares	df	Mean Square	F	p-value
PSS Score	17.7 (6.11)	20.2 (5.3)	23.5 (5.83)	1649.0	2	824.5	25.05	<0.001
SSEIT Score	122.5 (15.67)	120 (14.02)	115.5 (13.64)	2790.0	2	1395.0	6.61	0.002

IAT-Internet Addiction Test; PSS-Perceived Stress Scale; SSEIT Schutte Self Report Emotional Intelligence Test SD-standard deviation; df –Degree of freedom

Table: 5 Association between the number of years in medical college with the IAT score categories

No of years in the institution	IAT Score categories			χ^2 (df)	p-value
	No Addiction (n=126)	Mild Addiction (n=158)	Moderate Addiction (n=84)		
1	31	59	32		
2	36	27	13		
3	33	49	30	15.05 (6)	0.020*
4	26	23	9		

χ^2=Pearson Chi-square value; df –Degree of freedom; IAT-Internet Addiction Test

Of the participants, 95.5% owned a smartphone and were using the internet for a minimum period of one year. Nearly 83% of the subjects were using the internet both for academic and recreational purposes. Most participants were using the internet for instant messaging and recreational surfing. Less than 33% of the subjects played online games. Table 2 shows the percentage of time spent by the subjects for various online activities other than academics.

As per IAT scoring, 42.9% of the subjects had mild internet addiction, and 22.8% had moderate internet addiction. No one was identified with severe internet addiction, and 34.2% scored below 30, which indicated no addiction, according to IAT. (Table 3)

Table 4 shows mean scores of Perceived stress and Emotional intelligence scales among various scoring levels of IAT. Comparison of the scores PSS & SSEIT using ANOVA across categories of IAT, categorized as no addiction, mild addiction, and moderate addiction, it was found that there was a statistically significant association between internet addiction and increased levels of perceived stress and decreased levels of emotional intelligence.

This study shows a positive correlation between IAT and PSS scores and a negative correlation between IAT and SSEIT scores (Figures 1 and 2). Pearson correlation coefficient for scores of IAT and PSS s was 0.41 and for IAT and SSEIT was -0.24.

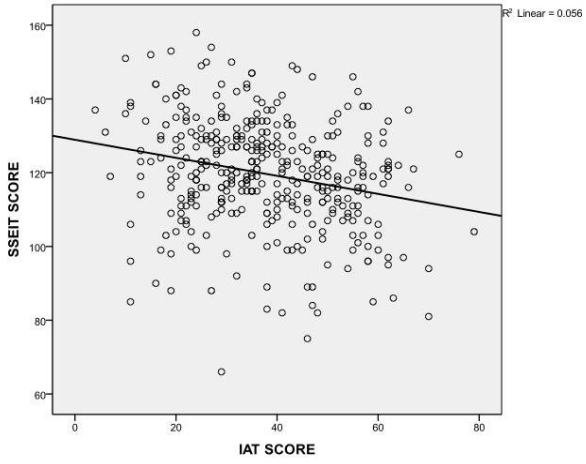
No statistically significant relation was found on comparing various IAT categories with the number of years in medical college using the chi-square test. (Table 5)

DISCUSSION

The current study attempts to evaluate the problematic internet use of medical students and its relationship with perceived stress and emotional intelligence in a teaching institution. Previous studies have highlighted the importance of studying internet addiction (IA) in university students because they are more likely than the general population to use the internet and vulnerable to develop IA [11, 12, 13]

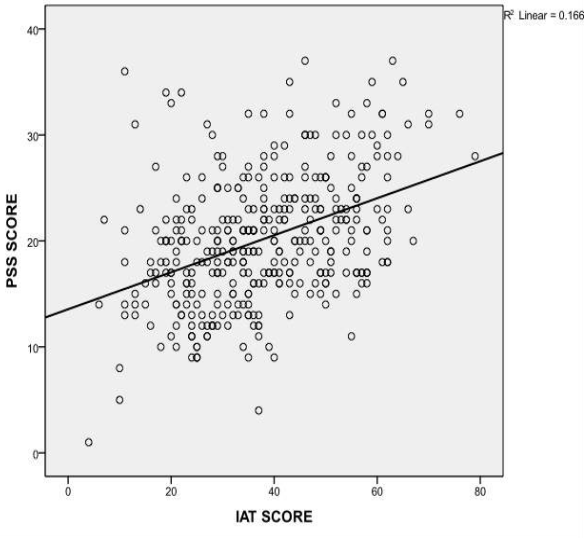
Problematic internet use among the participants was 65.7% in our study. It is higher than the 2015 study findings among undergraduate medical students from India, which was 58.87% [14] and that of a study from Egypt, where it was 47.7%.[15] A study conducted in Indore 10 years back on 242 medical students showed only 9.5% of participants with IAT scores falling under the category of internet addiction.[16] This could be explained based on the technological advancements over the past decade.

Figure 1: Correlation between IAT and PSS scores



IAT: Internet addiction test, PSS: Perceived stress scale, Pearson correlation coefficient:0.41

Figure 2: Correlation between IAT and SSEIT score



AT-Internet addiction test; SSEIT-Schutte self-report emotional intelligence test; Pearson correlation coefficient: 0.24

Interestingly, findings of similar studies on resident doctors from India show a lower prevalence range from 3.8 to 13%.[7,17,18] A meta-analysis published in 2017 pointed out that the prevalence of internet addiction among medical students is five times higher than that of the general population. But the prevalence in that study was only 30.1%.[19]

In our study, 95.5% had their smartphone with which they accessed the internet. A recent study among engineering students from various colleges of north and central India showed that 76% of the participants access the internet with their smartphone.[20] According to Greenfield DN, the availability of a portable device and the resultant threshold reduction has a significant impact on internet use behaviour.[21] Portable devices like smartphones, improve the ease of access to the internet, which is an essential factor that increases the addictive potential. This also hampers the ability to manage and balance time, energy, and attention, which in turn leads to lifestyle changes and behavioural deficits. [22] This suggests that easy accessibility could be an important factor leading to problematic internet use. Other factors could be the rapid expansion of mobile broadband network coverage, smartphone applications, and cheaper internet prices.[20]

Of the total subjects, 66.8% were females, and 33.2% were males. Our sample contained twice more female participants than males. Female predominance among the respondents is noticed in a recent similar study population too.[23]The study also showed that social networking was the most frequently accessed content online by both genders. Less than 33% played online games in the current study. A recent Japanese study among university students showed that female students spend more time in social networking while online games engage males more.[24] Strittmater E. et al. also reported gender differences in the pattern of internet use. According to the same authors, young males with problematic Internet use are more likely to be gamers and have peer relation problems, and young females use social media more and have a high risk of depression. They also found elevated levels of psychopathology and self-harming behaviour in both groups.[25]

In this study, the highest internet addiction score found was 79, and the lowest was four. In a 2020 study among

Pakistani medical students using the same tool, these scores were 93 and 2 respectively. [23] Their median IAT score was 38, which was the same in our study too. Around 42.9% of the subjects were found to be having mild and 22.8% moderate internet addiction as per IAT scores in our study. Chaudhari B. et al. in their sample, identified 51.42% and 7.45% of medicos with mild and moderate addiction respectively.[13]

None of our study participants had severe internet addiction as per IAT, whereas 28.2% showed scores corresponding to severe internet addiction in a study by Javaeed A, Jeelani R et al.[23] The same study showed only 0.9% of participants scored below 30 in IAT. In comparison, our study has 34.2% of participants with scores indicating no internet addiction.

A study from Southwestern Iran showed 47.4% mild, 38.1% moderate, and 12.9% severe internet addiction levels among undergraduates.[26] The same 2019 study had only1.6% of participants without internet addiction. They identified a significantly higher proportion of senior students with severe internet addiction (16.4%) compared to junior students.

Earlier studies have revealed a positive relationship between perceived stress and Internet addiction among various age groups.[6, 27, 28] Mild and moderate internet addictions in our study were positively associated with a higher level of perceived stress. This finding was consistent with a similar study among resident doctors of a tertiary care hospital of north India.[7]Wu et al. had identified that youngsters with Internet addiction are more stressed than those without IA.[29] Some studies show that highly stressed online gamers use online gaming to relieve their perceived life stress.[30] Al Gamal et al. had pointed out that students who used problem-solving had lesser scores in IAT.[31] Haroon MZ et al. report that short periods of abstinence from the internet especially social networking sites may reduce perceived stress.[32]

We also found a statistically significant inverse relationship between internet addiction and emotional intelligence. Meyer JD and Salovey P, in their book, 'What is emotional intelligence?' had mentioned that higher mental ability for processing social cues and =pressures due to higher emotional intelligence might be helping individuals to understand the harmful consequences of excessive internet use better and making them deal with such stresses effectively.[33]

In a study conducted in Sweden in 2004, people scoring higher on IAT showed poor performance in emotion decoding tasks.34There was a significant reduction in emotional intelligence in students with internet addiction compared to those without it. A decrease in emotional intelligence scores was noticed with the increase in the scores of internet addiction test in the study. A moderate and inverse relation between internet addiction and emotional intelligence was found in a meta-analysis by Ranjbar H and Bakhshi M in 2018.35

There was a statistically significant difference in the emotional intelligence of the subjects in 'no', 'mild' and 'moderate' internet addiction categories. A study conducted by Sanghvi et al. in 30 subjects reported inconsistent findings that there was no significant relation to internet addiction with perceived stress and emotional intelligence.36

In a cross country study among undergraduate students, it was noticed that there was no direct relationship between perceived stress and emotional intelligence, which is inconsistent with this study.37 But they have observed an indirect negative relation with emotional intelligence through resilience.

LIMITATIONS

A generalization of our results to all other medical colleges may not be possible. Data from various government and private medical colleges in both urban and rural settings are required for such a generalization. As the information was collected using self-administered questionnaires, the possibility of social desirability bias is a limiting factor in this study. We had a smaller number of day scholars and male students as participants in our study. Also, the participation from two batches was comparatively less in our sample. Though we had a high response rate of 93.9% in our study, there could be some selection bias due to these. As the participation was anonymous, we couldn't meet the non-respondents and enquire about the reason; knowing which would have helped in planning future studies and interventions. The data is cross-sectional rather than longitudinal, so the findings cannot be used to attribute causal relationships. Prospective studies are

more desirable to study the association of various stressors like academic burden, relationship problems, etc. with the perceived stress. It would have been better if a comparison between those with IAT scores indicating addiction and those with no addiction was possible. As our results showed an approximate 2:1 ratio of addiction and no addiction scores in IAT, such a comparison was not made.

CONCLUSIONS

The prevalence of problematic internet use behaviour among undergraduate medical students was found to be 65.7%. Only mild and moderate levels of internet addiction were present, and they were showing significant perceived stress compared to those with no internet addiction as per IAT. Those with an addiction pattern of internet use also showed lower levels of emotional intelligence. It would be useful to identify those with lower levels of emotional intelligence and intervene effectively with stress management strategies during MBBS. Formal stress management sessions for undergraduate medical students would help reduce or prevent problematic internet use and emotional sequelae and help increase the productivity of the medicos. Future studies need to be carried out to have an in-depth analysis of these factors in various medical college environments and to plan suitable interventions thus to improve the overall mental health status of the undergraduate medical students all over the country.

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REFERENCES

1. Internet worlds stats-[Internet] [accessed on 2020 June 6]. Available from: https://www.internetworldstats.com/stats.htm
2. Young KS, Rogers RC. The relationship between depression and internet addiction. Cyberpsychology Behav. 1998;1:25-28.
3. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 5th ed. Arlingon, VA: American Psychiatric Publishing. 2013
4. Mayer JD, Salovey P, Caruso DR. Emotional intelligence: Theory, findings, and implications. Psychological Inquiry. 2004;15:97-215
5. Aghdasi S, Kiamanesh AR, Ebrahim AN. Emotional intelligence and organizational commitment: Testing the mediatory role of occupational stress and job satisfaction. In: Procedia - Social and Behavioral Sciences. 2011; 29:1965-1976
6. Jun S, Choi E. Academic stress and Internet addiction from general strain theory framework. Comput Human Behav. 2015;49:282-287
7. Grover S, Sahoo S, Bhalla A, Avasthi A. Problematic internet use and its correlates among resident doctors of a tertiary care hospital of North India: A cross-sectional study. Asian J Psychiatr. 2019;39:42-47
8. Young KS caught in the Net: How to Recognize the signs of Internet Addiction- and a Winning Strategy for Recovery. NewYork: John Wiley;1998.
9. Brackett MA, Rivers SE, Shiffman S, Lerner N, Salovey P. Relating emotional abilities to social functioning: A comparison of self-report and performance measures of emotional intelligence. J Pers Soc Psychol. 2006;91:780-795
10. Li W, O'Brien JE, Snyder SM, Howard MO. Characteristics of internet addiction/pathological internet use in US university students: a qualitative-method investigation. PLoS One. 2015;10(2): e 0117372.
11. Fatehi F, Monajemi A, Sadeghi A, Mojtahedzadeh R, Mirzazadeh A. Quality of life in medical students with Internet addiction. Acta Med Iran. 2016;54(10):662–6.
12. Krishnamurthy S, Chetlapalli S. Internet addiction: Prevalence and risk factors: A cross-sectional study among college students in Bengaluru, the Silicon Valley of India. Indian J Public Health. 2015;59:115–21.
13. Chaudhari B, Menon P, Saldanha D, Tewari A, Bhattacharya L. Internet addiction and its determinants among medical students. Ind Psychiatry J. 2015;24:158–162.
14. Ali R, Mohammed N, Aly H. Internet addiction among medical students of Sohag University, Egypt. J Egypt Public Health Assoc. 2017;92(2):86-95.
15. Malviya A, Dixit S, Shukla H, Mishra A, Jain A, Tripathi A. A Study to Evaluate Internet Addiction Disorder among Students of a Medical College and Associated Hospital of Central India. Natl J Community Med. 2014; 5:93–95.
16. Grover S, Chakraborty K, Basu D. Pattern of Internet use among professionals in India: Critical look at a

surprising survey result. Ind Psychiatry J. 2010;19(2):94-100.
17. Grover S, Sahoo S, Bhalla A, Avasthi A. Psychological problems and burnout among medical professionals of a tertiary care hospital of North India: A cross-sectional study. Indian J Psychiatry. 2018;60:175–88.
18. Prakash S. Internet addiction among junior doctors: A cross-sectional study. Indian J Psychol Med. 2017; 39:422–25.
19. Zhang MWB, Lim RBC, Lee C, Ho RCM. Prevalence of Internet Addiction in Medical Students: A Meta-analysis. Acad Psychiatry. 2018;42(1):88-93.
20. Kumar S, Singh S, Singh K, Rajkumar S, Singh Balhara YP. Prevalence and pattern of problematic internet use among engineering students from different colleges in India. Indian J Psychiatry. 2019;61(6):578-83.
21. Greenfield DN. What makes internet use addictive? In: Young K, Abreu CN, editors. Internet addiction: a handbook for evaluation and treatment. New York: Wiley; 2010. p. 135–53.
22. Greenfield DN. Treatment Considerations in Internet and Video Game Addiction: A Qualitative Discussion. Child Adolesc Psychiatr Clin N Am. 2018;27(2):327-44.
23. Javaeed A, Jeelani R, Gulab S, Ghauri SK. Relationship between internet addiction and academic performance of undergraduate medical students of Azad Kashmir. Pakistan J Med Sci. 2020;36(2):229-33.
24. Kitazawa M, Yoshimura M, Hitokoto H, Sato-Fujimoto Y, Murata M, Negishi K, et al. Survey of the effects of internet usage on the happiness of Japanese university students. Health Qual Life Outcomes [Internet]. 2019;17(1):151. Available from: https://doi.org/10.1186/s12955-019-1227-5
25. Strittmatter E, Kaess M, Parzer P, Fischer G, Carli V, Hoven CW, et al. Pathological Internet use among adolescents: Comparing gamers and non-gamers. Psychiatry Res. 2015;228:128-35
26. Sayyah M, Khanafereh S. Prevalence of internet addiction among medical students: a study from Southwestern Iran. Cent Eur J Public Health. 2019;27(4):326-29.
27. Chen SW, Gau SSF, Pikhart H, Peasey A, Chen ST, Tsai MC. Work stress and subsequent risk of internet addiction among information technology engineers in Taiwan. Cyberpsychology, Behav Soc Netw. 2014; 17:542-55
28. Feng Y, Ma Y, Zhong Q. The Relationship Between Adolescents' Stress and Internet Addiction: A Mediated-Moderation Model. Front Psychol. 2019;10:2248. DOI: 10.3389/fpsyg.2019.02248.
29. Wu W, Wu X, Yuan F, Zheng Y, Zheng X. The relationship between stress, coping styles and internet addiction of adolescents. Chinese J Clin Psychol. 2009; 6: 721–22.
30. Snodgrass JG, Lacy MG, Dengah F, Eisenhauer S, Batchelder G, Cookson RJ. A vacation from your mind: Problematic online gaming is a stress response. Comput Human Behav. 2014;38: 248-60
31. Al-Gamal E, Alzayyat A, Ahmad MM. Prevalence of Internet Addiction and Its Association with Psychological Distress and Coping Strategies Among University Students in Jordan. Perspect Psychiatr Care. 2016;52(1):49-61.
32. Haroon MZ, Zeb Z, Javed Z, Awan Z, Aftab Z, Talat W. Internet Addiction In Medical Students. J Ayub Med Coll Abbottabad. 2018;30(Suppl 1)(4): S659-S663.
33. Meyer JD, Salovey P. What is emotional intelligence? In: Salovey P, Sluyter D. (Eds.), Emotional Development, Emotional Literacy, and Emotional Intelligence. New York: Basic Books:1997. pp.3-31
34. Engelberg E, Sjöberg L. Internet Use, Social Skills, and Adjustment. Cyberpsychology Behav. 2004;7(1):41-47.
35. Ranjbar H, Bakhshi M. The Association between Internet Addiction and Emotional Intelligence: A Meta-Analysis study. Acta Facultatis Medicae Naissensis.2018;35(1):17-29
36. Sanghvi H, Rai U. Internet addiction and its relationship with Emotional Intelligence and Perceived Stress experienced by Young Adults, The International Journal of Indian Psychology. 2015;7(1):64-76
37. Sarrionandia A, Ramos-Díaz E, Fernández-Lasarte O. Resilience as a Mediator of Emotional Intelligence and Perceived Stress: A Cross-Country Study. Front. Psychol. 2018;9:2653. DOI: https://doi.org/10.3389/fpsyg.2018.02653

Research Report

POSTPARTUM DEPRESSION AND ITS ASSOCIATION WITH SOCIAL SUPPORT: A CROSS-SECTIONAL STUDY AT A MATERNITY HOSPITAL IN KERALA

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ABSTRACT

Background: Childbirth is associated with significant physiological changes as well as challenges related to psychiatric disorders. Postpartum depression (PPD) is one such condition associated with high levels of morbidity and mortality. Screening postpartum women for early identification of depression and its prompt treatment should be a crucial component of postnatal health care. Assessment of prevalence and correlates of postpartum depression hence becomes important. **Methods**: Cross-sectional assessment of mothers (n=250) during postnatal visits to the family planning clinics between four weeks and one year of delivery, using Edinburg Postpartum Depression Scale (EPDS), Social Support Questionnaire and a structured questionnaire for the assessment of psychosocial risk factors was carried out in a tertiary care postgraduate teaching hospital of north Kerala. Multivariate Regression Analysis was used to identify the risk factors for PPD. **Results**: 27.6% had postpartum depression (score of $\geq$11 in EPDS), and 18.4% had suicidal ideation. Factors associated with the presence of PPD included alcohol use of husband, marital discord, lack of family support and lack of physical help during the postnatal period. Difficulties during labour, the gender of the baby or postnatal complications did not have a significant association with PPD. Though there was a negative correlation between Social Support Scale (SSS) total score and EPDS score, it was not statistically significant. (Pearson's co-relation coefficient= -0.084, p= 0.186). **Conclusion**: Prevalence of depression in postnatal women is very high. Modifiable psychosocial factors have a close association with PPD, and these are opportunities for intervention as well. Considering the morbidity and mortality linked to untreated PPD, screening of postnatal women and routine provision of therapeutic services to them is suggested.

Keywords: depression, postpartum, screening, risk factors, psychosocial support

INTRODUCTION

Postpartum depression (PPD) is defined as a clinical condition fulfilling the diagnostic criteria for a major depressive disorder and having its onset in the first four weeks of the postpartum period.[1] Although for definition, only the first four weeks are counted, the initial three months of the postpartum period has been identified to carry a high risk for new-onset depressive disorder.[2] The incidence of postpartum depression is 8-12% in the first nine weeks postpartum.[3] Greater than 60% of these patients have an onset of symptoms within

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the first six weeks.[4] Operational definitions of depressive disorders with onset in the postpartum period more than four weeks after delivery have hence been discussed in the context of research.[5] Personal or family history of a mood disorder has often been linked to postpartum depression as well as depression during the pregnancy. With a prior history of PPD, the patient has a 50-62% chance of recurrence, a risk high enough to consider prophylactic treatment. The risk factors for postnatal depression are a past history of psychiatric disorder, psychiatric disorder during pregnancy, low socioeconomic status, complicated delivery, and poor marital relationship.[4] Two important studies done in India found that the prevalence of postpartum depression was 19.8% and 23% respectively.[6,7] Low income, the birth of a daughter when a son was desired, relationship difficulties with mother-in-law and parents, adverse life events during pregnancy and lack of physical help were risk factors for the onset of postpartum depression in the previous study, whereas economic deprivation, poor marital relationship and gender of the infant was implicative in the latter study which was the first hospital-based prospective study on the subject in South Asia.

The high prevalence of PPD points towards the need for accurately identifying mothers having symptoms through screening and providing them access to treatment. This has been highlighted by professional bodies like the American College of Obstetricians and Gynecologists (ACOG) in their guidelines.[8] However, screening for PPD is not practised universally, and estimates show that more than half the cases remain unidentified even in countries that had screening programs implemented for the same. Factors influencing such a low level of identification could include the inherent reluctance of a depressed person to seek help, lack of strict guidelines necessitating universal screening of postpartum women for PPD, inadequate awareness among obstetricians regarding the gravity of the problem, not using standardized tools for screening etc.[9]

The present study aimed to determine the prevalence of postpartum depression among postnatal women attending the Family Planning Clinic at Institute of Maternal and Child Health, Department of Obstetrics and Gynaecology, Government Medical College, Kozhikode, Kerala. It also evaluated the factors associated with postnatal depression and the relationship between social support and the prevalence of postpartum depression.

METHODS

The study was conducted in a tertiary care postgraduate teaching hospital of a government medical college in North Kerala. The research proposal was formally approved by the Institutional Review Board and the Institutional Ethics Committee. In a cross-sectional study design, postnatal females falling in the period ranging from at least four weeks postpartum up to a maximum of one year and attending the postnatal clinic at Family Planning Unit of the department of obstetrics and gynaecology during the year 2004-2005 were considered for enrolment. Three to four consecutive patients were recruited on two fixed days of a week during the study period based on inclusion and exclusion criteria. Participants were assigned unique identification numbers at the time of assessment to prevent multiple enrolments of the same person. The evaluation was done in the presence of a hospital nurse after complete description of the study procedure and after obtaining written informed consent. No incentives were paid to the study participants. Consenting mothers who had delivered a baby after carrying to the period of viability were reporting between four weeks to one year of delivery and were able to read and understand Malayalam were included in the study. Those mothers with any severe medical/surgical condition interfering with the use and advancement of the tools mentioned or those who had delivered earlier than four weeks or beyond one year from the time of assessment were excluded from the study. Author SK collected the data by face-to-face interview and from the postnatal card by application of the tools mentioned below.

Structured questionnaire: Author SK administered a specifically designed pre-tested structured questionnaire to collect data regarding sociodemographic characteristics and factors associated with PPD, based on previously reported risk factors. The structured questionnaire assessed the following variables: obstetric history and delivery related variables; perinatal stressors (emergency caesarean delivery, failed breastfeeding, neonatal admissions and/or death, prolonged postpartum hospital stay); infertility, miscarriages or termination of pregnancies in the past; demographic and socioeconomic factors (age,

marital status, education, unemployment, being a homemaker, financial constraints); gender-related variables (gender of the newborn, number and gender of elder children); past history of depression (related to or unrelated to pregnancy) and family history of psychiatric disorder; family and interpersonal relationships (marital dissatisfaction, poor support from and intimate-partner problems/violence (husband), husband's alcohol intake, family structure (joint or nuclear), problems with parents and/or mother-in-law; fears and expectations (wanted/unwanted pregnancy, desired gender of the child, pressure to have a male child).

Edinburgh Postpartum Depression Scale (EPDS): EPDS is one of the most widely used screening tool world over. The EPDS was chosen because of its brevity and because it has been validated in multiple countries.[10] Validated Malayalam version of the tool was used for the study. An EPDS score of > 11 identified 100% of women who became depressed in a British community sample comprising 86 recently delivered mothers[62] whereas a score of 12 had sensitivity of 86% and a 73% positive predictive value for identifying women with postpartum depression.[10,11] Hence Holden et al. [12] have suggested a cut off of >12 to provide the best compromise between the false positives and false negatives. Since the aim of our study was to detect the prevalence of postpartum depression in an unscreened population, it was necessary to keep the sensitivity high. Hence, the cut off was chosen as 11 or above.[13] Patients scoring beyond the cut off for depression in EPDS (score $\geq$ 11) were advised to attend the department of psychiatry for further care and this fact was noted in the postnatal card. For the patients who expressed suicidal ideation, an urgent psychiatry consultation was arranged after counselling the patient and her attendant.

Social Support Scale: Malayalam version of the Social Support Scale was used for measuring perceived social support. It measures seven relational provisions, namely, attachment, social integration, reassurance, reliable alliance, guidance and opportunity for nurturance and provision for psychological safety. The scale was administered individually. Each provision is assessed by four items, two that describe the presence and two that describe the absence of the provisions. The subjects are to indicate on a 4-point scale, ranging from 'completely true' to 'not at all true', the extent to which each statement describes their current relationships. For the scoring purposes, the negative items are reversed and summed together with the positive items to form a score for each social provision. Total social support perception score is derived by summing the seven individual provision score. The total score can fall on a range from zero to 28, with a score of 14 or lower considered to indicate low levels of social support. The internal consistency for the total score ranged from 0.81 to 0.90 across a variety of samples tested. Odd-even reliability of the full scale was established as 0.86. The internal consistency for the total score ranged from 0.81 to 0.90 across a variety of samples tested. Odd-even reliability of the full scale was established as 0.86 with a validity coefficient of 0.90.[14]

Sample size: Two important studies done in India found that the prevalence of postpartum depression was 19.8% and 23% respectively.[5,6] In view of the higher prevalence reported in the Indian studies; we anticipated a 20% prevalence of PPD among our population. The calculated sample size with a 5% error required for 95% confidence level was found to be 246.1, which was rounded to 250.

Statistical analysis of data was done using the Statistical Package for the Social Sciences, version 16.0 (SPSS Inc.) Quantitative data were expressed as Mean, Standard Deviation and numbers and percentages. Comparison between groups was done by using the Chi-square test or Fischer's exact test. Variables that were found to be associated with PPD at the Univariate level was further included in a Multivariate Regression Analysis to find out the risk factors for PPD. The risk was expressed as odds ratio (OR), and 95% Confidence interval (CI) was estimated for the same. Pearson's correlation was used to find the correlation between the Social Support Scale and EPDS, the two tools used in the study.

RESULTS

The characteristics of the sample are summarised in table1. Mean age of the sample was 24.9 (SD, 4) years. Taking EPDS score of $\geq$ 11 as the cut-off, prevalence of PPD was 27.6%. Suicidal ideation was expressed by 46 subjects (18.4%). Factors significantly associated with PPD on the univariate analysis included being married to a manual labourer, serious problems from

Table 1: Basic characteristics of the study subjects

Variable (N=250)	Frequency (%)
Occupation	
Homemaker	227(90.8%)
Employed	23(9.2%)
Education	
6th grade or more	245(98%)
Below 5th grade	5(2%)
Husband occupation	
Daily wages manual labourers	193(77.3%)
Salaried	57(22.8%)
Shelter	
Shelter concerns present	90(36%)
Income	
Income concerns present	80(32%)
Family structure	
Extended or joint families	171(68.4%)
Parity status	
Primiparous	112(44.8%)
Para2 or more	138(55.2%)
Sex preference for baby	
Male baby preferred	42(16.8%)
Female baby preferred	42(16.8%)
No sex preference	166(66.4%)
Delivery in the hospital setting	250(100%)
Caesarean delivery	80(32. %)

husbands, marital discord due to alcoholism of the husband, having low self-rating of marriage, lack of support from parents and mother-in-law, and lack of physical help at home in the post-delivery period. (Table 2)

Presence of relatives who were of help during problems was associated with a significantly lower risk of PPD (OR0.32, 95% CI 0.15 - 0.69, p=0.002). A feeling of being an unwanted member in the family (OR 1.9, 95% CI 0.98-3.9, p=0.054) or belief in god (OR 1.74, 95% CI 0.65–4.69, p=0.266) did not have any statistically significant association with PPD.

Gender of the current baby, antenatal complications, in-labour complications, or postnatal complications revealed no significant association with PPD. None of the mothers in the sample population reported a family history of depression. Only one patient gave a history of depression in the past and puerperium. Age of patient, level of education, duration of the marriage, residential location (rural or urban), parity or the number of living children, previous history of infertility or termination of pregnancy were not associated with PPD.

The factors significantly associated with PPD identified on univariate analysis were further subjected to Multivariate Regression Analysis to identify the risk factors for PPD. Thus, the ten factors listed in Table 2 were independent variables, and PPD was the dependent variable. The risk factors thus identified were serious problems from husband, lack of support from mother-in-law and rebellious attitude that was reflected as a dislike in obeying suggestions. (Table 3) Presence of close relatives with whom the mother could confide when problems arose was found to be protective from depression (OR 0.43, 95% CI 0.19-0.98, p=0.047).

The Social Support Scale (SSS) total score and EPDS score showed a negative correlation that was not statistically significant. (Pearson's co-relation coefficient= -0.084, p=0.186)

DISCUSSION

Prevalence of postpartum depressive symptoms in the present study was 27.6% of the participants. In a recent systematic review and meta-analysis, the incidence of PPD was found to range from 3.4% to 34%.[15] A prospective Indian study (n=84) had estimated the prevalence of depression to be 8.3%, 20% and 12.8% at the third trimester of pregnancy, within three days of delivery and within four to eight weeks of delivery respectively.[16] The growing number of suicides as a cause of maternal mortality in Kerala has been identified in a confidential review of maternal deaths in Kerala.[17] The program 'Amma Manassu' implemented by the Department of Health and Family Welfare in Kerala is aimed at reducing the maternal deaths due to suicide.[18] The high prevalence of PPD along with the high reported rate of suicidal ideation in the study population underlines the importance of routine screening of postpartum women as suggested by professional organizations.[8]

The present study pointed towards serious intimate partner problems, including violence in a significant proportion of patients similar to some previous reports documenting as many as 12%-23% of mothers having encountered recent intimate partner violence.[19,20] Another study had demonstrated that 60% of mothers

Table 2 Psychosocial factors associated with PPD

Factor associated with depression	Odds ratio (OR)	95% CI	P-value
Being married to a manual labourer	2.41	1.1- 5.2	<0.001
Serious problems from their husbands	17.4	3.7- 80.79	<0.001
Marital discord related to husband's alcoholism	8.4	1.6-42.8	0.002
A low self-rating of the married life (<50/100)	2.86	1.13-7.28	0.013
Low level of support from parents	2.87	1.09-7.6	0.05
Lack of physical help at home during the postpartum period	2.64	1.06-7.0	0.011
A life isolated from relatives	2.78	1.35-5.7	0.004
Lack of supportive and guiding figures	2.75	1.5-5.2	0.002
Disliked obeying suggestions from others	2.68	1.43-5.04	0.002
Presence of helping relatives during problems	0.32	0.15–0.69	0.002

Table 3 The risk factors for PPD

Risk factors for depression	Adjusted Odds Ratio (AOR)	95% CI	P-value
Serious problems from husband	13.3	2.7-63.5	0.001
Lack of support from mother-in-law	3.2	1.5-6.8	0.002
Rebellious attitude	2.13	1.14-4.03	0.019

with intimate partner violence also had a positive postpartum depression screen.[21]

As most women live in a family that includes parents-in-law, the lack of support from mother-in-law as a risk factor is of practical significance. Being married to a manual labourer was identified as a risk factor, and this may be reflective of a low socioeconomic status related to such an occupation in the spouse. Although the birth of a daughter when a son was desired was found to be a risk factor for depression in a study conducted in Tamil Nadu, the present study did not reveal any such association.[6] This may be because Kerala occupies the top position in the list of Indian states with women preferring girl child and tops the list of Indian states ensuring proper educational avenues for girl children.[22,23] Importance of lack of social support as a major determinant of PPD has already been identified in previous studies.[24] Both univariate and multivariate regression analysis demonstrated that the presence of family members who are supportive was protective against PPD. Existing literature suggests that primiparous status, very young or old age of the mother, history of infertility, and having an infant with special needs or who is difficult to care for, are risk factors for PPD.[25] However none of the medical or surgical co-morbidities that occurred prior to or during or after the period of pregnancy was found to be significantly linked to PPD in the present study.

Although the past history of depression and/or anxiety is a recognized risk factor for PPD, only one patient in the present study gave a positive history of any psychiatric disease in the past. No one reported a family history of psychiatric illness.[26] Underreporting and its potential relation to the stigma of psychiatric diagnosis could not be ruled out in this regard.

The present study enrolling a sufficient sample of postnatal mothers attending the Family Planning Clinic of a maternity hospital and using validated objective tools have thus corroborated existing evidence of a relatively high prevalence of PPD and suicidal ideation. However, the nature of the population sampled and the cross-sectional nature of the evaluation, coupled with the use of a relatively lower threshold for diagnosing PPD limits the generalizability of the results.

CONCLUSION

Prevalence of depression in postnatal women is high. Modifiable psychosocial factors have a close association with PPD, and these are opportunities for intervention as well. Considering the morbidity and mortality linked to untreated PPD, screening of postnatal women and provision of therapeutic services to them is suggested.

Future studies of prospective nature in a community sample can provide more realistic estimates of the prevalence of PPD, its clinical course and its impact on the health of mothers in terms of morbidity and suicidality.

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REFERENCES

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, 5th ed.: DSM-5. Arlington, VA: American Psychiatric Publishing, 2013.
2. Stowe ZN, Nemeroff CB. Women at risk for postpartum-onset major depression. Am J Obstet Gynecol. 1995;173(2):639-645.
3. Altshuler LL, Hendrick V, Cohen LS. Course of mood and anxiety disorders during pregnancy and the postpartum period. J Clin Psychiatry. 1998;59 Suppl 2:29-33.
4. O'Hara MW, Neunaber DJ, Zekoski EM. Prospective study of postpartum depression: prevalence, course, and predictive factors. J Abnorm Psychol. 1984;93(2):158-171.
5. Mitchell AJ, Coyne J. Screening for postnatal depression: barriers to success. BJOG. 2009;116(1):11-14.
6. Chandran M, Tharyan P, Muliyil J, Abraham S. Post-partum depression in a cohort of women from a rural area of Tamil Nadu, India. Incidence and risk factors. Br J Psychiatry. 2002; 181:499-504.
7. Patel V, Rodrigues M, DeSouza N. Gender, poverty, and postnatal depression: a study of mothers in Goa, India. Am J Psychiatry 2002; 159:43-47
8. Screening for Perinatal Depression - Committee Opinion Number 757 November 2018. ACOG. Available from: https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/11/screening-for-perinatal-depression
9. Mitchell AJ, Coyne J. Screening for postnatal depression: barriers to success. BJOG. 2009;116(1):11-14.
10. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. Br J Psychiatry. 1987; 150:782-86.
11. Harris B, Thomas R, Johns S, Fung H. The use of rating scales to identify postnatal depression. Br J Psychiatry 1989; 154:813-7.
12. Holden JM., Sagovsky R, Cox JL. Counselling in a general practice setting: controlled study of health visitor intervention in treatment of postnatal depression. BMJ, 1989;298:223 -26.
13. Matthey S, Henshaw C, Elliott S, Barnett B. Variability in use of cut-off scores and formats on the Edinburgh Postnatal Depression Scale: implications for clinical and research practice. Arch Womens Ment Health. 2006;9(6):309-15
14. Asha CB. Social Support Scale (Unpublished). PhD thesis, Department of Psychology: University of Calicut; 1996.
15. Shorey S, Chee CYI, Ng ED, Chan YH, Tam WWS, Chong YS. Prevalence and incidence of postpartum depression among healthy mothers: A systematic review and meta-analysis. J Psychiatr Res. 2018; 104:235–48.
16. Sood M, Sood AK. Depression in pregnancy and postpartum period. Indian J Psychiatry. 2003;45(1):48-51.
17. Paily VP, Ambujam K, Rajasekharan Nair V, Thomas B. Confidential Review of Maternal Deaths in Kerala: a country case study. BJOG. 2014;121 Suppl 4:61-66.
18. Ganjekar S, Thekkethayyil AV, Chandra PS. Perinatal mental health around the world: priorities for research and service development in India. BJPsych International 2020; 17:2-5.
19. Dubowitz H, Prescott L, Feigelman S, Lane W, Kim J. Screening for intimate partner violence in a pediatric primary care clinic. Pediatrics. 2008;121(1): e85-e91.
20. Bair-Merritt MH, Jennings JM, Eaker K, Tuman JL, Park SM, Cheng TL. Screening for domestic violence and childhood exposure in families seeking care at an urban pediatric clinic. J Pediatr. 2008;152(5):734-36.

21. Kornfeld BD, Bair-Merritt MH, Frosch E, Solomon BS. Postpartum depression and intimate partner violence in urban mothers: co-occurrence and child healthcare utilization. J Pediatr. 2012;161(2):348-53. e2.
22. Women and Men in India-2016 Government of India. Ministry of Statistics and Programme Implementation. Available at: http://mospi.nic.in/publication/women-and-men-india-2016
23. Key indicators of household social consumption on education in India. July 2017- June 2018. Government of India. Ministry of Statistics and Programme Implementation. Available at: http://mospi.gov.in/sites/default/files/publication_reports/KI_Education_75th_Final.pdf
24. Eastwood JG, Jalaludin BB, Kemp LA, Phung HN, Barnett BE. Relationship of postnatal depressive symptoms to infant temperament, maternal expectations, social support and other potential risk factors: findings from a large Australian cross-sectional study. BMC Pregnancy Childbirth. 2012; 12:148.
25. Gaillard A, Le Strat Y, Mandelbrot L, Keïta H, Dubertret C. Predictors of postpartum depression: prospective study of 264 women followed during pregnancy and postpartum. Psychiatry Res. 2014;215(2):341-46.
26. Liberto TL. Screening for depression and help-seeking in postpartum women during well-baby pediatric visits: an integrated review. J Pediatr Health Care. 2012;26(2):109-17.
27. 24. Olson AL, Kemper KJ, Kelleher KJ, Hammond CS, Zuckerman BS, Dietrich AJ. Primary care pediatricians' roles and perceived responsibilities in the identification and management of maternal depression. Pediatrics. 2002;110(6):1169-76.
28. 25. Nelson DB, Freeman MP, Johnson NL, McIntire DD, Leveno KJ. A prospective study of postpartum depression in 17,648 parturients. J Matern Fetal Neonatal Med. 2013;26(12):1155-61
29. 26. Chaudron LH, Szilagyi PG, Campbell AT, Mounts KO, McInerny TK. Legal and ethical considerations: risks and benefits of postpartum depression screening at well-child visits. Pediatrics. 2007;119(1):123-28.

Research Report

SELF-INFLICTED UPPER LIMB INJURIES IN A TERTIARY CARE SEMI-RURAL PLASTIC SURGERY UNIT–A PSYCHIATRIC EVALUATION

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ABSTRACT

Background: Deliberate self-harm patients (DSH) with upper limb injuries are commonly admitted in the plastic surgery units. Psychiatric comorbidities are risk factors for these patients with self-inflicted injuries. A multidisciplinary team approach is needed.

Methods: Patients who presented with self-inflicted upper limb injuries in the plastic surgery department were referred for psychiatric liaison services. Socio-demographic data, mode of injury, plastic surgical procedures, and psychiatry diagnosis were noted.

Results and discussion: Out of 48 patients, 20 (41.6%) belong to the 21-30 age group, 30 (62.5%) were males. 43 (89.6%) patients needed major plastic surgery procedures. The major psychiatric comorbidities were depressive disorder (27.1%), adjustment disorder (16.6%), alcohol dependence syndrome (14.6%), and bipolar mood disorder (12.5%). High psychiatric morbidity among self-inflicted hand injuries suggests the need for a multidisciplinary approach and long term follow-up.

Conclusion: Psychiatric liaison services are important in the treatment of self-inflicted upper limb injuries.

Keywords: self-inflicted injuries, plastic surgery, psychiatric comorbidity

INTRODUCTION

Suicide is a deliberately performed act with the knowledge of its fatal outcome. In contrast, the term deliberate self-harm (DSH) or para-suicide is used to describe intentional self-harm, which may or may not be intended to end life.[1] There is an overlap between the two. Of the many who attempt suicide every year, 8,00,000 turn fatal.[2]

Individuals with self-inflicted upper limb injuries are commonly admitted in plastic surgery units.[3] These have low mortality but have a significant disability as a sequel to the neurovascular injury sustained during these attempts.[4] The most prevalent form of self-harm is skin cutting contributing to 50- 70%.[3, 5] Personality disorders and other co-morbid psychiatric conditions are risk factors for self-mutilation and suicidal behaviours.[6]

Because of these factors, a multidisciplinary approach with components of emergency medicine, plastic surgery, psychiatry, and rehabilitation is needed in the care of these individuals.[7] Only a few studies evaluating

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psychiatric comorbidities among self-inflicted upper limb injuries are reported from Asia.[5]

METHODS

This study was conducted in a tertiary care medical college hospital in a semi-rural setting. There is a post-graduate psychiatry department with liaison services and a plastic surgery unit handling hand and microvascular surgeries.

This is a cross-sectional study in which patients were selected through consecutive sampling. The patients who presented with self-inflicted hand injuries in the plastic surgery department from January 2018 to December 2019 were included in the study. Psychiatric liaison services were sought for each patient who presented with self-inflicted injuries of upper limbs. Ethical approval was taken from the institutional ethical committee, and informed consent was taken from each patient. The data were collected using a semi-structured proforma for socio-demographic data and clinical details of the patient. The mode of injury and plastic surgery procedures done were recorded. A consultant psychiatrist examined the patient as part of the psychiatric liaison services. The psychiatric diagnosis was based upon ICD-10 diagnostic criteria.

RESULTS

Out of 48 patients who presented with self-inflicted injuries, 20 (41.6%) belonged to the 21-30 age group (Table 1). Table 2 shows that 25 (52.2 %) of patients presented with a cut injury with a knife or blade. 43 (89.6%) of patients had deep injuries that needed major plastic surgery procedures. Table.4 suggests that major depressive disorders 13 (27.1%) were the most common psychiatric comorbidity, followed by adjustment disorder (8;16.6%) and alcohol dependence syndrome (7;14.6%). The highest number of smashing glass

Table 1 – Socio-demographic data of Individuals with self-inflicted upper limb injuries (N= 48)

Age	n (%)
11-20	8 (16.6)
21-30	20 (41.6)
30-40	12 (25)
40 +	8 (16.6)
Gender	
Male	30 (62.5)
Female	18 (37.5)
Marital status	
Single	18 (37.5)
Married	25 (52.08)
Divorced /Separated	5 (10.4)

Table.2; Mode of injury and plastic surgery diagnosis (N= 48)

	n (%)
Mode of injury	
Smashing glass sheet/window associated with aggression	18 (37.5)
Cut injury wrist with knife/blade	25 (52.08)
Self-injury above wrist level	5 (10.4)
Plastic surgery diagnosis	
Skin and superficial fascia	5 (10.4)
Multiple tendons	11 (21.4)
Nerve injuries	4 (8.3)
Vascular injuries	3 (6.2)
Combined neurovascular and tendon injuries	25 (52.08)
Surgical procedure	
Simple repair	5 (10.4)
Tendon repair	11 (22.9)
Microneural repair	4 (8.33)
Arterial repair	3 (6.2)
Exploration and repair of an artery, nerve and tendons	25 (52.08)

Table.3: No of injuries (N=48)

No of injuries	n (%)
Single cut	42 (87.5)
Multiple level superficial injuries	3 (6.2)
Multiple level deep injuries	2 (4.2)
Bilateral upper limbs	1 (2.1)

Table. 4 Psychiatric diagnoses among Individuals with self-inflicted upper limb injuries (N= 48)

Psychiatric diagnosis (ICD-10)	n (%)
Major depressive disorder	13 (27.1)
Adjustment disorder	8 (16.6)
Alcohol dependence syndrome	7 (14.6)
Bipolar mood disorder	6 (12.5)
Personality disorder (Two anti-social and two borderline)	4 (8.3)
Acute stress reaction	3 (6.2)
Schizophrenia	2 (4.2)
Obsessive-compulsive disorder	1 (2.1)
No current psychiatric diagnosis	4 (8.3)

Table 5. Patients presented with smashing glass injuries associated with aggression and psychiatry diagnosis (N= 18)

Alcohol dependence syndrome	8 (44.4)
Bipolar mood disorder	3 (16.7)
Anti-social personality disorder	2 (11.1)
Adjustment disorder	1 (5.6)
No diagnosis	4 (22.2)

injuries were associated with alcohol dependence (8;44.4%). (Table.5)

DISCUSSION

The maximum number of patients were in the 21-30 age group, and there was a male preponderance which is similar to the study done by S Mac Learie et al.[3] Another study done by Rashid A and Brennen showed that the average age was 28 years with a male to female ratio of 2:1.[8] This finding is in contrast to the study done by Hawton and Harris, which showed that 63% were female patients.[9]

89.6% of the patients presented with extensive injuries, which needed major surgeries, including neurovascular repair, as also seen in the study by Ersen et al.[4] This showed that only major injuries were referred to the plastic surgery department and minor injuries were managed in the emergency department. Psychiatric diagnosis, based on ICD-10 criteria, showed depressive disorders (27.1%) were the commonest cause of lethal self-inflicted injury, as was reported in the study by Learie et al. [3] and VD Krishnaram, et al.[10] Alcohol-related problems contributed to 14.6% of the injuries as in the study by Ersen et al.[4,7] An Indian study by Gupta et al. on non-depressed substance abuse patients showed that 32.7% had DSH.[11] In this study, 44.4% of patients with smashing glass injuries under aggression had alcohol dependence syndrome. The current study also showed that personality disorders (two anti-social and two borderline) were more often seen among subjects with self-inflicted injuries as discussed by Krysinska et al.[6]

There is a high chance of repeated suicidal attempt after DSH.[7,9,12,13] It highlights the need for collaboration between plastic surgeons and psychiatrists. Many patients get discharged from surgical departments without proper psychiatric evaluation.[8,9]

Consultation-Liaison Psychiatry (CLP)is an upcoming specialty of psychiatry in developing countries like India. The main objective of CLP is the integration of clinical expertise and skills of mental health professionals with that of other clinicians enabling the provision of multimodal care to the patients.

Limitations

This study could not include details about psychiatric comorbidity, management and follow-up. The association between the variables could not be assessed. More prospective multi-centred studies are needed for evaluation of the patients with DSH.

CONCLUSION

Psychiatry liaison services among plastic surgery patients with self-inflicted injuries showed high psychiatry comorbidity, which needs further evaluation and follow-up. A multidisciplinary approach to these patients might prevent further repeated episodes of self-harm.

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REFERENCES

1. Cowen P, Harrison P, Burns TM, Fazel. Shorter Textbook of Psychiatry,7th ed.Oxford: Oxford University Press. 2017.1118-39,
2. Nazeer N, Tharayil HM, Vidyadharan V. A Comparative study of impulsivity, lethality and intent among patients attempting suicide by self-immolation and poisoning. Kerala Journal of Psychiatry. 2019;32(1):10-16.
3. Mc Learie S, Orr DJA, O'Dwyer AM. Psychiatric morbidity in a regional plastic surgery centre— one-year review with a proposed categorisation. Br J Plast Surg. 20041;57(5):440–5.
4. Ersen B, Kahveci R, Saki M, Tunali O, Aksu I. Analysis of 41 suicide attempts by wrist cutting: a retrospective analysis. Eur J Trauma Emerg Surg. 2015;43.
5. Rabi S, Sulochana J, Pawan S. Self-inflicted cut injury as common method of deliberate self harm: A retrospective study from Nepal. Indian J Psychol Med. 2017; 39(5):579-83.
6. Krysinska K, Heller TS, De Leo D. Suicide and deliberate self-harm in personality disorders. Current Opinion in Psychiatry. 2006;19:95-101.
7. Jeong SH, Gu JH, Kim WK. Analysis of Self-Inflicted Lacerations to the Wrist: A Multidisciplinary Approach to Treating. J hand Surg Asian-Pacific. 2020:2020:47-53.
8. Rashid A, Brennen MD. Psychiatric assessment of patients with self-inflicted lacerations to the wrist and forearm admitted to a nonpsychiatric ward: The experience of a regional plastic surgery unit. J Plast Reconstr Aesthetic Surg. 2006;59(3):266-71.
9. Hawton K, Harriss L. Deliberate self-harm in young people: Characteristics and subsequent mortality in a 20-year cohort of patients presenting to hospital. J Clin Psychiatry. 2007; 68(10):1574-83

10. Krishnaram VD, Aravind VK, Vimala AR. Deliberate self-harm seen in a government licensed private psychiatric hospital and institute. Indian J Psychol Med. 2016; 38(2): 137–4.
11. Gupta R, Narnoli S, Das N, Sarkar S, Balhara Y. Patterns and predictors of self-harm in patients with substance-use disorder. Indian J Psychiatry. 2019; 61(5):431-48.
12. Bilén K, Ottosson C, Castrén M, Ponzer S, Ursing C, Ranta P, et al. Deliberate self-harm patients in the emergency department: Factors associated with repeated self-harm among 1524 patients. Emerg Med J. 2011; 28(12):1019-25
13. Yip PSF, Hawton K, Liu K, Liu K sun, Ng PWL, Kam P man, et al. A study of deliberate self-harm and its repetition among patients presenting to an emergency department. Crisis. 2011; 32(4):217-24

Research Report

SELF-REPORTED EMOTIONAL EXPERIENCE AMONG POLICE PERSONNEL BEFORE AND AFTER ATTENDING A MINDFULNESS-BASED INTERVENTION (MINDFUL LIFE MANAGEMENT-MLM) – AN OBSERVATIONAL STUDY

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ABSTRACT

Background: Stress has been proven to be hazardous, resulting in significant physical, emotional, social and cognitive disturbances which are unpleasant. Police officers have elevated rates of cardiovascular diseases, sleep disorders, anxiety disorders, depression and Post Traumatic Stress Disorder (PTSD). Kerala Police has implemented several programs for management of stress among its members. Mindfulness-Based Interventions (MBIs) have been shown to enhance emotional intelligence, reduce negative emotions and health outcomes in police officers. **Objective**: The objective of the current study is to study the effectiveness of an MBI in reducing the negative emotions among police officers. **Methods**: The present study is an observational study which attempts to assess and compare the subjectively reported emotion and Mindfulness level among police personnel before and six weeks after attending the Mindful Life Management (MLM) workshop. **Results**: Results of the present study suggests a statistically significant association between subjective emotional experience and the MBIs. Five Facet Mindfulness Questionnaire (FFMQ) scores also were found to be significant statistically. FFMQ scores before and after the MLM workshop were found to be statistically significant. **Conclusion**: Results of the present study points to the fact that MLM can be thought of as a method of intervention to manage emotional turmoil among police personnel of our state. The relationship between the change in emotion and change in FFMQ score has to be further explored with adequate sample size. This ongoing study comparing the stress and emotional levels of the police force in the State of Kerala before and after MLM course will help to strengthen further the effects of MBIs in recognizing their emotional state.

Keywords: mindfulness, life management, emotional experience

INTRODUCTION

The World Health Organization has classified stress as the "health epidemic of the 21st century".[1] Excess stress has been proven to be hazardous, resulting in significant physical, emotional, social and cognitive disturbances which are unhealthy and unpleasant. Stress has been broadly divided into eustress (positive stress) and distress (negative stress). Distress typically has

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been described to have the potential to do significant damage by impairing a person's resource utilization ability and coping skills[2]. Thoughts and emotions play a significant role in creating stress and distress.

Policing is one of the occupations which has proven to be highly stressful. The profile of the job, the expectations, the social attitudes play an important role in determining stress. Stress among police officers potentially reduces the effectiveness of the personnel to carry out their jobs. Police officers take the daily risk of exposure to acute traumatic events and high levels of chronic organizational stressors. These have an erosive effect on physical and mental well being. Police officers have elevated rates of cardiovascular diseases, sleep disorders, depression and Post Traumatic Stress Disorder (PTSD).[3]

Few studies have been conducted to assess the level of subjective emotion and stress among police personnel.[4] In a cross-sectional assessment of police stress among 296 police personnel in Puducherry, India, 83.8% of police personnel had high levels of stress.[5]

For several years the police force in Kerala has been attempting to tackle the problem of stress among its officers. In 2017 January, Help and Assistance to Tackle Stress (HATS) were started at the Special Armed Police Battalion Camp, in the city of Thiruvananthapuram, to provide appropriate consultation services to police officers. Another program named "Raksha" was initiated during the middle of 2017 jointly by the Police Training College, Thiruvananthapuram and Department of Psychiatry, Government Medical College Thiruvananthapuram (hereafter called the Joint Unit/JU). It aimed to provide awareness about the mental health aspects and also about the related legal aspects to police officers. Besides, the program included a 90-minute session on Mindfulness-Based Stress Management for police officers.

Subsequently, the JU decided to implement an adapted version of Mindfulness-Based Intervention namely Mindful Life Management (MLM), a stress management program developed and followed by the Holistic and Psychosomatic Clinic of the Department of Psychiatry. MLM is a modified version based on the basic principles of mindfulness-based stress management program developed and practised in India. It is relatively affordable and easy to train and practice.[6] The choice of an MBI was based on the fact that this was a brain-based technique supported by empirically validated literature.[7]

Mindfulness has been defined by Jon Kabat Zinn, considered as the father of modern mindfulness revolution, as a moment to moment non-reactive, non-judgmental awareness.[8] Various methods have been used for training people in cultivating mindfulness through workshops. The most common among these methods is the practice of meditations.[9]

Evidence supports the use of MBIs as an effective psychological intervention.[10] Mindfulness is associated with a reduction in anxiety[11], depression and addictive behaviours.[12] Studies have shown that discrete facets of mindfulness account for significant differential variance in the reduction of organizational stress, operational stress and anger.[13] Other studies have reported enhanced resilience as shown by reduced salivary cortisol, self-reported aggression, organization stress, burnout, sleep disturbance and reported an increase in psychological flexibility and non-reacting at post-training.[14] MBIs have been shown to reduce stress, emotional exhaustion and depersonalization in the police. Personnel.[15,16]

Mindfulness has been found to reduce reactive behaviours and reduce distractions.[17] Our own pilot study with healthy samples and individuals with and without depression has shown MBI to be useful for stress management [18] and alleviating symptoms of depression.[19] Hence we adopted this program as an effective means of training police officers and to assess the effect. The present study is the first of its kind to compare the subjectively reported emotional state of police personnel in the context of MLM. The program also has several positive aspects, including avoiding unnecessary expenses on the part of the Government through hiring trainers for stress management programs from outside. It was also planned that police officers trained through these workshops could be used to train other police personnel from within the state. The current study aimed to study the effectiveness of an MBI in reducing the negative emotions among police officers.

MATERIALS AND METHODS

The current observational study attempted to assess and compare the subjectively reported emotion and

Mindfulness level among police personnel before and six weeks after attending the MLM workshop. The study was conducted with the approval of the institutional ethics committee.

Participants and Trainers

Police personnel selected by the Police Training College (PTC) from all over Kerala, attended the MLM workshops organized by the JU. The sample size was calculated to be 210 for α-error of 0.05, and power 80%. About 70 police personnel were trained as a part of the initial Training of Trainer (TOT) program. Mindfulness requires persistent and perseverant practice on the part of the participants. By convenient sampling, 70 police personnel were selected by police authorities. Thirty subjects completed the logbook, which was considered as a proxy measure of compliance with the intervention. From among these 30 subjects, five people were further excluded as they could not find time to practice. Remaining 25 individuals were included in the final analysis.

Three trainers were selected based on the criteria which stipulate a minimum experience of 10 years in practice and teaching in Mindfulness workshops. Our trainers had a mean experience of 11.3 years of experience in practice and teaching in Mindfulness workshops.

The results discussed here are a part of the original project to compare the stress and study the effect of MLM on stress.

The assessment tool, in addition to the sociodemographic data, included subjectively reported emotional experience during the previous two months and the Five facet Mindfulness Questionnaire (FFMQ-15).

Five facet Mindfulness Questionnaire (FFMQ-15)[20]

FFMQ is one of the most widely used self-report measure of mindfulness. The 15-item FFMQ is a short form (15 item version) of the 39-item Five Facet Mindfulness Questionnaire FFMQ. It includes the same five facets as the long form: Observing, Describing, Acting with Awareness, Non-Judging of inner experience, and Non-Reactivity to inner experience. The 15-item FFMQ (FFMQ-15) includes three items for each facet. The factor structure of the FFMQ-15 was consistent with that of the FFMQ-39, and there were large correlations between total facet scores of the short and long forms were well correlated. The factor structure and psychometric properties of the FFMQ-15 were also tested. Key evidence for the validity of the FFMQ has also been found in the measure's responsiveness to various forms of mindfulness training. Changes in mindfulness (indexed using the FFMQ and similar self-report measures of mindfulness) have been shown to have moderate effect sizes on clinical outcomes in meta-analyses of mindfulness-based interventions.[20]

Subjective Emotional Experience

Emotions subjectively experienced by the subjects were categorized as positive and negative. Subjects were instructed to choose among the emotions, joy, happiness, calm, relaxed, sadness, fearful, anxious, frustrated as their subjective emotional state. For this study, the first four were considered as positive, and the remaining were considered as negative.

Mindful Life Management

Mindful Life Management (MLM)is a mindfulness-based stress management program structured and formulated by the Holistic and Psychosomatic Clinic of the Department of Psychiatry, Government Medical College, Thiruvananthapuram based on the principles of mindfulness. MLM is usually conducted as an eight-week session with a 150-minute session each, on a prefixed day every week (Total 20 hours). The training included PowerPoint presentations, didactic mini-lectures, practice sessions and relevant discussions. Practice session included mindfulness meditations, mindful movements, awareness on life-skills and also practice sessions on the application of mindfulness in different settings. For the purpose of the current study, the eight-week program was condensed into three days from 10 AM to 6 PM. Excluding lunch and refreshment time, a total of 7 hours were being spent on practice and training (Total 21 hours). The assessments were done independently by another team. The pre-workshop assessment (Assessment 1) was done before the training and the post-workshop assessment (Assessment 2) 6 weeks after the end of the workshop when they reported for a booster session. Candidates were selected based on the self-report and examination of a filled logbook which were to be submitted during the booster session. Thirty people were trained as a part of this project. Five subjects were excluded for want of required time of practice. The results reported here are on the remaining 25 people.

RESULTS

Table 1 – Selected sociodemographic variables (N=25)

Variable	Category	Frequency (Percent)
Age in Years	30-39	6(24)
	40-49	12(48)
	50-59	7(28)
Gender	Male	23(92)
	Female	2(8)
Education	Up to Higher Secondary	4(16)
	Degree and Above	21(84)
Rank	CPO	12(48)
	Other higher ranks	13(52)
Marital Status	Married	24(96)
	Unmarried	1(4)
Practical yoga or meditation before the workshop	Yes	15(60)
	No	10(40)
Duration of service in Years	0-4.99	2(8)
	5-9.99	4(16)
	10-14.99	4(16)
	15-19.99	3(12)
	20-24.99	4(16)
	25-29.99	8(32)

The results elucidated below are the initial feasibility assessment of a major study being done JU. The sample included 25 police officers who had completed the Phase I MLM-TOT program. On average, these people had practised mindfulness techniques (formal and informal) for about six weeks. The information shown below is of 25 participants who had been practising MLM for 6weeks after the three days introductory workshop. These participants were interested in becoming trainers of MLM for Kerala Police.

The mean age of the participants was 44.4 years (SD = 6.34; Range=31-54 years). There were only two females (8%). Other sociodemographic details are given in Table 1.

There was a significant association between subjective emotional experience and the Mindfulness-Based Intervention (Table 2).

Both FFMQ scores with and without Observation subscale score were found to be significant at 0.01 and 0.05 levels, respectively (Table 3). The relation between the change in emotion and change in FFMQ score will be further explored with an adequate sample size in the original study.

Table 2 - Comparison of the self-reported subjective emotional experience of the previous month before and after MLM

		Emotions after MLM		
		Positive	Negative	Total
Emotions before MLM	Positive	5	0	5
	Negative	16	4	20
Total		21	4	25

Mc Nemar Chi-square statistic-14.06; <0.001. MLM- mindful life management

DISCUSSION

The present study shows a shift from negative emotion towards positive one following the MLM workshop. The results in the present study show that a significant number of people who had experienced negative emotions at the beginning of the program had experienced positive emotions, as evidenced by the subjective report. At the beginning of the study, 21 subjects out of 25 were subjectively reporting their emotional experience as negative. Six weeks after the intervention, 16 from among these 21 subjects reported their emotional experience as positive. This result was found to be statistically significant, suggesting the possibility of its ability in creating awareness and converting the experience of negative emotions to positive emotions. MBIs are effective in emotion regulation and in creating emotional awareness in previous studies[21] and also in enhancing emotional intelligence.[16]

Table 3 – Comparison of Total FFMQ Score with and without the Observation Subscale score.

Name of the Scale	Mean	SD	t	df	p-value
FFMQ without Observation Subscale score	2.76	6.37	2.163	24	0.041*
FFMQ with Observation Subscale score	4.88	7.13	3.421	24	0.002**

* Significant at 0.05 level ** Significant at 0.01 level. FFMQ-Five facet Mindfulness Questionnaire

The study also showed that there is an increase in Mindfulness score as assessed with FFMQ. The results of pre-post interventions both with and without the observation subscale were found to be statistically significant at a p-value of 0.01 and 0.05, respectively. The relation between FFMQ score and the subjective emotional experience was not found to statistically significant. It needs to be addressed with adequate sample size as is being planned in the original study. This has to be further explored with the adequately sampled study. The current study points to the possibility of better emotional understanding, awareness and shifts to the positive emotion from the negative emotional state following the MLM workshop.

This study has several limitations. Only 25 people out of 70 were included in the study. Systematic investigation for the dropouts and their characteristics were not studied. The study was done after six weeks of the MLM training. The final assessment will be repeated after a period of one year which is expected to give more accurate and reliable results. The sample size taken for the present pilot study is also limited, as the study is currently under progress. This is a part of an adequately powered ongoing study. Another limitation was that there was no comparison arm for the study.

CONCLUSION

This is a preliminary communication of the effect of MLM on the perceived emotion in police officers. The program, if found effective by further studies, can be effectively implemented by the State Government in training their police personnel. The study has its importance as it can potentially help to alleviate the negative emotional state if replicated. If the findings are replicated, it will add to a meaningful method for emotional control among the police officers.

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Conflicts of interest

None declared.

REFERENCES

1. Workplace stress: A 21st century health epidemic [Internet]. [cited 2019 May 3]. Available from: https://www.stepjockey.com/workplace-stress-a-21st-century-health-epidemic
2. Selye, H. (1976). The Stress of Life (Revised ed.). New York: McGraw-Hill.
3. Exploring the Effects of Mindfulness Training on Police Officer Resilience and Well-Being - Center for Healthy Minds [Internet]. [cited 2019 May 3]. Available from: https://centerhealthyminds.org/science/studies/exploring-the-effects-of-mindfulness-training-on-police-officer-resilience-and-well-being
4. Queirós C, Passos F, Bártolo A, Marques AJ, da Silva CF, Pereira A. Burnout and Stress Measurement in Police Officers: Literature Review and a Study With the Operational Police Stress Questionnaire. Frontiers in Psychology. 2020;11:1–23.
5. Saya G, Venkata N. An assessment of perceived stress among police personnel in Puducherry, India. Vol. 1. 2014. 61 p.
6. Sivasubramoney K, Mony J M, Lekshmy K. Perceptions of Teachers from North Kerala about an Indian Mindfulness-Based Intervention (MLM-Mindful Life Management) Following a One Day Introductory Workshop. Journal of Evidence-Based Medicine and Healthcare. 2017 Jan 1;4(42):2569–74.
7. Young KS, van der Velden AM, Craske MG, Pallesen KJ, Fjorback L, Roepstorff A, et al. The impact of mindfulness-based interventions on brain activity: A systematic review of functional magnetic resonance imaging studies. Neuroscience & Biobehavioral Reviews. 2018 Jan 1;84:424–33.
8. Kabat-Zinn, Jon. Mindfulness for beginners: Reclaiming the present moment--and your life. 15th ed. Chicago: Boulder, CO : Sounds True, 2012.
9. Brostoff, Teresa. Meditation for Law Students: Mindfulness Practice as Experiential Learning.Law and Psychology Review. Law and Psychology Review. 2017;41:159–71.
10. Shapiro SL. The integration of mindfulness and psychology. J Clin Psychol. 2009 Jun;65(6):555–60.
11. Hoge EA, Bui E, Marques L, Metcalf CA, Morris LK, Robinaugh DJ, et al. Randomized controlled trial of mindfulness meditation for generalized anxiety disorder: effects on anxiety and stress reactivity. J Clin Psychiatry. 2013 Aug;74(8):786–92.
12. Garland EL, Froeliger B, Howard MO. Mindfulness training targets neurocognitive mechanisms of addiction at the attention-appraisal-emotion interface. Front Psychiatry. 2014 Jan 10;4:173.
13. Bergman A, Christopher M, Bowen S. Changes in Facets of Mindfulness Predict Stress and Anger Outcomes for Police Officers. Vol. 7. 2016.
14. Christopher M, Hunsinger M, Goerling R, Bowen S, S. Rogers B, R. Gross C, et al. Mindfulness-Based Resilience Training to Reduce Health Risk, Stress

Reactivity, and Aggression among Law Enforcement Officers: A Feasibility and Preliminary Efficacy Trial. Vol. 264. 2018.
15. Ranta RS Sud Anup. Management of Stress and Burnout of Police Personnel. Journal of Indian Academy of Applied Psychology. 2008 Jan;34(1):29-39.
16. Charoensukmongkol P. Benefits of Mindfulness Meditation on Emotional Intelligence, General Self-Efficacy, and Perceived Stress: Evidence from Thailand. Vol. 16. 2014. 171 p.
17. Mindful Policing: The Future of Force [Internet]. Mindful. 2017 [cited 2019 May 3]. Available from: https://www.mindful.org/mindful-policing-the-future-of-force/
18. Sivasubramoney K, Lekshmy K, Sharika Menon. A Study of Changes in Perceived Stress Following an 8 week Mindfulness intervention (Mindful Life Management). IOSR Journal of Dental and Medical Sciences (IOSR-JDMS). 2017 May;16(5):108–14.
19. Sivasubramoney K, Lekshmy K. A Pilot Study on the Effect of Brief Mindfulness Based Cognitive Behaviour Therapy (MBCBT-B) in Individuals with Residual Depressive Symptoms. IJCMS. 2017 Aug;3(08):789–93.
20. Gu J, Strauss C, Crane C, Barnhofer T, Karl A, Cavanagh K, et al. Examining the factor structure of the 39-item and 15-item versions of the Five Facet Mindfulness Questionnaire before and after mindfulness-based cognitive therapy for people with recurrent depression. Psychological Assessment. 2016;28(7):791–802.
21. Williams V, Ciarrochi J, Deane FP. On being mindful, emotionally aware, and more resilient: Longitudinal pilot study of police recruits. Australian Psychologist. 2010 Dec;45(4):274–82.

Research Report

ASSOCIATION OF TOBACCO SMOKING WITH BIPOLAR AFFECTIVE DISORDER- A COMPARATIVE CROSS-SECTIONAL STUDY AT A TERTIARY CARE CENTRE IN SOUTH INDIA

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ABSTRACT

Background: Smokers with psychiatric disorders, most notably those with serious mental illness and substance use disorders tend to present with more severe nicotine dependence and nicotine withdrawal than smokers without these illnesses. The following study aims to explore the correlation of smoking with bipolar affective disorder
Setting and design: The comparative cross-sectional study was done in Amrita Institute of Medical Sciences & Research Centre, Kochi, a 1,450-bed hospital for a period of 2 years.
Methods and materials: Seventy subjects with Bipolar affective Disorder who were in remission for at least two months and Seventy subjects who were relatives of paediatric outpatients were included in the study and control group, respectively. Clinical variables were assessed, and Hamilton depression rating scale, Young mania rating scale and Fagerstorm nicotine rating scale were administered to the subjects.
Results: In this study, 52.9% of subjects with bipolar disorder were found to be smokers, and 51.4% of the normal population were smokers. No significant association was observed between bipolar affective disorder, and smoking tobacco, however, a significant correlation was found between smoking status and the total number of episodes of the disorder, psychotic episodes and suicide attempts.
Conclusion: There appears to be a relationship between smoking tobacco and certain clinical features of bipolar affective disorder. It is possibly a bidirectional relation between these two disorders.
Keywords: bipolar affective disorder, tobacco

INTRODUCTION

Smoking tobacco continues to be the most significant yet preventable cause of death and disability.[1] Higher rate of tobacco dependency has been reported among individuals with mental disorders than among patients with physical illnesses and the general population. Multiple co-morbidities often accompany the bipolar disorder, but substance abuse is particularly common, and its co-occurrence often leads to a more pernicious and difficult to treat course of illness.[2]

The co-existence of substance misuse and psychiatric disorders is often referred to by the term 'dual diagnosis'. Instead of being perceived as a difficult to manage group, and perhaps untreatable, those with the dual diagnosis should be considered as needing more care and vulnerable group. Only a few studies examined this issue among bipolar affective disorder patients, and the findings were equivocal despite the known

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association between smoking and psychotic symptomatology in schizophrenia. [3]

This elevated smoking rate may not only influence the course of the disorder but may also contribute to higher levels of tobacco-related morbidity and mortality.[4] The high prevalence rates of smoking among individuals with bipolar disorder appear to be attributable to both increased likelihood of initiating smoking and decreased likelihood of successfully quitting. One potential explanation for the high rate of smoking among individuals with bipolar disorder is that bipolar symptoms may increase the risk of initiating or maintaining regular smoking and bipolar disorder and smoking may also be linked through common risk factors, including both genetic and environmental influences. Cigarette smokers may require as much as a 50% increased dose of antipsychotics and antidepressants to gain symptom relief. If tobacco use is not considered when establishing a dosing regimen for medications that interact with tobacco smoke, treatment outcomes may be worsened. Smokers with psychiatric disorders most notably those with serious mental illness tend to present with more severe nicotine dependence and nicotine withdrawal than smokers without these illnesses. [5]

Hence management of patients with dual diagnosis is a challenge. Given this, the following study primary objective was to explore the association of smoking with bipolar disorder with the normal population. Also, the investigators planned to assess the correlation of smoking tobacco with previous suicide attempts and number of episodes with psychotic symptoms in subjects with bipolar affective disorder.

MATERIALS AND METHODS

The study was done in Amrita Institute of Medical Sciences & Research Centre, Kochi, a 1,450-bed hospital. The study was conducted for two years, from 2013 to 2015 in the outpatient department of Psychiatry. Based on the prevalence of smoking in subjects with Bipolar affective Disorder in a previous study, with 95% confidence and 90% power minimum sample size comes up to 70 each in the two groups.[6] Subjects included in the study were those attending the outpatient office in the department of psychiatry, who was diagnosed with bipolar affective disorder by a consultant psychiatrist in the institute, using ICD-10 Criteria and were in remission for at least two months so that substance abuse as part of mood episode were excluded.[7] For the comparison group, relatives of paediatric outpatients who self-declared as not being aware of currently having any psychiatric disorder were selected. They also had to have the ability to read and write English or Malayalam. Those subjects who had lack of willingness or capacity to provide informed consent to participate in the study or those who had other known comorbid psychiatric disorders other than substance abuse disorder or who were not able to complete the assessment were excluded from the study.

A semi-structured proforma was used to record information regarding the sociodemographic profile & clinical details of the subjects. Hamilton depression rating scale (HAMD) was used for assessing the presence of depressive symptoms. It is a multiple item questionnaire published by Max Hamilton in 1960, used to indicate depression, and as a guide to evaluating recovery. It is a validated scale used in India used to assess depressive symptoms in bipolar disorder. Its internal reliability is adequate.[8] Young mania rating scale (YMRS) was used to assess for the presence of manic symptoms. It is a validated instrument used most frequently for rating mania symptoms. The scale has 11 items and is based on the patients' subjective report of his or her clinical condition over the previous 48 hours.[9] Fagerstrom test for nicotine dependence (FND) a standard validated instrument was used for assessing the intensity of physical addiction. It helps to document the indication for prescribing medication for nicotine withdrawal. The questionnaire contains six items. Scores under 5 indicate that nicotine dependence is low, 5 to 7 indicate moderate dependence, and above 7 suggests high nicotine dependence. The internal consistency of the scale was found to be high.[10]

The ethics committee approved the study. Convenience sampling method was used to select the subjects. Written informed consent was taken from the patients after explaining the details of the study. Sociodemographic data were recorded using semi-structured proforma. Clinical variables were also recorded from the subjects.

STATISTICAL ANALYSIS

Statistical analysis was done using IBM SPSS Statistics v20 for Windows (SPSS Inc., Chicago, U.S.A.). To test

the statistical significance of the association of smoking status with bipolar affective disorder and for the association of suicidal attempts with smoking in the bipolar group, the chi-square test was applied. For the association of total episodes of the disorder, previous episodes with psychotic symptoms and episodes requiring hospitalisation with smoking, Mann Whitney U test was used. The correlation of smoking with abuse of other psychoactive substances and the presence of any chronic medical illness in the two groups were computed using point biserial correlation. The biserial correlation was also used to calculate the correlation between smoking and rapid cycling in subjects with bipolar affective disorder. An independent t-test was used to compare years of tobacco use in two groups.

RESULTS

Table 1 shows the frequency distribution of the various sociodemographic data for the two groups, among 70 subjects with bipolar affective disorder, 61.4% were males while comparison group constituted 55.7% males. Distribution of Marital status of subjects in the two groups showed 10% were divorced or separated, and none of the subjects in the control group was divorced or separated. The distribution of occupational status showed 2.9% were unemployed among subjects with bipolar disorder, and none of the subjects in the control group was unemployed.

There was no association between smoking and bipolar disorder($p=0.866$). 37 (52.9%) of subjects with bipolar disorder and 36 (51.4%) of the normal population were smokers, respectively. The correlation between Fagerstrom nicotine scale score and use of other psychoactive substances (UPS) in subjects smoking tobacco with bipolar disorder ($r =0.2$, $p=0.23$), and in subjects smoking in the control group ($r=-0.01$, $p=0.968$) with point biserial correction did not show any significant correlation.

Correlation of Fagerstrom nicotine scale score and rapid cycling (RC) and chronic medical illness (CMI) in subjects with bipolar disorder showed no statistical significance. (Table 2)

Table 3 shows the correlation of smoking with total episodes of bipolar Disorder (TE), episodes with psychotic symptoms (EWPS) and episodes requiring hospitalisation (ERH) in subjects with bipolar disorder (n=70); the correlations were significant.

Table 4 shows that the correlation of smoking with previous suicide attempts in subjects with bipolar disorder failed to reach statistical significance at $P<0.05$. Table 5 shows that there is a significant difference in years of tobacco use in the two groups.

Table 1. Frequency distribution table for sociodemographic variables in subjects with bipolar disorder) and control group

Variable	Variable	Bipolar Group (n=70)	Normal Population (n=70)
Gender	Male	43(61.4%)	39(55.7%)
	Female	27(38.6%)	31(44.3%)
Type of family	Nuclear	47(67.1%)	42(60%)
	Joint	7(10.0%)	6(8.6%)
	3 generation	13(18.6%)	22(31.4%)
	Others	3(4.3%)	0(0)
Marital status	Single	6(8.6%)	3(4.3%)
	married	52(74.3%)	61(87.1%)
	Widowed	5(7.1%)	6(8.6%)
	Divorced/ Separated	7(10.0%)	0(0%)
Educational status	Degree or above	31 (44.3%)	31 (44.3%)
	Secondary	34 (48.6%)	31(45.7%)
	Primary	5 (7.1%)	8 (11.4%)
Occupational status	professional	35 (50%)	30 (44.3%)
	Semi-skilled worker	13 (18.6%)	27 (38.5%)
	unskilled	1 (1.4%)	9 (12.9%)
	unemployed	2 (2.9%)	0 (0%)
	Self employed	0 (0%)	4 (4.3%)
	Home maker/student	19 (27.1%)	0 (0%)
Total family income per month	<19575	31(44.3%)	37(52.9%)
	7323-19575	39(55.7%)	33(47.1%)
Area of residence	Rural	15(21.4%)	19(27.2%)
	Urban	18(25.7%)	22(31.4%)
	Suburban	37(52.9%)	29(41.4%)

Table 2. The correlation of Fagerstrom nicotine scale score with rapid cycling, and chronic medical illness in subjects with bipolar disorder (n=37)

Variable	r value	p-value
Rapid Cycling	0.12	0.489
Chronic medical Illness	+0.2	0.231

coefficient r=point biserial correlation

DISCUSSION

This study was undertaken with the background awareness that the high prevalence rates of smoking among individuals with bipolar disorder leads to both decreased likelihood of successfully quitting smoking tobacco and the difficulty in the management of the dual diagnosis.

Table 3. The association of smoking with illness characteristics in subjects with bipolar disorder (n=70)

Factor	Smoking status	N	Median	IQR	p-value
Total No. of Episodes	Yes	37	6	5	0.011*
	No	33	4	3	
Episodes With psychotic symptoms	Yes	37	4	3	<0.001**
	No	33	2	1.5	
Episodes requiring hospitalisation	Yes	37	5	4	<0.001**
	No	33	1	1	

*P<0.05. ** P<0.001.

Table 4. The correlation of smoking status with suicide attempt in subjects with bipolar disorder (n=70)

Smoking status	Suicide attempt		p-value
	Yes	No	
Yes	13(35.1%)	24(64.9%)	0.056
No	5(15.3%)	28(84.8%)	

Chi- square value-3.65

In this study, no significant association was observed between smoking status and bipolar affective disorder with the normal population. The finding is not in agreement with some of the previous studies.[2,11,12,13] No significant correlation was seen between Fagerstrom nicotine scale score and use of other psychoactive substance in subjects with bipolar disorder or the control group, unlike some of the previous studies. [14,15,16] Also, no statistically significant correlation was found between Fagerstrom nicotine scale score with Rapid cycling and Chronic medical illness in subjects with bipolar disorder. Kupfer D J et al. had found that diabetes mellitus and cardiovascular diseases were the most common comorbid medical conditions in bipolar patients, and significant association was established between both.[17]

Table 5. The Comparison of years of tobacco use in the two groups (subjects with bipolar disorder (n=37) and the control group (n=36) using independent t-test

Factor	N	Mean(years)	Std. Deviation	P-value
Bipolar	37	23.32	16.447	0.016*
Normal	36	13.47	8.561	

*p<0.05 is significant. t =3.2

In the current study, a significant correlation was observed between smoking and total episodes of the disorder and episodes with psychotic symptoms like delusions, hallucinations or catatonic symptoms and episodes requiring hospitalisation in subjects with bipolar disorder. The finding is similar to the finding by Corvin et al. They also found that the rate and intensity of smoking predict the intensity of psychotic symptoms.[18] Anatoley et al. has also reported that 56.3% of subjects with bipolar disorder who were smokers had a history of psychotic episodes previously.[6] However, Cassidy F et al. had a similar study with bipolar affective disorder and did not find an association between smoking and psychotic symptom.[14] In the current study, the above finding is supported by the evidence linking the increased release of dopamine by nicotine. Nicotine could cause a change in the dopamine system through induction of supersensitivity of D2 receptors, which has been proposed as an explanatory mechanism for several risk factors for schizophrenia and as a common pathway for psychotic symptoms.[19]

Ostacher M J et al. had found tobacco smoking to be independently associated with suicide attempts in individuals with bipolar disorder, and current cigarette smoking is a predictor of current and nine-month suicidal ideation and behaviour in bipolar disorder.[20] Our findings are also similar, although the relationship failed to reach statistical significance. The significant correlation observed between smoking tobacco, and suicide may be because many socio-environmental

circumstances exacerbate the risk for suicide, such as poor communications, stress and adverse life events.[21]

In this study, the mean years of tobacco use were found to be higher in subjects with bipolar disorder in comparison to the normal population. Thomas D et al. has found some data indicating less readiness to quit smoking tobacco amongst bipolar patients in India.[15] George TP et al. showed that people with bipolar disorder have much lower quit rates than smokers without a comorbid condition.[22] They also suggested that the alternating mood fluctuations may contribute to differences in smoking cessation rates found in bipolar disorder. The study finding here was probably because the majority of smokers were found in the group with bipolar disorder and also as the percentage of successful cessation of smoking is less in subjects with bipolar disorder rather than normal population according to literature. The finding can also possibly be attributed to a lesser awareness of the health risks of tobacco smoking in subjects with bipolar Disorder in Indian set up.

There were some limitations for the study. No structured proforma was used to identify previous episodes. Also, previous health records of most of the patients were not accessible. No structured proforma like DIGS was used for assessing family genetic history. A structured instrument was not used for conclusive ruling out other psychiatric co-morbidities, including other substance abuse disorders in the subjects having bipolar disorder and also to confirm the absence of psychiatric disorder in control subjects. The findings of the study cannot be applied to a larger population as it was a hospital-based study.

CONCLUSION

In this study, an attempt has been made to understand the relationship between smoking tobacco and bipolar affective disorder compared to the normal population. Association of the sociodemographic and clinical variables with smoking in patients with bipolar affective disorder were also looked into. The mean years of tobacco use were higher in subjects with bipolar disorder in comparison to the normal population. However, no significant association of smoking status was observed between the groups. The study also highlights the significant correlation between smoking and total episodes of the disorder, episodes with psychotic symptoms and episodes requiring hospitalisation in subjects with bipolar. The study also reveals a possible association between smoking and previous suicide attempts in subjects with bipolar disorder. Thus, a better understanding of the dual diagnosis and intervention for it is required for better prognosis of the disorders. The relationship between tobacco smoking tobacco and bipolar disorder may be bidirectional, and that cause and effect may be difficult to determine. In future, more research on the biologic link between smoking and bipolar disorder will help in the development of new medications that can treat both disorders at the same time in this socio-cultural context.

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REFERENCES

1. Fiore MC, Jaen C R. A clinical practice guideline for treating tobacco use and dependence: a US Public Health Service report. Am J Prev Med.2008 Aug;35(2): 158-76.
2. Hughes JR, Hatsukami DK, Mitchell JE, Dahlgren LA. Prevalence of smoking among psychiatric outpatients. Am J Psychiatry 1986;143(8): 993-7.
3. Waxmonsky JA, Thomas MR, Miklowitz DJ, Allen MH, Wisniewski SR, Zhang H, et al. Prevalence and correlates of tobacco use in bipolar disorder: data from the first 2000 participants in the Systematic Treatment Enhancement Program. Gen Hosp Psychiatry 2005;27(5): 319-20.
4. Chang CK, Hayes RD, Broadbent M, Fernandes AC, Lee W, Hotopf M, et al. All-cause mortality among people with serious mental illness (SMI), substance use disorders, and depressive disorders in southeast London: a cohort study. BMC Psychiatry. 2010;10: 77. Accessed from: https://doi.org/10.1186/1471-244X-10-77
5. Heffner J L, Strawn J R, Del Bello MP, Strakowski SM, Anthenelli R M. The Co-occurrence of Cigarette Smoking and Bipolar Disorder: Phenomenology and Treatment Considerations. Bipolar Disorder. 2011 Aug-Sep; 13(5-6): 439–53.
6. Anatoly K, Dmitri N, Rabinowitz D. Association between tobacco smoking and bipolar affective disorder: clinical, epidemiological, cross-sectional, retrospective study in outpatients. Compr Psychiatry. 2012. 53(3); 269-74.
7. World Health Organization. The ICD-10 classification of mental and behavioural disorders: ICD-10; clinical descriptions and diagnostic guidelines. Geneva: World

Health Organization; 1992. 362 p.
8. Montgomery SA, Asberg M. A new depression scale designed to be sensitive to change. Br J Psychiatry 1979; 134: 382–89
9. Young RC, Biggs JT, Ziegler VE, Meyer DA. A rating scale for mania: reliability, validity and sensitivity. Br J Psychiatry 1978; 133(5): 429–35
10. Dijkstra A and Tromp D: Is the FTND a measure of physical as well as psychological tobacco dependence? J Subst Abuse Treat 2002; 23(4):367-74
11. Gonzalez-Pinto A, Alberich S, Barbeito S, Alonso M, Vieta E, Martinez-Arán A, et al. Different profile of substance abuse in relation to predominant polarity in bipolar disorder: the Vitoria long-term follow-up study. J Affect Disord 2010;124(3): 250-5.
12. Swann AC. Bipolar disorder and substance abuse: two disorders or one? J Dual Diagn 2005;1(3): 9-23.
13. McEachin RC, Saccone NL, Saccone SF, Kleyman-Smith YD, Kar T, Kare RK, et al. Modeling complex genetic and environmental influences on comorbid bipolar disorder with tobacco use disorder. BMC Med Genet 2010;11: 14.
14. Cassidy F, Ahearn EP, Carroll BJ. Substance abuse in bipolar disorder. Bipolar Disord 2001: 3(4): 181–88.
15. Thomson D, Micheal B. Tobacco use in Bipolar Disorder. Clin Psychopharmacol Neuroscience. 2015 Apr; 13(1): 1–11.
16. Grucza RA, Bierut LJ. Cigarette smoking and the risk for alcohol use disorders among adolescent drinkers. Alcohol Clin Exp Res 2006;30(12): 2046-54
17. Kupfer D J. The Increasing Medical Burden in Bipolar Disorder. JAMA 2005; 293(20):2528-30
18. Corvin A, O'mahony E, O'regan M, Comerford C, O'connell R, Craddock R, et al. Cigarette smoking and psychotic symptoms in bipolar affective disorder. Br J Psychiatry 2001;179: 35-8.
19. Li-Shiun Chen, Hong Xian, Richard A. Grucza. Nicotine Dependence and Comorbid Psychiatric Disorders: Examination of Specific Genetic Variants in the *CHRNA5-A3-B4* Nicotinic Receptor Genes, Drug Alcohol Depend.2012 Jun; 123 Suppl 1: S42–S51
20. Ostacher M J, LeBeau R T, Perlis R H, Andrew A N, Hannah G L, Samantha J M, et al. Cigarette smoking is associated with suicidality in bipolar disorder. Bipolar Disord. 2009 Nov;11(7): 766-71.
21. Simon GE, Hunkeler E, Fireman B, Lee JY, Savarino J. Risk of suicide attempt and suicide death in patients treated for bipolar disorder. Bipolar Disord. 2007;9(5):526–30.
22. George TP, Wu BS, Weinberger AH. A review of smoking cessation in bipolar disorder: Implications for future research. J Dual Diagn. 2012;8(2): 126–30.

Research Report

PATHWAYS TO CARE AND DURATION OF UNTREATED ILLNESS IN PATIENTS ATTENDING A STATE PSYCHIATRIC HOSPITAL

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ABSTRACT

Background: In India, due to various factors, mentally ill often turn to a variety of carers for treatment. It results in a longer duration of untreated illness (DUI) with poor long term prognosis. Studies on pathways to care, seek to find out predictors of mentally ill person's help-seeking behaviour. There is a dearth of literature in this subject in Kerala setting. **Methods:** Cross-sectional study was conducted on 250 consecutive first-time outpatients. The diagnosis was made according to DSM 5. A pilot-tested, semi-structured proforma was used for socio-demographic details and Encounter form by WHO for pathways to care. The analysis was done using Epi Info software. **Results and discussion:** Four gateways to care identified: Psychiatrist- 71.2%, faith healers – 14.8%, non-psychiatrist modern medicine doctors- 9.2%, alternate systems of medicine- 4.8%. Median DUI was seven months. Faith healers as first carers were more in BPL compared to APL families (p=0.004). Substance use disorders had longer median DUI than psychotic and anxiety disorders and mental retardation. Major neurocognitive disorder had more delays than the schizophrenia spectrum and other psychotic disorders and mental retardation (p=0.000). Among first carers, longer DUI was with faith healers and alternate systems of medicine when compared to psychiatrists. (p=0.000). Those from higher socioeconomic status and a diagnosis of substance use disorder more often have a psychiatrist as the first carer. Being male was associated with lengthier pathways. **Conclusion**: Faith healers & alternate systems of medicine practitioners form the first portal of psychiatric care for a small yet significant proportion of the patients. Reduction in DUI in case of psychiatric disorders needs attention to this aspect also.

K**eywords**: pathways to care, duration of untreated illness, help-seeking, mental illness

Key message: DUI in case of psychiatric disorders depend on the first carer and subsequent pathway to psychiatric care. Future pathways to care studies need to explore other significant first carers of psychiatric help-seeking.

INTRODUCTION

Psychiatric disorders are associated with a higher disability and burden of disease, than many physical illnesses. Psychiatric conditions account for almost 11 per cent of disease burden globally, which is projected to reach 15% by 2020. Of the ten leading causes of disability worldwide, measured in years lived with a disability, five were psychiatric conditions: unipolar depression, alcohol use, bipolar affective disorder (manic depression) schizophrenia and obsessive-compulsive disorder.[1]

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In India, at any point in time, nearly 6.5% of the population suffers from a serious mental or behavioural disorder, and another 10% of the population has a minor mental illness.[2,3] A large proportion of psychiatric patients do not attend any health facility due to the lack of awareness about treatment services, the distance, and the stigma associated with treatment. The psychiatric patients first seek the help of various sources prior to attending a psychiatric health facility.[4]

Pathways to care can be defined as "the sequence of contacts with individuals and organizations prompted by the distressed person's efforts and those of his or her significant others, to seek help as well as the help that is supplied in response to these efforts." Understanding the routes that people take to obtain care may facilitate the development of mental health care services that decrease the time from first symptoms to effective treatment.[5] First caregivers constitute the most important part of the psychiatric pathways and provide an overall direction to the pathways of care. The delay in seeking treatment is mostly attributed to the choice of the first caregivers.[6]

Duration of untreated illness (DUI) is the duration between onset of symptoms and presentation to a mental health professional.[7] Systematic reviews and meta-analytic studies have shown that a longer duration of untreated illness, especially in case of psychotic disorders, is associated with more severe symptom profile, worse psychosocial functioning, poorer quality of life, and poorer treatment outcomes.[8]

1n 2014, psychiatrists/100000 population in India was <0.05, & psychiatric beds were 2.1/100000 population.[9] In Kerala, however, for every 100000 population, there would be 1.2 psychiatrists.[10] Nearly 80% of persons suffering from mental disorders, had not received any treatment despite the presence of illness for more than 12 months. Notwithstanding the efforts at enhancing mental health care delivery across the country, a huge treatment gap still exists for all types of mental health problems: ranging from 28% to 83% for mental disorders and 86% for alcohol use disorders. Persons with mental illness are unable to receive quality care due to limited awareness, availability, accessibility and affordability; the costs of care are also becoming increasingly prohibitive.[3]

Worldwide, several studies have been conducted to recognize the help-seeking behaviour and routes the patients with mental illness take to reach psychiatric care services. Indian studies also exist on the same subject.

However, in the changed context of the Mental Health Care Act 2017, the right to access mental healthcare and treatment includes mental health services of affordable cost, of good quality, available in sufficient quantity, accessible geographically, and without discrimination based on gender, sex, sexual orientation, religion, culture, caste, social or political beliefs. For the fulfilment of this right, the appropriate Government is bound to provide a range of services required by persons with mental illness.[11] Thus, it becomes important to understand the preferences people make for the treatment of mental disorders to ensure proper distribution and utilization of such services more than ever.

Kerala being the leading state in India in literacy rate and composite Health Index scores,[12, 13] might have a pattern on its own in health-seeking behaviour. Hence, awareness and utilization of health services, particularly mental health services in the state, need to be explored. Furthermore, such a study on pathways to care has not been conducted independently in Kerala setting so far.

The present study was planned to evaluate the pathways to care of psychiatric patients attending a state psychiatric hospital in Kerala and to study the various correlates, including the socio-demographic variables.

Materials and methods

This cross-sectional study was conducted at a tertiary state psychiatric care centre in Thiruvananthapuram with in-patient strength of over 500. Outpatient (OP) services are rendered every day, with an average turnout of about 150-200 patients per day. Under the assumption that psychiatric patients who sought the help of the relevant first carer to be 28.5%,[7] and applying the formula: $Z\alpha pq/d^2$, where p is the percentage of the sample contacting the relevant first carer in the study-28.5%, q = 100-p, d= allowable error in p (20%).

Thus, the sample comprised of 250 consecutive psychiatric patients attending the outpatient department and casualty services of the hospital for the first time during the study period. Sample collection was completed by four months. Patients including child and adolescent cases with a reliable informant having the

Table 1. Socio-demographic and clinical profile of study participants

Variable	Category	Frequency (%)
Age	0-10 years	1 (0.4%)
	11-20 years	6 (2%)
	21-30 years	80 (32%)
	31-40 years	62 (24.8%)
	41-50 years	19 (7.6%)
	51-60 years	60 (24%)
	61-70 years	12 (4.8%)
	71-80 years	8 (3.2%)
	Above 80 years	2 (0.8%)
Sex	Male	146 (58.4%)
	Female	104 (41.6%)
Religion	Hindu	160 (64%)
	Muslim	34 (13.6%)
	Christian	56 (22.4%)
Marital status	Married	142 (56.8%)
	Single/ widowed	108 (43.2%)
Education	Below Secondary level	155 (62%)
	Secondary level & above	95 (38%)
Employment status	Unemployed	129 (51.6%)
	Employed	121 (48.4%)
Socio-economic status	APL	114 (45.6%)
	BPL	136 (54.4%)
Current living situation	With family	236 (94.4%)
	Alone	14 (5.6%)
Diagnosis	Schizophrenia spectrum & other psychotic disorders	99 (39.6%)
	Mood disorders	96 (38.4%)
	Anxiety disorders	17 (6.8%)
	Substance use disorders	21 (8.4%)
	Intellectual disability disorder	4 (1.6%)
	Neurocognitive disorders	13 (5.2%)

knowledge of the course of illness and giving written informed consent for participating in the study were included. For each participant, a semi-structured pilot-tested proforma was used for collecting socio-demographic data including age, sex, religion, marital status, education, employment status, family type, current living situation, place of residence, age at onset of illness etc. and clinical variables including diagnosis, substance use and family history of mental illness. Pathways to care were assessed using the modified version of the WHO Encounter form. The Encounter form gathers systematic information about the sources of care used by patients before seeing a mental health professional. Details of the chosen pathways and reasons for the same were collected from the family member. It takes about 5 minutes to be completed for every patient.[14] It is a standard tool which has been translated into many languages and has been used worldwide in many studies. The encounter form also serves to record the main problems presented by the patients, the decision-maker for care-seeking, type of care they received before they saw the mental health professional etc., which were not collected in the present study. The Encounter form was modified to that extend for the use in this study.

Psychiatric diagnoses according to DSM-5, based on the history and mental status examination done under the supervision of a senior consultant in the department and the total duration of illness were to be filled in by the investigator. For the study, DUI was taken as the time duration between onset of symptoms and presentation to a psychiatrist.

Percentages & means with their respective confidence intervals were used to summarise data. When comparing DUI, median values were used because the distribution was heavily skewed. Chi-square test was used for categorical data, and the Kruskal–Wallis non-parametric test was used for continuous data. When a significance was found while using the Kruskal-Wallis test, a posthoc analysis of pairwise comparisons were done to find out which of the two variables differed significantly. A ''Pathways to Care Map'' was created incorporating the routes taken by individual patients to reach psychiatric care. The number of patients taking each step on the care pathway was mapped onto the diagram. Association of the first caregiver in the pathway with socio-demographic factors like sex, religion, marital status, education level, employment status, socioeconomic status, area of residence etc. and psychiatric diagnosis (Schizophrenia spectrum & other psychotic disorders, mood disorders including bipolar and related disorders and depressive disorders, anxiety

disorders, substance use disorders, intellectual disability disorder, and neurocognitive disorders) and DUI were evaluated. All data analysis was performed using Epi Info software. (version 7)

Necessary permission and clearance for the study were obtained from the Scientific and Ethical committee constituted at the centre of study. Written informed consent was obtained from each study participant. In cases of minor patients, assent was obtained from the child and consent from the accompanying relative.

RESULTS

Socio-demographic and diagnostic profile of the study population is as depicted in Table 1.

Image 1. PATHWAYS TO CARE DIAGRAM

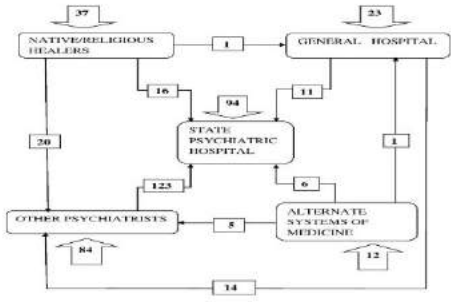

Image 1 is a pictorial representation of pathways to care of patients reaching the centre for the first time.

It is seen that there are four major gateways to care of the mentally ill in the region. The detailed distribution of the number of patients and their first portal of entry are as follows: Traditional/ Faith healers-37 (14.8%), Non-psychiatrist modern medicine doctor - 23 (9.2%), Alternative systems of medicine practitioners (AYUSH) - 12 (4.8%) Psychiatrist-178 (71.2%).

Other possible cares including psychologists & lay counsellors were included in data collection form but elicited no response from the study participants.

The median total duration of illness (TDI) of the study sample was 24 months (SD 34.92). The median duration of untreated illness (DUI) was found to be seven months (SD 43.63), range 0-360 months. Subjects had already visited, on an average, 0.856 carers (SD 0.78), before visiting this centre and 0.36 carers (SD 0.58) before approaching a psychiatrist

Psychiatrists were the first choice for most of the psychiatric patients in the study sample. Table 2 explains the factors affecting the choice of first carers, including socio-demographic and diagnostic variables. As seen in the table, being from an APL family, having a diagnosis of substance use disorders, mood disorders, neurocognitive disorders or schizophrenia spectrum disorders were all significantly associated with having psychiatrists as the first caregiver.

The median duration of untreated illness in the sample was seven months. However, there was a wide range of DUI from 0 to 360 months. The higher extremes of these values were found in substance use disorders. Table 3 depicts the various correlates of DUI.

In the study, no significant association had been seen with socio-demographic factors except for the gender. Chi-Square test showed that sex was a factor affecting the delays in seeking care (χ^2= 7.828, df = 1, p=0.005). To see the association of both sexes with DUI, a posthoc analysis was done employing Independent samples Kruskal Wallis test, which revealed that protracted DUI was seen with male patients when compared to their female counterparts.

To find the association of DUI and first carers, Kruskal- Wallis test was done for independent samples. When significance was noted (χ^2=39.432, df =3, p=0.000), a post-hoc analysis of the data was done and pairwise comparison of the mean ranks were conducted. Longest DUI was found to be for those who had faith healer as a first caregiver. Significantly higher DUI was seen for patients who had gone to faith healers and alternate systems of medicine when compared with those who had MHP as their first carer.

In case of diagnosis and DUI, since results showed significance (χ^2=40.242, df= 5, p=0.000, a posthoc analysis was done to find out the pairwise associations. Pairwise comparison of diagnoses showed that alcohol use disorder had longer median DUI when compared to psychotic disorders, anxiety disorders and mental retardation. Major Neurocognitive disorders had more delays in help-seeking when compared to schizophrenia spectrum disorders and mental retardation.

1Table 2. Factors affecting the choice of first carers

	Faith healer (%)	Non-psychiatric modern medicine doctor (%)	Alternate systems of medicine practitioner (%)	Psychiatrist (%)	Total	p-value***
Male	24(16.4%)	13(8.9%)	6(4.1%)	103(70.5%)	146	0.792
Hindu	20(12.5%)	17(10.6%)	8(5%)	115(71.9%)	160	0.451
Secondary & above education	14(14.8%)	9(9.2%)	6(6.5%)	66(69.5%)	95	0.124
Married	20(14.1%)	10(7.1%)	8(5.6%)	104(73.2%)	142	0.699
Unemployed	21(16.3%)	15(11.6%)	5(3.9%)	88(68.2%)	129	0.406
APL status	7(6.1%)	13(11.4%)	5 (4.4%)	89(78.1%)	114	0.004*
Rural residence	17(16.2%)	9(8.6%)	4(3.8%)	75(71.4%)	105	0.877
Diagnosis						
Schizophrenia & other psychotic spectrum disorders	24(24.3%)	5(5%)	4(4%)	66(66.7%)	99	0.001*
Mood disorders	10(10.4%)	6(6.3%)	4(4.1%)	76(79.2%)	96	0.061
Anxiety disorders	1(5.9%)	6(35.3%)	0(0.0%)	10(58.8%)	17	0.023*
Substance use disorders	0(0.0%)	1(4.8%)	3(14.3%)	17(81%)	21	0.037*
Intellectual disability	0(0.0%)	3(75%)	0(0.0%)	1(25%)	4	<0.001**8
Neurocognitive disorders	2(15.4%)	2(15.4%)	1(7.7%)	8(61.5%)	13	0.001*
Total	37(14.8%)	23(9.2%)	12(4.8%)	178(71.2%)	250	

*p<05; ** p<0.001; ***Chiquare test

DISCUSSION

Studies on pathways to care of mental illnesses are prompt, inexpensive and effective methods of obtaining information on the peoples' help-seeking behaviour. This information can be useful in the planning of mental health services, including assessment of treatment gap and specific interventions for improving the access of appropriate care by people with mental illness. Region-specific findings were obtained from studies on help-seeking in mental disorders across the country even though certain commonalities in those findings were observed.

The subjects of the study were predominantly young adults, male, married, belonging to the Hindu religion, with an educated background and unemployed. Majority of the subjects were from a family with BPL (Below Poverty Line) status, now living with the family. The socio-demographic and diagnostic distribution of patients is similar in studies conducted inside and outside of the country.[4, 15- 20]

In line with the high literacy rate of Kerala, 93.2% of the patients were educated, and 62% had secondary and higher education. However, the proportion of the unemployed is higher (51.6%) in the sample. This might be due to, the higher disability imposed by psychiatric illnesses and, the societal perception that mentally ill are inherently incapable and hence unemployable. Further, most of the study sample were having schizophrenia and other psychotic disorders which can heavily incapacitate the patients' socio-occupational functioning and can impact their employability.

The religious distribution of the sample is roughly matching the population distribution of the area with Hindus forming the bulk followed by Christians and Muslims. A larger proportion of the study group was married and living with the family (94.4%). This points to the better family support system in the context of the traditional society. In the study, 1.6% of the population were migrants working as labourers in the state. These people even though didn't have a family system to support here, were brought to treatment and taken care of by their co-workers. This population can further increase in future with the influx of migrant labourers from other states, when culture-specific interventions may be needed even at the community level.

Table 3.Duration of Untreated Psychosis (DUP) and its correlates

Category	N	Mean Rank	P-Value	Pairwise comparison of ranks*
Gender	146	136.26		
A.Male			p=0.005	A > B
B.Female	104	110.39		
First carer				
A.Faith healer	37	181.07		A > B, C, D
B.Non-psychiatrist modern medicine doctor	23	142.96	p=0.000	
C.Alternate systems of medicine	12	180.90		B > D
D.Psychiatrist	178	108.38		
Diagnosis				
A.Schizophrenia spectrum & other psychotic disorders	99	14.87		
B.Mood disorders	96	117.90		D > A, C, E
C.Anxiety disorders	17	110.56	p=0.000	
D.Substance use disorders	21	204.45		F > A, E
E.Intellectual disability disorders	4	50.88		
F.Neurocognitive disorders	13	177.54		

*Kruskal- Wallis test; pairwise comparison of the mean ranks

Majority of the patients in this study were having schizophrenia spectrum and mood disorders; this could be because, our hospital being a tertiary level centre, chronic & severely ill patients form the largest subset of our patient population. Hence, other diagnoses, including obsessive-compulsive & related disorders trauma & stressor-related disorders and somatic symptom disorders and neurodevelopmental disorders, including autism, didn't form the sample population. Mental health centres are generally viewed as treatment centres for severe mental illnesses, and this might be one reason why other disorders are less represented in the sample population. Studies done elsewhere also reported similar diagnostic distribution. [4, 7]

Pathways to care

In 1983, Goldberg and Huxley made the preliminary attempt to understand the pathways to psychiatric care.[21] According to them, the pathway progressed through a series of levels, each separated by variably permeable filters. The first level is the prevalence of psychiatric disorders in the community, and the first filter is the decision to seek help. The next level is the proportion of those with a mental disorder who seek help, and the second filter is the recognition of a psychiatric disorder by the primary care provider. Further levels consider referral to specialized care and admission to hospital. This model of levels and filters in psychiatric care fits well where the only access to specialized care is by referral from a primary care physician.[22] The Indian system of psychiatric care is more complex than the Western system, where there are multiple and often unregulated options available for the patients.

Worldwide, pathway studies have demonstrated three predominant patterns of psychiatric care. The first pattern is dominated by primary care physicians or family physicians, who refers them to mental health professionals. The major portals in this pathway to care are General practitioner (GP), hospital emergency services, criminal justice systems and psychiatrists. [23, 24, 25] This pattern is seen mostly in west European countries. The second pattern is found in countries like Turkey, Japan etc.[26, 27] where patients can see any medical specialist of their choice and are thus likely to have direct access to mental health professionals. The third pattern, where faith healers and indigenous/ alternate systems of medicine carers play an important role in the pathway, is reported in Pakistan, India, Ethiopia, and Indonesia. [15, 19, 28, 29] In these countries, for mental illnesses, people are free to access any type of treatment they want. These regions have a shortage of trained mental health manpower and still follow traditional methods of healing. Longer delays in help-seeking mark the pathway to psychiatric care in these

countries. This study's result doesn't conform to any of these individual patterns but is a mixture of the last two patterns.

The first caregiver in the pathway to psychiatric care is determined by a complex interaction of socio-demographic, economic and cultural factors and factors associated with the health care system, including accessibility and availability of the services. The first caregiver determines the overall direction of the care pathway and has a significant influence on subsequent progression to psychiatric services.

A psychiatrist was approached as the first caregiver by 71.2% of patients in this study. This figure is relatively high when compared to the range of figures reported from India and certain developed countries. The psychiatrist as the first caregiver ranged from 12% in a general hospital study in Chattisgarh in 2012 [30] to 57.7% reported by Chadda et al. from a Psychiatric hospital in 2001.[19] As high as 74% of patients from a Kerala centre in a multicentric study by Pradhan et al. had psychiatrist as the first caregiver.[20] In developed countries, the figures for a psychiatrist as the first caregiver ranged from 22% to 40%.[31] The larger proportion of patients in the current study seeking help from the psychiatrist at the first instance may be due to several factors. The higher literacy rate in the state, increased awareness about mental diseases and professional help available, availability of psychiatrists, and accessibility of psychiatric services due to improved health care system, in general, can be some of the factors.

Traditional healers are known by different names as faith healers, religious healers, and native healers in different parts of the world. The non-psychiatric modern medicine doctors include General practitioners (GP), physician, paediatrician, neurologist and neurosurgeons in this study. Alternate systems of medicine include the Ayurveda, yoga, Unani, Siddha, homoeopathy, and acupuncture as practised in different parts of the country.

Family physicians occupy a pivotal role in the help-seeking pathway, with 53% of patients consulting a general practitioner in Australia.[32] In Nigeria,[33] the majority (69%) of the patients consulted spiritual or traditional healers as the first contact while 13.8% consulted a non-psychiatric physician or General Practitioner. Lahariya et al.[4] in India has found faith healers forming the first contact of help in 68% of the total sample. In a Study in Jaipur[7] faith healers followed by psychiatrists, Non-psychiatrist allopath care provider and Alternative medicine care provider form the first portal of care.

This shows that traditional healers form the first carer for a sizeable proportion of psychiatric patients in developing countries. The rationale for their popularity may be their easy accessibility, the belief models in the causation of mental illnesses prevalent in the society, holistic approach, cultural friendliness and cost-effectiveness. The practice of seeking help from alternative systems of medicine in psychiatric disorders seems to be unique to the Indian setting. It emerges from the study that faith healers and alternate systems of medicine practitioners are significant players in the mental health scenario in the region and cannot be ignored.

Delay in seeking treatment

The median duration of illness of patients presenting for the first time to the mental health centre is two years akin to a study by Gupta in India.[34] It took approximately seven months for patients with mental illness to contact a psychiatrist in the present study. An average delay of 26.12 weeks was seen from the onset of illness to presentation at a clinic in Bangalore.[35] This finding is similar to other studies done in India and outside.[7,20,29] Median interval between onset of the problem, and first seeking care was eight weeks in Italy.[24] Thus the delay in presentation to a psychiatrist is relatively high in the study group as compared to the developed countries and almost similar to that of other developing countries and may be attributed to the difference in beliefs of illness causation, public opinion and stigma, and the role of the family.

Factors influencing pathways to care

Subjects coming from higher socioeconomic status families (78.1%) were more likely to choose a psychiatrist as the first carer than those from low SE status families (65%). Contact with faith healers at the beginning of psychiatric care-seeking was more with lower (22%) than higher (6%) SE status families. Both these results were statistically significant. (p-value 0.004). Thus, lower family income and economic deprivation were factors associated with negative care pathway in the present study. Kiliç et al. found that

those coming from a below-average social position were less likely to contact the psychiatric services directly.[26] No significant association was seen between other socio-demographic factors and first caregiver. Similar findings were reported from studies by Anderson et al. in a systematic review, [36] Chadda et al. in India.[19] In the case of severe mental illnesses, psychiatric service utilization by females is found to be low compared to that of males.[28] In psychotic disorders, being single and living alone are factors adversely influencing care pathways.[37]

It was seen that a diagnosis of alcohol use disorder had a higher chance of contact with psychiatric services as the first carer when compared to anxiety disorders and intellectual disability. Schizophrenia spectrum disorders had the highest first contact with faith healers. With major neurocognitive disorders and intellectual disability disorders, the help-seeking primarily occurs with the non-psychiatrist modern medicine doctors. Similar to finding in the present study, Balhara et al.[38] had found that for 56.9% of the alcohol-dependent patients, the first point of contact was with a tertiary care addiction psychiatrist. Other studies also found that anxiety disorders had a less perceived need for psychiatric treatment than mood disorders,[39] as seen in this study. In Nigeria, the majority (69%) of the patients with schizophrenia consulted spiritual or traditional healers as the first contact. [33] Thus, these findings broadly agree with the studies done in India and abroad.

Duration of untreated illness and its correlates

In the study, male gender was significantly associated with longer delays in initiating appropriate treatment (p 0.005). Findings from Turkey by Kiliç et al.,[26] and from Spain by Vasquez et al.,[40] support this finding. Increased help-seeking was seen in women than in men in Canada.[22] Barring gender, no other socio-demographic variable had a significant association with the DUI in the sample. However, younger age, lower educational level, unemployment, and living alone, were associated with protracted DUI in a study by Ehmann et al.[41]

Having faith healers as the first carers are associated with a significant delay in seeking treatment when compared to having psychiatrists as the primary carer (p 0.000). This finding is similar to those in studies on, psychoses in South Africa, [42] and schizophrenia in India.[43] Seeking early help from alternate systems of medicine practitioners was also having a longer median delay (p 0.003). Patients spend a substantial proportion of their DUI in seeking help from magico-religious healing centres and alternate medicine doctors. This finding suggests that there is a need to improve collaboration between mental health care facilities and these care providers. Efforts should be made to educate faith healers and practitioners of alternate medicines about the symptoms of mental illnesses and early initiation of appropriate psychiatric treatment, so that these patients can be referred to treatment agencies at the earliest to reduce the duration of untreated illness.

Increasing the awareness about the nature of psychiatric illnesses and the availability of psychiatric care must be the aim of public health education, to make the pathway to care more direct. The primary care physicians, as also those practising alternative systems of medicine, must be made aware of the need to identify patients with psychiatric illnesses to establish an effective and efficient referral system

A diagnosis of alcohol use disorder had longer median DUI when compared to schizophrenia spectrum disorders (p-value 0.000), mood disorders (p-value 0.000), anxiety disorders (p 0.001) and mental retardation (p 0.001) in the study. Alcohol dependent patients in the study had the longest DUI at 360 months in some cases. Substance use disorder is not usually seen by the family as a psychiatric disorder instead as a wrong choice in life made by the person. Criticisms and neglect from the part of the family and society follow while the precious time for initiation of treatment is lost. Individual factors, specifically the perceived necessity of the individual patient, also plays a part in it. Sometimes, the family tries over-the-counter medications and alternate systems of medicine which further delays pathway to psychiatric care. This adds up to the total duration of illness and subsequently DUI in these cases. Further, a higher prevalence of substance use disorders among males in the study population may be another reason for the male predominance in the delay in the treatment-seeking group.

Major Neurocognitive disorders had more delays in help-seeking when compared to schizophrenia spectrum disorders (p 0.048) and mental retardation (p 0.032). However, most people with neurocognitive disorders report to a neurologist and involvement of psychiatry is often when there is associated behavioural abnormality.

In a Turkish study, it was apparent that the patients with alcohol dependence had longer median delays than those with depression, anxiety disorders and somatization disorders.[26] In a study at an Indian mental hospital, there was no significant association between DUI and diagnosis.[19] Duration of untreated psychosis is longer for subjects with a diagnosis of schizophrenia or schizoaffective disorder, compared to mood disorders with psychotic features.[8, 23] In Australia, Psychiatric diagnosis was not independently associated with pathway duration. [44]

Limitations

Information gathered in this study was based on the willingness of informants to acknowledge their previous source of care. Since the information was gathered retrospectively, recall bias may have influenced the results to some extent. The study was conducted in a tertiary mental health facility where patients with severe mental disorders outnumber those with common mental disorders; perhaps it reflects the non-representativeness of the study sample when extrapolated to the community level. The cross-sectional nature of the study could have restricted the unfolding of actual longer pathway as help-seeking might not have ended at the study point.

Conclusion

Faith healers & alternate systems of medicine practitioners form the first portal of psychiatric care for a small yet significant proportion of the patients. Reduction in DUI in case of psychiatric disorders needs attention to this aspect also.

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REFERENCES

1. Lopez AD, Murray CC. The global burden of disease, 1990-2020. Nature medicine. 1998;4(11):1241-3.
2. National Mental Health Program. New Delhi: NIHFW; 2005. National Institute of Health and Family Welfare. Accessible from: http://www.nihfw.org/ndcnihfw/html/Programmes/NationalMentalHealth.htm
3. Gururaj G, Girish N, Issac MK. Mental, neurological and substance abuse disorders: Strategies towards a systems approach. In: Burden of disease in India. National Commission on Macroeconomics and Health. New Delhi: Government of India; 2005.226-36.
4. Lahariya C, Singhal S, Gupta S, Mishra A. Pathway of care among psychiatric patients attending a mental health institution in central India. Indian J psychiatry. 2010;52(4):333-8.
5. Rogler LH, Cortes DE. Help-seeking pathways: a unifying concept in mental health care. Am J Psychiatry. 1993;150(4):554–61.
6. Shin YM, Jung HY, Kim SW, Lee SH, Shin SE, Park JI, et al. A descriptive study of pathways to care of high risk for psychosis adolescents in Korea. Early Interve Psychia 2010;4(2):119-23.
7. Jain N, Gautam S, Jain S, Gupta ID, Batra L, Sharma R, et al. pathway to psychiatric care in a tertiary mental health facility in Jaipur, India. Asian J Psychiatr 2012;5(4):303-8.
8. Perkins DO, Gu H, Boteva K, Lieberman JA. Relationship between duration of untreated psychosis and outcome in first-episode schizophrenia: a critical review and meta-analysis. Am J Psychiatry. 2005;162(10):1785-804.
9. World Health Organization. World health statistics, 2015. World Health Organization. 2015;112-16.
10. Shibukumar, Thavody J, National Mental Health Survey of India, 2015-16: Kerala State Report, IMHANS, Kozhikode, 2017:3
11. Ministry of Law and Justice. The Mental Healthcare Act. 2017. [Last accessed on 2019 Oct 10]. Available from: https://indiacode.nic.in/show-data?actid=AC_CEN_12_13_00024_201710_1517807327874&sectionId=6224&sectionno=18&orderno=18
12. NITI Aayog. Healthy States, Progressive India: Report on the ranks of states and union territories. [Last accessed on 2019 Aug 24] Available from: http://social.niti.gov.in/
13. Ministry of Home Affairs, Government of India. Literacy Rate- Census of India. [Last accessed on 2019 Jun 12]. Available from: censusindia.gov.in › data_files › india › Final_PPT_2011_chapter6
14. World Health Organization. Division of Mental Health. Pathways of patients with mental disorders: a multi-centre collaborative project. MNH/NAT/87.1. Unpublished. Geneva: World Health Organization; 1987.
15. Naqvi HA, Hussain S, Zaman M, Islam M. Pathways to Care: Duration of untreated psychosis from Karachi, Pakistan. PLoS ONE 2009;4(10):1-6.
16. Pattanayak S, Gupta CS. Assessment of Pathways to Care in Psychotic Patients Presenting At a Psychiatric Clinic in an Indian City. Asian J Psychiatr. 2011;4: S85
17. Behari M, Gupta DK, Singh V, Verma KK, Sengupta SN, Sidana R, et al. help seeking behaviour and

pathways to care among patients seeking care at a community mental health clinic and psychiatry outpatient department of a medical college: A study from North Rajasthan. J Mental Health Hum Behav. 2016;29:18-33.
18. Prabhu A, Vardhan GV, Pandit LV. Pathways to tertiary care adopted by individuals with psychiatric illness. Asian J Psychiatr. 2015;16:32-5
19. Chadda RK, Agarwal V, Singh MC, Raheja D. Help seeking behaviour of psychiatric patients before seeking care at a mental hospital. Int J Soc Psychiatry. 2001;47(4):71-8.
20. Pradhan SC, Singh MM, Singh RA, Das J, Ram D, Patil B, et al. First care gives of mentally ill patients: A multicenter study. Indian J Med Sci. 2001;55:203–8.
21. Goldberg D, Huxley P. Mental illness in the community: The pathway to psychiatric care. London, Tavistock, 1980.
22. Bland RC, Newman SC, Orn H. Help-seeking for psychiatric disorders. Can J Psychiatry. 1997;42(9):935-42.
23. Bhui K, Ullrich S, Coid JW. Which pathways to psychiatric care lead to earlier treatment and a shorter duration of first-episode psychosis? BMC psychiatry. 2014;14(1):72.
24. Balestrieri M, Bon MG, Rodriguez-Sacristan A, Tansella M. Pathways to psychiatric care in South-Verona, Italy. Psychol med. 1994;24(3):641-9.
25. Gater R, Sousa DBAE, Barrientos G, Caraveo J, Chandrashekar CR, Dhadphale M, et al. The pathways to psychiatric care: a cross-cultural study. Psychol med. 1991;21(3):761-74.
26. Kiliç C, Rezaki M, Üstün TB, Gater RA. Pathways to psychiatric care in Ankara. Soc Psychiatry Psychiatr Epidemiol. 1994;29(3):131-6.
27. Fujisawa D, Hashimoto N, Masamune-Koizumi Y, Otsuka K, Tateno M, Okugawa G, et al. pathway to psychiatric care in Japan: A multicenter observational study. Int J Ment Health Syst. 2008;2(1):14.
28. Bekele YY, Flisher AJ, Alem A, Baheretebeb Y. Pathways to psychiatric care in Ethiopia. Psychol Med. 2009;39(03):475-83.
29. Kurihara T, Kato M, Reverger R, Tirta IGR. Pathway to psychiatric care in Bali. Psychiatry Clin Neurosci. 2006;60(2):204-10.
30. Naik SK, Pattanayak S, Gupta CS, Pattanayak RD. Help-seeking behaviors among caregivers of schizophrenia and other psychotic patients: A hospital-based study in two geographically and culturally distinct Indian cities. Indian J psychol med. 2012;34(4):338-45.
31. Alegría M, Bijl RV, Lin E, Waltfers EE, Kessler RCIncome differences in persons seeking outpatient treatment for mental disorders: a comparison of the United States with Ontario and The Netherlands. Arch Gen Psychiatry. 2000;57(4):383-91.
32. Steel Z, Mcdonald R, Silove D, Bauman A, Sandford P, Herron J, et al. Pathways to the first contact with specialist mental health care. Aust N Z J Psychiatry. 2006;40(4):347-54.
33. Adeosun II, Adegbohun AA, Adewumi TA, Jeje OO. The pathways to the first contact with mental health services among patients with schizophrenia in Lagos, Nigeria. Schizophr Res Treat. 2013;15(1):12-8.
34. Gupta SK. Web model of pathways to psychiatric care for Indian setting. Int J Health Allied Sci. 2012;1(4):293.
35. Faizan S, Raveesh BN, Ravindra LS, Sharath K. Pathways to psychiatric care in South India and their socio-demographic and attitudinal correlates. BMC Proceedings 2012;6(S4).
36. Anderson KK, Fuhrer R, Malla AK. The pathways to mental health care of first episode psychosis patients: a systematic review. Psychol Med. 2010;40(10):1585-97.
37. Singh SP, Grange T. Measuring pathways to care in first-episode psychosis: A systematic review. Schizophr Res. 2006 Jan 1;81(1):75-82.
38. Balhara YPS, Prakash S, Gupta R. Pathways to Care of Alcohol-Dependent Patients: An Exploratory Study From a Tertiary Care Substance Use Disorder Treatment Center. Int J High Risk Behav Addict. 2016;5(3).
39. Meadows G, Burgess P, Bobevski I, Fossey E, Harvey C, Liaw ST. Perceived need for mental health care: influences of diagnosis, demography and disability. Psychol med. 2002;32(2):299-309.
40. Vázquez-Barquero JL, Castanedo SH, Artal JA, Nuñez JC, Gaite L, Goldberg D, et al. Pathways to psychiatric care in Cantabria. Acta Psychiatr Scand. 1993;88(4):229-34.
41. Ehmann TS, Tee KA, MacEwan GW, Dalzell KL, Hanson LA, Smith GN, et al. Treatment delay and pathways to care in early psychosis. Early interve psychiatry. 2013;8(3):240-6.
42. Burns JK, Tomita A. Traditional and religious healers in the pathway to care for people with mental disorders in Africa: a systematic review and meta-analysis. Soc Psychiatry Psychiatr Epidemiol. 2014;50(6):867-77.
43. Thirthalli J, Varghese RS, Ross D, Jagannathan A, Venkatasubramanian G, Gangadhar BN. Pathways to psychiatric care in schizophrenia in India. Schizophr Res. 2008;102(1-3):160-1.
44. Harrison J, Kisely SR, Jones JA, Blake I, Creed FH. Access to psychiatric care; the results of the Pathways to care study in Preston. J Public Health Med. 1997;19(1):69-75.

Research Report

PREVALENCE AND FACTORS ASSOCIATED WITH POST-TRAUMATIC STRESS DISORDER AMONG FLOOD-AFFECTED ADULTS IN A PANCHAYAT IN ERNAKULAM DISTRICT IN KERALA

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ABSTRACT

Background: Floods affected the state of Kerala following unusually heavy rainfall during the monsoon season in August 2018. Post-Traumatic Stress Disorder (PTSD) is the most common and debilitating psychological disorder among victims of floods or any other massive disaster. This study aimed to determine the prevalence and the factors associated with Post-Traumatic Stress Disorder (PTSD) among flood-affected adults in a panchayat in Kerala. In light of the looming threat of climate change, and with Kerala being especially prone to recurring floods due to its geographical location, there is an urgent need to assess the impact of floods on the psychological wellbeing of the residents of the state. To the best of our knowledge, this is the first study to investigate the occurrence of PTSD among the residents of Kerala following exposure to floods. **Methods:** This was a cross-sectional study undertaken in 100 households in a flood-affected community in Kerala. The PTSD Checklist for DSM-5 (PCL-5) was administered to diagnose PTSD. The intensity of flood exposure was measured using a checklist of ten factors. **Results:** The prevalence of PTSD was 22%. Loss of a relative, physical injury, and affliction with a physical illness were significantly associated with PTSD. A higher intensity of flood exposure was associated with a greater prevalence of PTSD. **Conclusion:** Our study demonstrates the high prevalence of PTSD following floods in Kerala and the need to conduct post-disaster mental health screening. It highlights those factors that may predict the occurrence of PTSD in the affected population. Recommendations are also put forward to mitigate the psychological impact of floods on the inhabitants of the state in the coming years.

Keywords: flood, Kerala, post-traumatic stress disorder

INTRODUCTION

A disaster is a severe disruption-psychological, and psychosocial-which the affected community is unable to cope with. Survivors of a disaster invariably sustain one or the other form of emotional trauma.[1]

Post-Traumatic Stress Disorder (PTSD) is probably the most common and debilitating psychological disorder among victims of floods or any other massive disaster.[2] The diagnosis of PTSD requires exposure to a traumatic and stressful event that the person experienced, witnessed, or confronted, with actual or threatened death or serious injury or threat to the physical integrity of oneself or a significant other. The traumatic event is persistently re-experienced in the

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form of nightmares, flashbacks, and emotional distress after exposure to reminders of the event in question. The person attempts to avoid any stimuli related to the trauma. There may be affective disturbances in terms of depressive cognitions and negative thoughts and feelings. Hypervigilance and a heightened startle reaction are also commonly seen, with several of these symptoms having to last for more than a month to make a definitive diagnosis. Persons who have PTSD often have co-morbid depression, which can have a disabling effect on their day-to-day lives. Most importantly, a person who has PTSD is at a higher risk for suicide and intentional self-harm.[3]

The floods that ravaged Kerala in August 2018 claimed 453 lives and nearly 140 people went missing. Over 14.5 lakh people were forced to relocate to more than 3000 relief camps. The state reported damages worth 31000 crore rupees due to this calamity.[4] With climate change becoming an undeniable reality, populations in certain regions of the world are becoming more prone to recurrent exposures to natural disasters. The inhabitants of coastal Kerala represent one such at-risk population. There is an urgent need to assess the impact of such events on the psychological wellbeing of those who are afflicted, to mitigate its effects in the years to come.

The objectives of the study were to determine the prevalence and the factors associated with PTSD among flood-affected adults in a rural population of Kerala. To the best of our knowledge, this is the first study to report the occurrence of PTSD among the residents of Kerala following exposure to floods.

MATERIALS AND METHODS

Ours was a cross-sectional study conducted in September 2019 in the flood-affected panchayat of Kunnukara in Ernakulam district in Kerala. The approval for this research work was obtained from the Institutional Research and Ethical Committee before initiating the study. Kunnukara panchayat covers an approximate area of 12.6 square kilometres that is divided into 15 wards. This area was selected because its inhabitants had borne the brunt of floods in 2018, following the overflowing of the Chalakudy and the Periyar rivers. Two wards (numbers 13 and 14) were randomly selected as sites for the study. The lottery system was used for random selection. A list of all the households in the panchayat was obtained from the local panchayat office, and simple random sampling was done, wherein houses were randomly selected to obtain the requisite sample. Adults aged 18 years and older who were residents of Kunnukara Panchayat for at least one year and gave written informed consent to be a part of the study were interviewed, with one adult being chosen from each household using the age-order method. Those persons who reported having a previously diagnosed psychiatric condition were excluded from the sample.

Sample size was estimated using the formula $n=4pq/d^2$ where, p = known prevalence of the disease, $q = 1 - p$, and d= absolute error. The prevalence of PTSD was observed to be 51.3% among flood-affected individuals in a study conducted by Ashok V et al. in the neighbouring state of Tamil Nadu. [5] By assigning this value to the variable 'p', and considering an absolute error of 10%, a sample size of 99.9 was obtained which was rounded off to 100 individuals.

The study participants were interviewed using a semi-structured questionnaire that was administered in the local vernacular. Socio-demographic data that was collected included age, sex, education, occupation, income, marital status, type of dwelling, and presence of any chronic diseases in the respondent.

The Malayalam translation of the Post-traumatic Stress Disorder Checklist for DSM-5 (PCL-5) questionnaire was administered to diagnose PTSD in the respondents. The scale consists of 20 items with five responses (0-4) that assess the presence and severity of PTSD symptoms. The total score ranges from 0 to 80. A score of 33 or greater would mean that the respondent has met the criteria for PTSD.[6] The PCL-5 has been demonstrated to be a psychometrically sound measure of PTSD symptoms, in previous studies done both in India and abroad.[7,8]

According to previous studies, ten factors were assessed to measure the intensity of flood exposure in the study subjects.[9] These factors were the loss of a relative, loss of property, damage to one's house, financial loss, loss of livelihood, bodily injury, loss of livestock, displacement from home, physical illness, and involvement in rescue services. A respondent was determined to have a high intensity of flood-exposure if they answered 'yes' to a certain number of questions equal to or greater than the median of the number of

Table 1. Association of socio-demographic characteristics with PTSD in the study population

Characteristics		PTSD present	PTSD absent	Chi-square value	(p-value)
Age	<50 years	4 (18.1%)	46 (59%)	-***	0.001**
	>50 years	18(81.9%)	32 (41%)		
Gender	Males	3 (13.6%)	26(33.3%)	-***	0.095
	Females	19 (86.4%)	52(66.7%)		
Education	Up to primary school	14 (63.6%)	29(37.2%)	3.93	0.048**
	More than primary school	8 (36.3%)	49(62.8%)		
Occupation of the head of the family	Unskilled	13 (59.1%)	38(48.7%)	2.62	0.454
	Skilled	6 (27.3%)	31(39.7%)		
	Unemployed	3 (13.6%)	9 (11.6%)		
The vulnerable group in the family*	Present	12 (54.5%)	39(50%)	0.40	0.526
	Absent	10 (45.5%)	39(50%)		
Chronic disease	Present	11 (50%)	32(41%)	0.95	0.329
	Absent	11 (50%)	46(59%)		

* Children under 5 five years, pregnant mothers and the elderly, ** p< 0.05, *** Fisher's exact test PTSD: Post Traumatic Stress Disorder

questions answered 'yes' in the study population. In our study population, as the median value of the number of questions receiving an affirmative response was determined to be six, those respondents who answered 'yes' to six or more questions were determined to have a high intensity of flood exposure. Similarly, an exposure characterized by an affirmative response to less than six variables was categorized as being of low intensity. The data was entered in MS Excel and analyzed using SPSS 20 software. Chi-square test and Fisher's exact test were used to analyze the association between the socio-demographic variables, the intensity of flood exposure, and PTSD.

RESULTS

Twenty-two per cent of persons surveyed reported symptoms of PTSD. The socio-demographic details of the study sample are elaborated in Table 1. Older age (more than 50 years) (p= 0.001) and lower educational attainment (p= 0.048) were significantly associated with a greater risk of PTSD (Table 1).

The data about the intensity of flood exposure revealed that more than 95% of the study population had suffered tangible losses to their homes and property. Moreover, 64% of those surveyed had lost their livelihood in the same year. As the study area is close to the riverbanks, all of the families surveyed were found to have been displaced and shifted to temporary camps, at some point, during the flood-relief operations carried out by the state government. This data, along with the evident loss of life, established that the flood was of sufficiently great intensity.

The loss of a relative (p= 0.011), physical injury (p= 0.015), and affliction with a physical illness at the time (p=0.004) were predictors that were significantly associated with the symptoms of PTSD (Table 2).

It was noted that 65% of those surveyed had a high intensity of flood-exposure and 35% had a low intensity of exposure. A higher intensity of flood exposure was found to be significantly associated with a greater incidence of PTSD.

DISCUSSION

In our study, the prevalence of PTSD in a rural population in Kerala, following floods, was determined to be 22%. Hollifield et al. had obtained a similar prevalence in a study conducted in Sri Lanka.[10] This figure is also comparable to the prevalence noted in Gujarat following flash floods in Surat in 2006 (23.3%).[11] However, a study conducted in Ladakh following flash floods in 2010 identified only two cases of PTSD among 318 survivors who were interviewed. As 86.2% of the sample in the above study comprised of Tibetan refugees, it was postulated that the temperament of the Tibetan people, their social background, and their attitudes to life's stressors, may have played a protective role.[12] Hence, cultural factors contribute to the prevalence of PTSD in communities that have been

Table 2. Association of variables of the intensity of flood exposure with PTSD in the study population

Variable		PTSD present	PTSD absent	Chi-square	p-value
Loss of relative	Yes	4 (13.6%)	1 (1.3%)	-	0.011*#
	No	18(86.3%)	77(98.7%)		
Injury to body	Yes	7 (31.8%)	9 (11.5%)	5.942	0.015#
	No	15 (68.2%)	69(88.5%)		
Physical Illness	Yes	18 (81.8%)	37(47.4%)	7.234	0.004#
	No	4 (18.2%)	41(52.6%)		
Loss of property	Yes	21 (95.5%)	7(94.9%)	-	0.654*
	No	1(4.5%)	4 (5.1%)		
Loss of Livelihood	Yes	15 (68.2%)	49(58.9%)	0.082	0.644
	No	7 (31.8%)	29(41.1%)		
Loss of Livestock	Yes	10 (45.5%)	25(32.1%)	1.861	0.173
	No	12 (54.5%)	53(67.9%)		
Damage to house	Yes	21 (95.9%)	74(94.9%)	-	0.351*
	No	1 (4.5%)	4 (5.1%)		
Displacement	Yes	20 (90.9%)	72(92.3%)	-	0.673*
	No	2 (9.1%)	6(7.7%)		
Involvement in rescue	Yes	7 (31.8%)	22(28.2%)	0.242	0.622
	No	15 (68.2%)	56(71.8%)		
Financial loss	Yes	21 (95.5%)	75(96.2%)	-	0.617*
	No	1 (4.5%)	3 (3.8%)		
The intensity of flood exposure (> 6 stressors)	High	20 (90.9%)	45(57.7%)	-	0.004*#
	Low	2 (9.1%)	33(42.3%)		

* Fisher's exact test, #P<0.05, PTSD: Posttraumatic Stress Disorder

exposed to traumatic events like natural disasters.

Next, we evaluated the extent to which socio-demographic variables contributed to PTSD symptoms in the study population. A study by Norris et al. determined that increased age could have varying impacts on PTSD symptoms depending on the cultural context. [13] In a similar vein, although there is no consensus on the effect of age on the development of PTSD, our study revealed that older age was associated with a greater incidence of PTSD. This may be attributed to age-related stressors such as sensory impairment, cognitive decline, physical illness, retirement, financial constraints, bereavement, loss of social support, and role changes, that make it difficult to cope with the memories of the trauma. Existing literature supports the understanding that females are more prone to suffer PTSD. [9, 14, 15] This has been explained by their greater exposure to high-impact trauma (such as sexual trauma), use of coping strategies that are more emotion-focused than problem-focused, and biological phenomena such as a more sensitized hypothalamus-pituitary axis. Although the proportion of females who have PTSD was found to be higher when compared to males in our study, this finding was not found to be statistically significant. This may be attributed to the disproportionate number of female respondents interviewed, as most of the male family members were at work during the hours of the survey. We also noted that a lower level of educational attainment was significantly associated with PTSD. A nationwide epidemiological study undertaken in the United States of America on the prevalence and socio-demographic correlates of PTSD was in concurrence with this finding, as was a meta-analysis conducted by Brewin et al. regarding the risk factors for PTSD in adults exposed to trauma.[16,17] This may be explained by the better economic status and greater access to healthcare and information that is generally available to those with a higher degree of educational attainment, that, in turn, can play a role in protecting against the development of PTSD.[18]

We also attempted to determine the intensity of flood exposure among the affected people. A study conducted by Neelofar et al. that focused on the intensity of exposure to a natural disaster in the state of Jammu & Kashmir established that 100% of those surveyed had

suffered a loss of property and possessions.[19] The figure of 95% obtained in our study is found to be comparable. Similarly, whereas the proportion of persons who sustained a loss of livelihood was 50% in the study mentioned above, we found that 64% of the flood-affected population suffered similar losses. These similarities in findings reflect the comparable severities of the stressful event in both studies and reveal that the floods in Kerala constituted an event of considerable stress in the study population.

We tested the hypothesis that the intensity of flood exposure is related to PTSD symptoms in the study population. We determined that a higher intensity of flood exposure is associated with a greater prevalence of PTSD, and this was found to be statistically significant.

Finally, we were able to identify certain flood-related factors such as the loss of a relative, physical injury, and affliction with a physical illness, that were present in several subjects and could, in turn, possibly be risk factors for the development of PTSD in the future. This has been previously demonstrated in a follow-up study that spanned 17 years, that was undertaken to assess PTSD symptoms in survivors of the Dongting Lake flood in China. [9]

Our study had a few limitations. The study sample had a preponderance of female respondents, presumably because the data collection was carried out during the hours in which the male members of the family were at work. Pre-existing psychiatric disorders were ruled out based on self-report. Data regarding the intensity of exposure to floods in 2018 was obtained after a gap of one year and may have been subject to some recall bias. However, previous studies have reliably documented symptoms of PTSD up to 21 months after the natural disaster. [10] Therefore, this may not necessarily preclude the drawing of robust conclusions from the primary data. Finally, the cross-sectional nature of the study meant that causal inferences about the subject matter could not be conclusively drawn.

Our study has several implications for the implementation of appropriate policies, to safeguard the psychological wellbeing of the native population following similar floods in the future. Our research demonstrates the need to conduct post-disaster mental health screening for planning intervention strategies to mitigate the resulting psychological fallout of exposure to floods. Medical personnel must educate the population about the symptoms of PTSD so that they can seek the necessary help. People who have PTSD need a timely referral to psychiatric services for the management of persisting symptoms. There is also much that can be done, at a community level, to alleviate the symptoms of PTSD in the affected populations. For instance, a model of psychosocial care that was implemented by mental health teams from the National Institute of Mental Health and Neuro-Sciences (NIMHANS) in Bengaluru, in women survivors of the tsunami that struck Indian coastal communities in 2004, was found to be effective in reducing psychological distress. [20] Hence, early diagnosis, combined with the appropriate pharmacological, psychological and psychosocial interventions, are imperative to manage PTSD in communities that are ravaged by such natural calamities. Moreover, as meteorological data suggest that floods may become a yearly phenomenon in Kerala, there is scope for further studies to determine whether previous exposure worsens mental health issues due to repetitive stress, or conversely if it improves resilience thereby proving to be a protective factor.

To conclude, our study established that 22% of the population suffered from symptoms of PTSD following floods. Several risk factors for the development of PTSD were identified. A greater intensity of exposure to a disaster was found to precipitate more severe mental health issues in the affected population. Finally, our study reveals that there is a pressing need for early recognition and management of the psychological aftermath of floods and other natural disasters.

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Conflict of interest

None declared.

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REFERENCES

1. World Health Organization (WHO). Disasters and definitions [Internet]. 2002. [cited 2019 September 16]. Available from: http://apps.who.int/disasters/repo/7656.pdf
2. Norris F, Friedman M, Watson P, Byrne C, Diaz E, Kaniasty K. 60,000 Disaster Victims Speak: Part I. An Empirical Review of the Empirical Literature, 1981–

2001. Psychiatry: Interpersonal and Biological Processes 2002; 65:207-39.
3. Diagnostic and statistical manual of mental disorders. Arlington, VA: American Psychiatric Association; 2017.
4. Kerala rains: Toll reaches 125, 17 still missing. The Hindu. Thiruvanathapuram. 2019 Aug 21. Available from: https://www.thehindu.com/news/national/kerala/kerala-rains-toll-reaches-125-17-still-missing/article29212558.ece
5. Ashok V, Premarajan KC, Rajkumar R, Naik B. Mental health status of flood-affected adults in rural Tamil Nadu: A cross-sectional study. CHRISMED J Health Res 2019; 6:97.
6. Weathers FW, Litz BT, Keane TM, Palmieri PA, Marx BP, Schnurr PP. The PTSD Checklist for DSM-5 (PCL-5). [Internet]. 2013. Available from: https://www.ptsd.va.gov/professional/assessment/adult-sr/ptsd-checklist.asp
7. Nayak S, Kamath A, Gupta K, Roy A, Roy S, Chatterjee A. Post-traumatic stress disorder among patients with oral and maxillofacial trauma in a South Indian population. Spec Care Dentist 2019; 39:399-405.
8. Wortmann JH, Jordan AH, Weathers FW, Resick PA, Dondanville KA, Hall-Clark B, et al. Psychometric analysis of the PTSD Checklist-5 (PCL-5) among treatment-seeking military service members. Psychol Assess 2016; 28:1392-403.
9. Dai W, Kaminga A, Tan H, Wang J, Lai Z, Wu X, et al. Comorbidity of post-traumatic stress disorder and anxiety in flood survivors. Medicine 2017; 96:e7994.
10. Hollifield M, Hewage C, Gunawardena C, Kodituwakku P, Bopagoda K, Weerarathnege K. Symptoms and coping in Sri Lanka 20–21 months after the 2004 tsunami. Br J Psychiatry 2008; 192:39-44.
11. Patel FM, Oswal RM, Meheta RY. Post-traumatic Stress Disorder in Adult Victims of 2006 Flood in Surat, Gujarat. J Res Med Den Sci 2015; 3:303-6.
12. Ishikawa M, Yamamoto N, Yamanaka G, Suwa K, Nakajima S, Hozo R, et al. Disaster-related psychiatric disorders among survivors of flooding in Ladakh, India. Int J Soc Psychiatry 2013; 59:468-73.
13. Norris F, Murphy A, Baker C, Perilla J, Rodriguez F, Rodriguez J. Epidemiology of Trauma and Post-traumatic Stress Disorder in Mexico. J Abnorm Psychol 2003; 112:646-56.
14. Rajkumar A, Mohan T, Tharyan P. Lessons from the 2004 Asian tsunami: Epidemiological and nosological debates in the diagnosis of post-traumatic stress disorder in non-Western post-disaster communities. Int J Soc Psychiatry2011; 59:123-9.
15. Olff M. Sex and gender differences in post-traumatic stress disorder: an update. Eur. J. Psychotraumatol 2017; 8:1351204.
16. Goldstein R, Smith S, Chou S, Saha T, Jung J, Zhang H et al. The epidemiology of DSM-5 post-traumatic stress disorder in the United States: results from the National Epidemiologic Survey on Alcohol and Related Conditions-III. Soc Psychiatry Psychiatr Epidemiol 2016; 51:1137-48.
17. Brewin CR, Andrews B, Valentine JD. Meta-analysis of risk factors for post-traumatic stress disorder in trauma-exposed adults. J Consult Clin Psychol 2000; 68:748-66.
18. Li L, Reinhardt JD, Van Dyke C, Wang H, Liu M, Yamamoto A, et al. Prevalence and risk factors of post-traumatic stress disorder among elderly survivors six months after the 2008 Wenchuan earthquake in China. BMC Psychiatry 2020; 20(1).
19. Neelofar MR, Qadri J, Bhat RA. Socio-economic and Health impacts of Floods in a Trans-Himalayan Ecosystem. Journal of Geography & Natural Disasters 2018; 8:1-4.
20. Becker SM. Psychosocial care for women survivors of the tsunami disaster in India. Am J Public Health, 2009; 99:654-8.

Research Report

CHANGE IN ATTITUDE TOWARDS SUICIDE WITH CURRENT UNDERGRADUATE TRAINING IN PSYCHIATRY: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Teachers in psychiatry have the responsibility to impart changes in students' attitude towards important areas of the subject. Suicide is the psychiatric emergency that a primary care practitioner is most likely to encounter in day to day practice. In this cross-sectional study, we looked into the change in the attitude of an undergraduate student towards suicide with his/her training in psychiatry with the present undergraduate curriculum. **Materials and Methods:** We recruited undergraduate medical students doing their MBBS course from a medical college of South India. Their responses to Eskin's Attitudes towards Suicide Scale (E-ATSS) and Eskin's Social Reactions to Suicidal Persons Scale (E-SRSPS) were collected. The students were divided into groups of students completed undergraduate training in Psychiatry and those who are yet to get exposed to it. Responses in E-ATSS and E-SRSPS from both groups were compared. **Results:** The overall attitude of students towards suicide and suicidal person were favourable compared to many previous studies. There was a significant difference in the factor ' suicide as a sign of mental illness' when responses from both groups were compared. 2.72±1.11 in the exposed group compared to 3.16±1.11 of unexposed group. p-value<0.001). Also, there was a significant difference in responses to the disapproval of suicidal disclosure. 2.83±0.65 in the exposed group and 2.67±0.67 in the unexposed group. (p-value - 0.01). **Conclusion:** The current undergraduate medical curriculum by Medical Council of India is successful in bringing attitude change in some important domains of suicide. Domains remain under-covered by the curriculum should be looked into in the future curriculum revisions.

Keywords: undergraduate, medical student, curriculum, attitude, suicide

INTRODUCTION

Medical Council of India (MCI) rolled out the new competency-based curriculum for undergraduates in India in 2018 after many debates and discussions. It will be tried and tested from the academic year of 2019 onwards. The new curriculum aims to make a competent practitioner out of Indian medical graduate (IMG) than a subject expert. It focuses on the change in knowledge attitude and practice. Psychiatry has been allotted 19 topics and 117 outcomes. This is almost equal to that of community medicine (20 topics and 107 outcomes).[1]

Were we able to bring about those competencies in psychiatry in the current curriculum? How would that

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have affected students' attitude towards various psychiatric conditions? How would that have affected their practice of modern medicine? What influence might that have had on their patient and in the end society as a whole? Yadav T et al. (2012)[2] in a study conducted among 452 undergraduate medical students in India opined that their attitude would affect the quality of service they provide to these patients and their families. It may also influence how individuals seek professional help for psychiatric problems. Many studies have reported undergraduate training to be a critical period for changing the attitudes of medical students toward mental illness.[3,4] Practice of mental health demands destigmatising attitude towards illness and the patient. Suicide is a common psychiatric emergency. About 800000 suicide deaths occur every year all over the world, to which India contribute to 17% of them.[5] So it's of utmost importance for IMG to be competent enough to handle suicidality, which has many social, religious and biological dimensions. For that, the right attitude towards a condition like suicide is required. Stigmatising attitudes of health care professionals towards mental illness can impede treatment provided for patients suffering from psychiatric problems.[6]

N. Nebhimani et al.[7] in their study among final year medical students in Haryana, found that only one-third of the students had favourable attitudes towards suicide attempters. M. Nebhimani et al.[8] had conducted a similar study among nursing students and found favourable attitudes towards suicide attempters in the majority of students. It should be noted that nursing syllabus gives allots more time and space for behavioural science. Poreddi et al.[9] concluded that an important proportion of medical and nursing students have negative attitudes toward mental illness. It is necessary to review and adapt the current curriculum to favour the positive attitude of future professionals toward people with various types of mental health issues.

Rishi Desai et al. in 2019[10] had conducted a six month follow up study among undergraduate students in western India regarding their attitude towards psychiatry. They found significant improvement in positive attitudes and a reduction in negative attitudes. Naveen Grover et al.[11] in 2019 studied attitude towards psychiatry a group of 235 nursing students in Delhi. They also found improvement in attitude towards psychiatry after one-month psychiatry posting. But in these studies, the same group of students are exposed to the same scales before and after posting. This can lead the students to anticipate and pick up points related to the purpose of the study during the training period. Jilowa et al.[12] compared attitude towards psychiatry in second-year students and interns, and they found more favourable attitudes in second-year students compared to interns! They attribute this unfavourable outcome to a negative attitude towards psychiatry among teachers of other medical specialities.

Few studies in India have addressed a change in attitude towards suicide with undergraduate psychiatry training. We had attempted to assess the sufficiency of the current undergraduate curriculum in inculcating attitude change using attitude towards suicide as an indicator. Thus, this investigation aimed to test whether or not exposure to psychiatric training will lead to changes in attitudes towards suicide and suicidal persons in Indian medical undergraduates.

MATERIALS AND METHODS

This descriptive cross-sectional study was conducted at P.K. Das Medical College, Vaniyamkulam, Kerala, situated in rural South India. Institutional ethics committee clearance was taken. We recruited undergraduate medical students doing their MBBS course who obtained admission before the academic year of 2019. So, all students following the new curriculum were excluded. After obtaining informed consent, sociodemographic details and their responses to Eskin's Attitudes towards Suicide Scale (E-ATSS) and Eskin's Social Reactions to Suicidal Persons Scale (E-SRSPS) were collected. Sociodemographic pro forma included age, gender, history of mental illness and history of suicide attempts.

MBBS curriculum includes two weeks of clinical posting and 20 hours of lecture classes in Psychiatry. We divided the students into groups of students completed undergraduate training in Psychiatry [Exposed] and those who are yet to get exposed to it [Unexposed]. Responses in E-ATSS and E-SRSPS were compared using appropriate statistical methods.

Eskin's Attitudes towards Suicide Scale

Eskin's Attitudes towards Suicide Scale (E-ATSS) is a

validated instrument used for quantitative assessment of attitude towards suicide. It consists of 24 statements about students' opinions and attitudes towards suicide and psychological issues. Participants responded to these statements on a 5-point Likert scale ranging from "Completely disagree (1)" to "Completely agree (5)". These 24 items give information under six factors. Factors are acceptability of suicide, punishment after death, suicide as a sign of mental illness, communicating psychological problems, hiding suicidal behaviour and open reporting and discussion of suicide. Total score under each subscale is calculated by summing the total score of all items under that factor and then dividing it by the number of items. The subscale scores range from 1 to 5, higher scores indicating higher levels of subscale content.

Eskin's Social Reactions to Suicidal Persons Scale

Eskin's Social Reactions to Suicidal Persons Scale (E-SRSPS) measures attitude towards a suicidal person. Items are framed as statements about an imaginary friend who is suicidal. There are a total of 20 items under four factors, i.e., social acceptance, helping the suicidal person and disapproval of suicidal disclosure and emotional involvement. Total score under each subscale is calculated by summing the total score of all items under that factor and then dividing it by the number of items. The subscale scores range from 1 to 5, higher scores indicating higher levels of subscale content.

RESULTS

Out of the total 453 students, 287 students were in the unexposed group and 166 in the exposed group. There were 313 females in the unexposed group and 148 in the exposed group.

We analysed data using SPSS software. Independent sample t-test was conducted for comparing responses from two groups.

1.**Attitude towards suicide**: [Table 1]

Acceptability of suicide scores was almost similar in both groups. So were responses to questions related to punishment after death. There was a significant difference in the factor 'suicide as a sign of mental illness' when responses from both groups were compared. Regarding communicating psychological problems, again, both groups responded almost similarly. Coming to hiding suicidal behaviour, both groups had similar responses. Related to open discussion of suicide also responses from both groups did not have any significant difference in their attitudes.

2. **Social reactions to suicidal person** [Table 2]

In social acceptance, both groups responded similarly. In helping the suicidal person also responses were similar.

There was a significant difference in responses to the disapproval of suicidal disclosure. Both groups responded similarly in emotional involvement with a suicidal person.

DISCUSSION

The sample was taken from a single institution approved by medical council of India. All the participants had enough attendance in classes as per the university requirement. Classes were conducted regularly and had enough faculty strength. So, both groups can be studied in terms of changes happening after a particular intervention, here exposure to psychiatry clinics and lecture classes. Of the total 453 students participated in the study, 313 were females (68%). This is in line with the recent trend of more female students preferring medicine as their career choice. [Rishad Khan et al. 2020][13]

Attitude towards suicide and social reactions to the suicidal person

In factors, communicating psychological problems, hiding suicidal behaviour, social acceptance of the suicidal person and helping suicidal person both exposed and unexposed group showed favourable attitudes. Nebhimani et al.[7] had found the majority of students had an unfavourable attitude in the group from Rajasthan they subjected to study. This can be a reflection of a high literacy rate and comparatively less stigma towards mental health issues in the state of Kerala. [14] The fundamental question asked in this study was whether we could bring about positive changes in the attitude of students in crucial mental health problem like suicide with our present undergraduate curriculum. Our study showed significant attitude change in viewing suicide as a sign of mental illness. Students exposed to psychiatry were seeing suicide more as a sign of mental illness compared to students in the unexposed group. This is a very positive finding because the more primary care physician sees suicidal acts as a sign of

Table 1. Comparison of mean responses given by students to Eskin's Attitudes towards Suicide Scale (E-ATSS)

Factors in Eskin's Attitudes towards Suicide Scale (E-ATSS)	Subjects who had training in Psychiatry (N=166) (mean ± SD)	Subjects who did not have training in Psychiatry (N=287) (mean ± SD)	p-value**
Acceptability of suicide	1.43±0.50	1.46±0.51	0.60
Punishment after death	2.86±1.19	2.95±1.19	0.43
Suicide as a sign of mental illness	2.72±1.11	3.16±1.11	0.00*
Communicating psychological problems	4.20±0.81	4.26±0.73	0.42
Hiding suicidal behaviour	2.82±1.01	2.69±1.06	0.20
Open reporting and discussion of suicide	3.07±0.93	2.97±1.05	0.28

*p<0.001, **independent sample t-test

Table 2: Comparison of mean responses given by students to Eskin's Social Reactions to Suicidal Persons Scale (E-SRSPS)

Items of Eskin's Social Reactions to Suicidal Persons Scale (E-SRSPS)	Subjects who had training in Psychiatry (N=166) (mean ± SD)	Subjects who did not have training in Psychiatry (N=287) (mean ± SD)	p-value*
Social acceptance	4.25±0.68	4.34±0.60	0.11
Helping	4.25±0.56	4.28±0.53	0.59
Disapproval of suicidal disclosure	2.83±0.65	2.67±0.67	0.01*
Emotional involvement	3.60±0.73	3.79±0.72	0.97

*p<0.001, **independent sample t-test

mental illness the more is the chance, he/she will guide the patient to seek help from a mental health professional.[15,16] Guiding patients to mental health services may not be enough, but also help-seeking is crucial for successful prevention and treatment of people with suicidality. [17,18]

Another attitude change we observed was disapproval of suicidal disclosure. Students exposed to psychiatry scored had significantly low compared to the unexposed group. This is another positive sign that with exposure to psychiatry education students tend to approve suicidal disclosure more. This is a critical issue because

disapproval of suicidal disclosures during medical or psychiatric examination and/or risk assessment may discourage patients from seeking mental health services. As stated above, the availability of and referral to such services together with the willingness to seek is the backbone of suicide prevention.[19,20]

Acceptability of suicide, open reporting of suicide, communicating suicidal problems, hiding suicidal behaviour and emotional involvement with suicidal person showed no significant change in responses from both groups despite the score being unfavourable. These factors can be considered basic personal attitudes towards life and existential issues, and hence they may not be amenable to change through simple exposure to psychiatry education.

Contrary to the findings of Jilowa et al. [2018][12], we did not observe any worsening of attitudes from favourable to unfavourable in any of these factors as the undergraduate course progress. This is another positive sign.

Limitations and future directions

We did not take factors like gender and religiosity in this study for analysis. Also, we didn't take their inherent differences in attitude towards suicide. Although we detected meaningful changes in two subdimensions of suicidal attitudes between medical students exposed and not exposed psychiatry education, our data from this cross-sectional study design do not permit us to draw causal inferences. Other factors than exposure versus non-exposure to the psychiatric curriculum (such as differential exposure to material in social media, mental health issues, experiences in other departments than psychiatry and mental health service use) may have caused observed changes. Future studies

may benefit from controlling for these potential confounding variables.

Conclusion

The current undergraduate medical curriculum by Medical Council of India is successful in bringing attitude change in some important domains of the subject of suicide. But many other domains remain under-covered by the curriculum. Future committees should have their focus on this.

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REFERENCES

1. Medical Council of India (MCI) competency based undergraduate curriculum for the Indian medical graduate- 2018
2. Balhara YP, Yadav T, Arya K, Kataria D. Impact of psychiatric education and training on attitude of medical students towards mentally ill: A comparative analysis. Ind Psychiatry J. 2012; 21(1): 22–31.
3. Samuelsson M, Asberg M, Gustavsson JP. Attitudes of psychiatric nursing personnel towards patients who have attempted suicide. Acta Psychiatr Scand 1997; 95:222-30.
4. Barber JH, Hodgkin GK, Patel AR, Wilson GM. Effect of teaching on students' attitudes to self-poisoning. Br Med J 1975; 2:431-4.
5. National Crime Records Bureau. Suicides in India; 2014. Available from: http://www.ncrb.gov.in.
6. Sethi S, Shipra U. Attitudes of clinicians in emergency room towards suicide. Int J Psychiatry Clin Pract 2006; 10:182-5.
7. Nebhinani N, Chahal S, Jagtiani A, Nebhinani M, Gupta R. Medical students′ attitude toward suicide attempters. Ind Psychiatry J. 2016; 25(1): 17–22.
8. Nebhinani M, Nebhinani N, Tamphasana L, Gaikwad A. Nursing students' attitude towards suicide attempters: A study from rural part of Northern India. J Neurosci Rural Pract. 2013; 4(4): 400–407
9. Poreddi V, Thimmaiah R, Chandra R, Bada Math S. Bachelor of nursing students' attitude towards people with mental illness and career choices in psychiatric nursing. An Indian perspective. Invest Educ Enferm. 2015; 33(1): 148-54
10. Desai R, Panchal B, Vala A, Ratnani IJ, Vadher S, Khania P. Impact of clinical posting in psychiatry on the attitudes towards psychiatry and mental illness in undergraduate medical students. Gen Psychiatry [Internet]. 2019;32(3). Available from: https://gpsych.bmj.com/content/32/3/e100072
11. Grover N, Jameel S, Dhiman V. Change in attitude among nursing undergraduate students following one-month exposure in a mental healthcare setting. Indian J Psychol Med 2019; 41:462-5
12. Jilowa C, Meena P, Jain M, Dhanda G, Sharma K, Kumawat A, et al. attitude of undergraduate medical students toward psychiatry: A cross-sectional comparative study. Ind Psychiatry J. 2018;27(1): 124–30.
13. Khan R, Apramian T, Kang JH, Gustafson J, Sibbald S. Demographic and socioeconomic characteristics of Canadian medical students: A cross-sectional study. BMC Med Educ. 2020;20(1):151
14. "Census 2011, Chapter 6 (State of Literacy), p.14" (PDF). Government of India
15. Jianlin J. Suicide rates and mental health services in modern China. Crisis. 2000;21(3), 118–121.
16. Pirkola S, Sund R, Sailas E, Wahlbeck K. Community mental-health services and suicide rate in Finland: a nationwide small-area analysis. Lancet. 2009;373(9658):147-53.
17. Han J, Batterham PJ, Calear AL, Randall R. Factors influencing professional help-seeking for suicidality: A systematic review. Crisis. 2018;39(3), 175–196.
18. Oliffe JL, Broom A, Rossnagel E, Kelly MT, Affleck W, Rice SM. Help-seeking prior to male suicide: Bereaved men perspectives. Soc Sci Med. 2020;261, 113173.
19. Rasmussen ML, Hjelmeland H, Dieserud G. Barriers toward help-seeking among young men prior to suicide. Death Stud. 2018; 42(2), 96-103.
20. Cooper SL, Lezotte D, Jacobellis J, DiGuiseppi C. Does Availability of Mental Health Resources Prevent Recurrent Suicidal Behavior? An Ecological Analysis. Suicide Life-Threatening Behav. 2006;36(4), 409-17.

Research Report

POST STROKE DEPRESSION AND LESION LOCATION: A HOSPITAL BASED CROSS-SECTIONAL STUDY

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ABSTRACT

Introduction: Depression is seen in about 40% of patients with stroke and is a common neuropsychiatric consequence. Post-stroke depression (PSD) can be related to the site and side of infarct and psychological stressors. There are conflicting results in this area of research and dearth of studies from India. Thus the study aims to assess the prevalence of PSD in stroke patients and the relation between site and side of stroke with PSD. **Methodology**: A cross-sectional study was done among 40 stroke patients recruited by consecutive non-random sampling in Pushpagiri Institute of Medical Sciences and Research Centre, Thiruvalla. A semi-structured proforma was used to collect the socio-demographic, illness-related and neuroimaging details. Hamilton depression rating scale was used to assess the severity of depression. SPSS 20.0 was used for statistical analysis. **Results:** 64% of the patients with left-sided lesion had PSD, whereas only 20% had PSD among the right-sided group which was significant with a p-value of 0.005.PSD was seen in 64% (N=9) of patients with subcortical lesions which were significantly high (p=0.006) when compared to 14% (N=2) of the patients with PSD among the cortical group. **Conclusion:** This study showed a high prevalence of PSD and its association with left-sided cortical and subcortical lesions. Eliciting the relationship between the lesion and depressive symptoms may help shed light on the neurobiology of depressive disorders.

Keywords: Post-stroke depression, stroke, lesion location

INTRODUCTION

Stroke is a significant public health problem, the incidence of which varies dramatically over the life course. In the age group 55 to 64, the incidence rates between 10 to 20 per 10,000. Individuals, while the rate increases to 200 per 10,000 individuals for those above 85 years.[1] It is the third common cause of death.[2]

Post-stroke depression is a common sequel of stoke, and approximately 85 per cent of stroke patients suffer these symptoms, which causes delayed rehabilitation outcomes.[3] Even though there is a high chance to develop post-stroke depression early years after stroke, it can last up to 10years.[4]

Stroke is the sudden loss of blood supply to the brain leading to permanent tissue damage caused by thrombotic, embolic, or hemorrhagic events. Almost 85% of strokes are ischemic, while 12% are hemorrhagic.[1] Norepinephrinergic and serotoninergic systems are disrupted in basal ganglia and frontal lobe lesions which causes post-stroke depression.[2]

The prevalence of disability among stroke survivors is between 24–54%.[5] The progressive decline in stroke mortality and the subsequent rise of survivors with residual impairments have been accompanied by a rising interest in the factors that could interfere with functional

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outcome and quality of life. Depression is considered as a robust predictor of poor quality of life among stroke survivors.[2]

Post-stroke depression (PSD) is one of the common emotional disorders troubling stroke survivors. Former studies have reported prevalence rates that have ranged from 18% to 61%, depending upon methodological differences. PSD often remain unrecognized and undertreated as the diagnosis is challenging. It's often associated with cognitive impairment, increased mortality and risk of falls causing increased disability and poor rehabilitation outcome.[6] There are several studies which showed the location of the lesion could influence the risk of depression after stroke[4] some studies showed there is the relationship between the left-sided lesion and post-stroke depression. Still, some showed it is related to right hemisphere lesions.[3] There is a paucity of data in this area of research from India.[2] Correlation of the mood changes with the type, location and severity of stroke may provide useful information for improving patient management.

In this study, we aimed to assess the prevalence of post-stroke depression and its association with lesion side and site.

MATERIAL AND METHODS

This is a cross-sectional study conducted among inpatients, admitted following a stroke in the Department of Neurology at Pushpagiri Institute of Medical Sciences and Research Centre, Thiruvalla. The study period was from September 2019 to December 2019.

Patients with a definite history of recent onset stroke (> 2weeks but <6months), who could communicate verbally to the investigator and who gave the informed consent, were recruited for the study. Patients with altered sensorium/aphasia/significant cognitive disturbances (MMSE <24)and those with a history of stroke, neurological disorders and psychiatric illnesses were excluded. The diagnosis of stroke was based upon the consultant neurologist's opinion based upon the imaging studies. Forty patients were recruited by consecutive non-random sampling. A semi-structured proforma was used to collect the socio-demographic, illness-related and neuro-imaging details. Hamilton depression rating scale (17 items) was used to assess the severity of depression.

Table.1. Severity of depression

HAM-D score (17 item)	N =13
Mild (8-16)	2 (15.38%)
Moderate (17-23)	8 (61.5%)
Severe (>24)	3 (23.07%)

HAM-D – Hamilton Depression

Descriptive statistics were used to summarize the socio-demographic, illness-related and radiological variables. Chi-square/ Fischer Exact test was used to find the significance of study parameters on a categorical scale between two or more groups. Nearly 95% confidence interval has been computed to find the significant features. P-value was set at ≤ 0.05. Data collected were analyzed using SPSS 20.

RESULTS

Table 2: Association between study variables and PSD

Study Variables	PSD	No PSD	Chi-square	p-value
Age				
<50 years	0	2	1.014	0.314
>50 years	13	25		
Gender				
Male	9	20	3.42	0.559
Female	4	7		
Marital status				
Married	14	3		
Unmarried	2	2	3.067	0.216
Widow	11	8		
Site of the Lesion**				
Cortical(N=14)	2	12		
Subcortical(N=14)	9	5	-	0.007*
Both (N=12)	2	10		
Side of the lesion**				
Left (N=14)	9	5		
Right (N=15)	3	12	-	0.005*
Both (N=11)	1	10		

*p<0.05; **Fisher's Exact Test; PSD- Post-stroke depression

Forty patients were included in the study. 29 (72.5%) were males, 17 (42.5%) and 19(47.5%) individuals were married and divorced respectively, and 38 individuals belonged to the age group above 50 years.

Fourteen individuals had cortical lesions, 14 had subcortical, and 10 had both cortical and subcortical lesions. Left-sided lesions were present in 14 patients, 15 had right-sided lesions, and 11 patients had lesions on both sides.

Thirteen individuals had PSD. Among them, two were found to have severe depression, eight individuals had moderate and 3 with mild depression based on HAM D scale. (Table 1)

PSD was seen in 64% (N=9) of patients with subcortical lesions which were significantly high (p=0.006) when compared to 14% (N=2) of the patients with PSD among the cortical group. (Table 2)

64% of the patients with left-sided lesion had PSD, whereas only 20% had PSD among the right-sided group which was significant with a p-value of 0.005(Table 2)

Association of age, gender and marital status with PSD were not statistically significant. (Table 2)

DISCUSSION

A clear understanding about the site of lesion and probability to develop stoke may provide information into the neurobiology of mood disorders.[1]

In our study, there is a statistically significant association between post stoke depression and left hemisphere lesion during the subacute phase of stroke which is similar to the study done by Ying Zhang and et al.[3], but in our study, there is no significant increase in PSD among female gender as shown in the above study that result can be explained by the higher prevalence of female depressive disorders in the general population. According to an Indian study done by Pooja Rajashekaran et al.[2], the prevalence of left-sided lesion is only during the acute phase of the stroke. After three months there is no such association. A study done by Na Wei and et al. [7] showed there is a high prevalence of PSD among left-sided cortical and subcortical lesions This study was conducted in a tertiary care centre on hospitalized patients study done of depressive disorders in hospitalized patients.[4] Major depression in post-stroke period showed abnormal dexamethasone suppression test in this study 50 per cent of patients presented with PSD in first two months of stroke. According to some studies, there is no significant association between stoke and side of the lesion.[7] The current study showed a significant association between the subcortical lesions compared with the cortical lesions [Table 2] Yin Zhang et al. had shown PSD is associated with left frontal and left basal ganglia lesions during the acute phase of the stroke. According to some other studies, there was no significant association between stoke and side of the lesion.[3]

There is overlap between symptoms of stoke and depressive disorders. Fatigue, language dysfunction, sleep impairment and appetite impairment can be present in both the conditions.[3]

A German study showed there are some methodological limitations while conducting study on stroke patients. According to them, available modern techniques of lesion analysis like voxel-based symptom lesion mapping (VLSM) have to be used for PSD studies. VLSM involves the registration of individual brain images to standard space and voxel-based statistical methods. Exclusion of aphasic patients in the study of PSD can cause selection bias.[4]

Conclusion

Our study results show the high prevalence of PSD and its association with left-sided cortical and subcortical lesions. Better understanding from relationships between neurological damage and post-stroke depression may throw light on the neurobiology of mood disorders and help in prophylactic treatment. Research relating clinical features, neurotransmitters, and lesion location can shed light on the aetiology of depressive disorder.

Limitations of the study

Small sample size and excluding patients with aphasia are the main limitations of the study.

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REFERENCES

1. Robinson RG, Jorge RE. Post-Stroke Depression: A Review. Am J Psychiatry. 2016 Mar 1;173(3):221-31
2. Rajashekaran P, Pai K, Thunga R, Unnikrishnan B. Post-stroke depression and lesion location: A hospital based cross-sectional study. Indian J Psychiatry. 2013 Oct;55(4):343-8
3. Zhang Y, Zhao H, Fang Y, Wang S, Zhou H. The association between lesion location, sex and poststroke depression: Meta-analysis. Brain Behav. 2017 Aug 30;7(10):e00788.
4. Nickel A, Thomalla G. Post-Stroke Depression: Impact of Lesion Location and Methodological Limitations-A

Topical Review. Front Neurol. 2017 Sep 21;8:498.
5. Metoki N, Sugawara N, Hagii J, Saito S, Shiroto H, Tomita T, et al. Relationship between the lesion location of acute ischemic stroke and early depressive symptoms in Japanese patients. Ann Gen Psychiatry. 2016 Apr 1;15:12.
6. Tu J, Wang LX, Wen HF, Xu YC, Wang PF. The association of different types of cerebral infarction with post-stroke depression and cognitive impairment. Medicine (Baltimore). 2018 Jun;97(23):e10919.
7. Wei N, Yong W, Li X, Zhou Y, Deng M, Zhu H, et al. Post-stroke depression and lesion location: a systematic review. J Neurol. 2015 Jan;262(1):81-90.

Case Report

A CASE REPORT OF FOLIE À DEUX WITH DELUSION OF PREGNANCY

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ABSTRACT

Pseudocyesis is common, whereas delusion of pregnancy is a rare psychopathology. The shared delusion of pregnancy is even rarer. We present a case from a tribal community where a wife shares her husband's delusion. It highlights the role of biopsychosocial determinants in forming psychopathology. It also reflects the need for strengthening community psychiatry approach.

Keywords: shared delusion, delusion of pregnancy, Folie à deux

INTRODUCTION

The shared psychotic disorder was first described in 1860 as Folie Communique by the French psychiatrist Jules Baillarger.[1] It is coded as category F24 in ICD-10.[2] Two individuals share a psychological symptom, particularly delusion in Folie à Deux.[1] Moreover, the partners have an intimate association, high commonality in the content of delusion, and they share, support and accept each other's delusions (Dewhurst Todd criteria).[3] It has an incidence of 1.7 to 2.6%.[4] There are four subtypes[5]: Folie imposeè, Folie simultaneè, Folie communiqueè, Folie induitè.

CASE REPORT

Mrs X, aged 42, came to the outpatient wing of the Department of Psychiatry of the District Hospital, Wayanad (a district with the largest tribal population in Kerala), for consultation in February 2020. She was literate and was working as a sweeper in a temple until she got married in 2016. She did not have any children.

She had presented to the antenatal clinic with a history of two years of amenorrhea. However, her ultrasonogram did not reveal any evidence of gestation, and the gynaecologist had repeatedly ruled out pregnancy during each of her visits in the previous four months. She was being treated for pelvic inflammatory disease. Also, gynaecologists were of the opinion that her early menopause was familial. Since Mrs X believed that her expected delivery date was approaching, she brought her mother to speak to the gynaecologist and was referred for the psychiatry consultation. Her mother was ambivalent: keen to believe that her daughter is pregnant and at the same time having trust in what the gynaecologist opined.

She had no family history of significant medical or psychiatric illness. Her father passed away when she was five. Her elder brother is the decision-maker in the family. Financial constraints rendered her childhood difficult and posed challenges in her marriage as well. She got married to Mr A, who did not insist on dowry or a ceremonial wedding. Subsequently, she stayed with her husband and has not visited her home, though it was at walking distance. Premorbidly, she was social, responsible, hardworking and competitive.

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During the interview, she did not sit because she feared that the baby's weight would make it difficult for her to stand up later. She was cheerful, well-dressed and maintained good eye contact. She believed that she was pregnant since 14th November 2019. Her belief originated when her husband Mr A told that he got 'messages from God' about her pregnancy. Next day she experienced vaginal discharge, and since it was Children's Day (India celebrates Children's Day on November 14), she concluded that she carried a child. Also, she could feel movements, 'as if a child was moving inside'. According to her, Mr A had divine power. Her affect and cognition were normal.

For the next appointment, she came with her husband (Mr A), 58 years who appeared shabby but having vermilion on his forehead. He was a manual labourer. At eight years of age, he had lost his mother and got separated from his father and sister in a forest fire. He worked in Goa for nine years and returned to Kerala in 1979, got married the same year and has two daughters. Since 1984, he has been hearing voices of different Gods who addressed him as an elder brother. The voices told him that his wife's sister and husband are conspiring against him and his wife is an infidel. After his divorce in 2006, he filed complaints against ex-wife and her family based on 'messages from God'. He married Mrs X in 2016 based on 'messages from God' that he heard. He had never used any addictive substance like alcohol or cannabis. He does not have any friends and seldom goes out of his home. He earns his livelihood from his 1-acre land. He has not consulted a psychiatrist before. There was no one available to give information about his family of origin and premorbid personality.

Mr A talked in monotonous low volume and used the term "Sulthan" as a neologism which, according to him, meant a female destined to carry a gifted child in the womb. He had a delusion of persecution against his ex-wife and her family, a delusion of divine power unrelated to the first delusion, and a third unrelated delusion that his wife is pregnant and carrying a child with a special mission. He also said that a snake controlled his thoughts. He also had third-person auditory hallucinations where Gods discussed about him and second-person auditory hallucination where a snake dictated to him how his relationship with his wife should be. His affect was cheerful and incongruous to his thoughts. His physical examination and laboratory investigations were within normal limits.

We sought support from the wife's brother, who took her to the parental home. Treatment adherence was ensured with the tribal promoter's involvement. Risperidone was started at a dose of 2 mg for Mr A, which was later increased because of inadequate response even after a month. Supportive psychotherapy was given for the wife. After three months, wife attained remission and the husband symptomatically improved and is on follow up from the District Mental Health Programme.

DISCUSSION

The working diagnosis was schizophrenia, paranoid subtype (F20.0)[2] for the husband and Shared Psychotic Disorder (F24)[2] for the wife. For Mrs X, the false belief that she was pregnant was acute and morbid in origin, unshakeable, and highly preoccupied with it. She was acting out by modifying her daily routines and regularly visiting the antenatal clinic. Hence, the possibility of an overvalued idea was ruled out.[6] Another differential diagnosis considered initially was Brief Psychotic Reaction which was later ruled out as the symptoms persisted for more than six months from onset. (F23-ICD 10)[2]

The delusion of pregnancy is a rare psychopathology.[7] It differs from Pseudocyesis (F45.8) in ICD 10.[2] Even though William Harvey reported "phantom pregnancy" in 1651 where a Folie à deux in two sisters was described, further reports on the shared delusion of pregnancy is rare.[8] The common themes in Folie à deux are persecutory followed by grandiose.[9] In this case, the patient presents with a delusion of pregnancy, and the apparent instigator is her husband. The diagnosis can be Folie imposeè which is the most common subtype.[5] Delusions result from aberrations in how brain circuits specify hierarchical predictions, and how they compute and respond to prediction errors.[10] Though many people with delusions live with their relatives, they seldom share delusions. Hence, identification of the factors leading to sharing of delusion is important.

Genetics and environmental factors are complementary when Folie à deux develops.[11] Case reports suggest childhood trauma as risk factors for the secondary (induced) patient.[12] Social isolation limiting environmental input and opportunities for reality testing is also common.[13,14] There is a similar prevalence

of schizophrenia in families of both individuals in Folie à Deux.[15] The described secondary case does not have a family history of psychotic disorder, but childhood trauma and stress are present in both the inducer and induced. The induced is socially isolated and has not even visited her family after her marriage, unlike their society's usual practices. In Folie imposeè, the primary case is dominant, intelligent, forceful and autonomous. One of the postulated mechanism in Folie à deux is the immediate association between the inducer and induced (both physical proximity and emotional intensity), thus learning the behaviour from the more dominant and driving inducer.[16] In the described case, though the wife has a premorbid personality of being autonomous and competitive, the cultural beliefs where husband plays a dominant role in marital relationships, and the words from God has supremacy, could have made her adopt a submissive role after marriage. Identification, recipient-ambivalence, love-hate relationship and role of imitation and sympathy are postulated as psychodynamic mechanisms in Folie à deux.[16] Beliefs exist in their community that marriage is not fruitful if a child is not born. This could have made her anxious when she had amenorrhoea for 2years. The relationship between conditioning and formation of delusion and the underlying neurobiology is already documented.[10] The psychodynamics in the patient and the cultural beliefs existing in the tribal community might have conditioned to share this particular theme of delusion while being immune to other psychopathologies of her husband.

The prognosis of the shared psychotic disorder depends on multiple factors, including the primary mental disorder, secondary biopsychosocial predisposing factors, and exposure to the delusion. However, adherence to the management plan is beneficial. In the described case, the husband's lack of support system duration of untreated illness, personality factors in wife, the proximity of themes of delusion to the existing religious beliefs and cultural norms in their tribal community were detrimental. However, support from the wife's relatives and the efficient functioning of Community psychiatry via Family Health Centre and District Mental Health Programme helped ensure treatment adherence for the husband.

REFERENCES

1. Lasègue C, Falret J: La folie à deux. Ann Med Psychol. 1877; 18: 321-55.
2. ICD-10 Classifications of Mental and behavioural disorders: Clinical Descriptions and Diagnostic Guidelines: Tenth revision-2nd edition. Geneva. World Health Organisation. 2004.
3. Dewhurst K, Todd J. The psychosis of a association; folie à deux. J Nerv Ment Dis. 1956 Nov;124(5):451-9.
4. Wehmeier P, Barth N, Remschmidt H. Induced delusional disorder, a review of the concept and an unusual case of folie a familie.Psychopathology.2003 Jan-Feb;36 (1):37-45
5. Gralnick. Folie a Deux, the psychosis of association: A review of 103 cases and the entire English literature.Psychiatric Quart.1942;6:230
6. Mullen R, Linscott RJ. A comparison of delusions and overvalued ideas. J Nerv Ment Dis. 2010 Jan;198(1):35-8.
7. Yadav T, Balhara YP, Kataria DK. Pseudocyesis Versus Delusion of Pregnancy: Differential Diagnoses to be Kept in Mind. Indian J Psychol Med. 2012 Jan;34(1):82-4.
8. Hunter R, Macalpine I. Three Hundred Years of Psychiatry. London, UK: Oxford University Press; 1963.
9. Al Saif F, Al Khalili Y. Shared Psychotic Disorder. [Updated 2020 Aug 10]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK541211/
10. Corlett PR, Taylor JR, Wang XJ, Fletcher PC, Krystal JH. Toward a neurobiology of delusions. Prog Neurobiol. 2010 Nov;92(3):345-69.
11. Lazarus A. Folie à deux: psychosis by association or genetic determinism? Compr Psychiatry. 1985 Mar-Apr;26(2):129-35.
12. Vargas Alves Nunes A, Odebrecht Vargas Nunes S, Strano T, et al. Folie a` Deux and its interaction with early life stress: a case report. J Med Case Rep. 2016;10(1):339.
13. Nishihara, Ryan M. and Nakamura, Craig T. "A Case Report of Folie A Deux: Husband-and-Wife," Jefferson Journal of Psychiatry.1993;11(1):43-50 Available at - https://jdc.jefferson.edu/jeffjpsychiatry/vol11/iss1/9
14. Silveira JM, Seeman MV. Shared psychotic disorder: a critical review of the literature. Can J Psychiatry.1995;40(7):389-95.
15. Scharfetter. Studies of heredity in symbiotic psychosis. Int J Ment Health.1972;1:116-123
16. Suresh Kumar PN, Subramanyam N, Thomas B, Abraham A, Kumar K. Folie à deux. Indian J Psychiatry. 2005 Jul;47(3):164-6.

Psychiatry in Kerala

IMPACT OF COVID-19 PANDEMIC ON PEOPLE WITH ALCOHOL USE DISORDER IN KERALA–AN OBSERVATION FROM THRISSUR DISTRICT

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ABSTRACT

The novel coronavirus pandemic had caused the closure of beverage outlets in Kerala in late March 2020. There were a few suicides in the immediate period, which were highlighted in the media attributing to non-availability of alcohol. An observational study of patients admitted at the De-addiction Centre, NEST and Jubilee Mission Medical College and Research Institute was done. We recorded our observations from the closure of the beverage outlets until two weeks after. Though the government anticipated at least 100 patients, we encountered only 17. Those admitted were brought in delirium, with seizures or injuries sustained during delirium. The possible reasons behind this disparity are discussed which included the sale of illicit liquor or use of home-made preparations. The current situation arose due to a lack of planning and sudden closure of beverage outlets without warning being issued to mental health professionals. Opinions regarding steps to be taken for similar situations in the future are posited.

Keywords: COVID-19, alcohol use disorder, delirium, withdrawal

INTRODUCTION

The first case of novel coronavirus disease (COVID-19) in India was reported from Thrissur district in Kerala on 30th January 2020.[1] From the last week of February, contact tracing, compulsory quarantine and crowd control started in the state. A nationwide lockdown was declared on 24th March.[1]

Despite the lockdown, beverage outlets were crowded and enforcing social distancing was difficult. From 25th March all the liquor shops and bars were closed on Government order.

After the closure, media reported nine deaths in the state due to non-availability of alcohol; seven by suicide, one due to cardiac arrest and one by poisoning following consumption of non-beverage alcohol.[2] Soon the government initiated a scheme for permitting alcohol users to buy a fixed quota of liquor from the Excise Department if requested with a medical testimonial from a registered doctor. The Excise Department anticipated a large number of individuals developing withdrawal. For the district of Thrissur, an approximate need of 100 beds was expected to care for those in withdrawal. Services of a De-addiction Centre (NEST) and the Department of Psychiatry of Jubilee Mission Medical College were offered, and both institutions remained prepared. This report is based on the experience faced in these two centres in managing alcohol use disorder patients during this period.

This study was conducted to learn from our observations during this pandemic which could help in

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formulating guidelines for the management of substance use disorders if a crisis like this were to occur again.

OBSERVATIONS

Natural Empowering Survival Treatment and Research Centre (NEST), an institution run exclusively for the care of alcohol and drug use patients, is a sister concern of Jubilee Mission Hospital. Both institutions remained prepared to receive and care for the patients in withdrawal. Being the time of COVID-19 pandemic, NEST was closed otherwise, and the services of the hospital were limited. A total of 17 patients was managed in our institutions between 25th March and 9th May. (Table.1)

Table1. Alcohol Use Disorder patients treated at NEST and Jubilee Mission Medical College

Centre	Setting		Number
NEST de-addiction centre	Inpatient		4
Jubilee Mission Medical College and Research Institute	Inpatient		3
	Emergency		3
	Consultation		7
	Neurosurgery	2	
	Neurology	2	
	General Medicine	2	
	General Surgery	1	
Total			17

From 25th March to 28th March, seven patients who were referred by the Police or Excise department were brought to the De-addiction center. These patients were brought to the attention of the Excise department through VIMUKTHI, a de-addiction service hotline. All of them were brought in alcohol withdrawal state with delirium. Two of them were referred to the Medical College due to protracted delirium and a history of head injury. One patient was referred to a COVID care hospital for want of clear history and on clinical suspicion. The other 4 patients were managed in the centre up to a maximum of 14 days and discharged on recovery from withdrawal. All the admitted patients cooperated for the treatment during the course of the stay. They were not provided with the usual comprehensive de-addiction services package from the centre.

In the medical college hospital, three patients were brought in an alcohol withdrawal state. Two of the patients were brought in delirium, one of whom had sustained 3rd. degree burns while in delirium. Another patient with a past history of withdrawal seizure was brought with a recurrence of the same complaints.

Table 2. Demographic details of patients with alcohol use disorder

Variable	Number
Age	
Less than 20 years	0
20-50 years	9
More than 50 years	8
Gender	
Males	17
Females	0
Employment	
Employed	3
Unemployed	6
Employed, out of work	8
Marital status	
Married	14
Single	2
Divorced	0
Widower	1

None of the seven patients of both centres had expressed any suicidal ideation or death wishes. Comorbid psychiatric disorders were also managed simultaneously. Two patients had personality disorders, one had a social anxiety disorder, and one had depressive disorder.

None of these individuals was ready for de-addiction treatment and was in the pre-contemplation stage of motivation.

Individuals with Alcohol Use Disorder in a withdrawal state under the care of other departments were managed by consultation services of the department. During this period, seven patients were thus served: two each from neurosurgery, general medicine and neurology and one from general surgery. Four of them were in delirium, two had withdrawal seizures, and the remaining one had mild withdrawal symptoms. One had sustained a fall from a coconut tree while trying to make toddy illegally. None of them or their relatives were willing for transfer to the psychiatry ward and were managed in the respective departments itself. During the same period, we also treated two patients in the emergency department who came with mild withdrawal symptoms like sleep disturbance and

tremulousness. They were unwilling for admission to get treated. One of the former patient's relatives consulted twice for refill prescriptions.

Table 3, Illness characteristics of the patients with Alcohol Use Disorder

Diagnosis	Number
Withdrawal state, uncomplicated	4
Withdrawal state, with convulsions	1
Withdrawal state with delirium, without convulsions	10
Withdrawal state with delirium with convulsions	2
Comorbid psychiatric illness	4
Depressive Disorder	1
Social Anxiety Disorder	1
Personality Disorder	2
Comorbid medical/surgical illness	
Medical illness	
Diabetes	2
Hypertension	1
Infections	1
Cardiac disease	0
Electrolyte imbalance	1
Surgical illness	
Burns	1
Head injury	2

DISCUSSION

The worldwide prevalence of current Alcohol Use Disorder (AUD) is up to 14%.[3] Withdrawal syndrome is the most common reason for the consultation of AUD patients.[4] Severe alcohol withdrawal leads to substantial morbidities such as aspiration pneumonia, arrhythmia and myocardial infarction.[4] Delirium tremens occurs in 3–5% of patients who are hospitalised for the management of alcohol withdrawal.[5] Thanks to the availability of effective treatment, the current mortality rate in delirium are 3%.[6]

Unlike the surge of withdrawal cases during lockdown due to COVID-19 pandemic observed elsewhere (NIMHANS).[7] our institutions had a significantly lower number of cases. Availability of illicit liquor through unlicensed sources may be one of the reasons. Large quantities of such alcohol seized while brewing/distillation or otherwise during this period by authorities do support this argument. Use of toddy, locally made from the coconut by tapping could be another reason. Brewed preparation with lesser alcohol content may be enough to keep an abuser without severe withdrawal symptoms, even if not enough for getting intoxicated to satisfaction. This possibility is supported by the history given by a patient with injuries sustained due to a fall from a coconut tree. Certain Ayurveda preparations have a high content in alcohol, and a few of the individuals may be using it. Unofficial and secret sale of alcohol in some beverages/supply centres were also reported.

Alcohol users purchasing illicit products from criminals can give rise to an increase in crimes, their shifting to other intoxicants and more alcohol-related deaths due to adulteration with poisonous ingredients.[8] When the supply is irregular and erratic as in illicit trades, there is a chance for the user to take more quantity whenever accessible, which in turn may have a causal role for suicides.[9] In studies done on alcohol use disorders following natural disasters, it was found that men used alcohol as a means to cope with psychological distress or sleep disturbances in the post-disaster period. Both interrupted sleep and early morning awakening were risk factors for the overuse of alcohol.[10]

Some people increase their use of alcohol after a disaster, probably to escape from negative feelings and behaviours. This can lead to disturbed sleep, health problems and relationship issues. Reduction in the level of consumption or seeking help is hence advisable.[11] If the person is already on effective treatment, the need is to refill or replicate it.[2] If the person has not received treatment, the occasion can be used for inviting and introducing it. Polarisation effect on self-perceived changes in alcohol consumption is observed in disaster situations; either increases or decreases in drinking, though the finding could be a recall bias.[13] From merging the data of 10 post-disaster alcohol use studies, it was observed that the vast majority of them are continued or relapsed drinkers.[14] New users are rarely seen after any disaster. A study from this centre also reported alcohol use among inmates of a rescue camp started during Kerala Floods 2018.

There appears a need for the government to alert the mental health care professionals and health workers a few days before the closure of alcohol sale outlets so that necessary steps can be taken to prevent casualties. Stigma reduction strategies need to be devised and implemented to encourage those in need to seek help

from hospitals. Awareness regarding treatment and quelling public misconceptions regarding medications employed for detoxification is needed. There also needs to be an inquiry into and restriction of the sale of anti-craving agents by non-medical individuals to unsuspecting family members of alcohol-dependent individuals without forewarning about the deleterious effects. Misuse of Ayurveda preparations needs to be avoided. There needs to be more coordination between local self-government, excise department and mental health authorities.

CONCLUSION

The coronavirus pandemic forced us to think about contingency measures to be adopted in scenarios where substance-dependent individuals would be forced into abstinence. Though we expected a significant number of patients in withdrawal, the actual number of care seekers were far less. The present anticipation of a huge number of alcohol withdrawal patients appeared unrealistic in our scenario.

Use of illicit alcohol, non-beverage alcohol or coconut toddy could have kept severe withdrawal symptoms at bay. This might be a primary reason for why there was a discrepancy between the expected number and those who presented. Those who approached the hospital or centre were managed for their present crisis. Neither were they motivated to receive treatment for abstinence nor could we provide it as the centre was closed due to the COVID-19 pandemic.

We anticipate worsening of psychological problems due to the financial adversity which will be faced by many individuals. This can lead to worsening of alcohol abuse when the beverage outlets open up. We can also expect a rise in the crime rates, road traffic accidents, domestic violence during the immediate period of the reopening, which might be due to intoxication.

LIMITATIONS

The number of patients and the period of study is too less to generalise to an entire population. This study was done in a tertiary care centre and deaddiction centre, and we have not taken data from other private hospitals or government centres in the Thrissur district. We have not taken into account the socio-demographic profile of the admitted patients. We were not able to evaluate in-depth for biopsychosocial factors as many of the patients were seen as consultations in other departments. We are, therefore, unable to point out specific reasons why these people were affected more than others.

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REFERENCES

1. Timeline of a protracted lockdown: How Kerala dealt with Coronavirus. (2020, 2nd May) Onmanorama. Retrieved from: https://english.manoramaonline.com/news/kerala/2020/03/29/coronavirus-india-timeline.html
2. Chandrakanth Viswanath. A different tragedy strikes Kerala during COVID-19 lockdown due to non-availability of alcohol. (2020, 29th March) News 18. Retrieved from: https://www.news18.com/news/india/a-different-sort-of-tragedy-strikes-kerala-during-covid-19-lockdown-due-to-non-availability-of-alcohol-2556049.html
3. Poznyak V, Fleischmann A, Rekve D, Rylett M, Rehm J, Gmel G. The world health organisation's global monitoring system on alcohol and health. Alcohol Res. 2014;35(2):244-49
4. McKeon A, Frye MA, Delanty N. The alcohol withdrawal syndrome. J Neurol Neurosurg Psychiatry. 2008; 79(8):854-62.
5. Eyer F, Schuster T, Felgenhauer N, Pfab R, Strubel T, Saugel B et al. Risk assessment of moderate to severe alcohol withdrawal--predictors for seizures and delirium tremens in the course of withdrawal. Alcohol Alcohol. 2011; 46(4):427-33.
6. Salottolo K, McGuire E, Mains CW, van Doorn EC, Bar-Or D. Occurrence, Predictors, and Prognosis of Alcohol Withdrawal Syndrome and Delirium Tremens Following Traumatic Injury. Crit Care Med. 2017; 45(5):867-74.
7. Omkar Khandekar. Is an alcohol ban necessary during the lockdown? (2020, 24th April) Mint. Retrieved from: https://www.livemint.com/mint-lounge/features/is-an-alcohol-ban-necessary-during-the-lockdown-11587726286324.html
8. Barnett R.E, The Harmful Side Effects of Drug Prohibition. Georgetown Public Law and Legal Theory Research Paper No. 12-037. Utah L Rev 2009.11-34. Retrieved from: https://scholarship.law.georgetown.edu/facpub/817

9. Borges G, Bagge C, Cherpitel C J, Conner K, Orozco R, Rossow I. A meta-analysis of acute alcohol use and the risk of suicide attempt. Psychol Med. 2017; 47(5): 949–57

10. Kaneharaa A, Andob S, Arakic T, Usamid S, Kuwabarae H, Kanof Y, et al. Trends in psychological distress and alcoholism after The Great East Japan Earthquake of 2011. SSM - Population Health 2016;2: 807–12

11. National Centre for PTSD. US Centre for Veterans. https://www.ptsd.va.gov/professional/treat/type/PFA/PFA_Substance_Use.pdf. Accessed last on 23/05/2020.

12. Disaster Events and Services for Persons with Co-Occurring Substance Abuse and Mental Health Disorders. http://cretscmhd.psych.ucla.edu/nola/Video/MHR/CSAT/outreach/04-COCE DisasterEvents Text-SAMHSAapproved.pdf. Accessed last on 23/05/2020

13. Nordløkken A, Pape H, Wentzel-Larsen T, Heir T. Changes in alcohol consumption after a natural disaster: a study of Norwegian survivors after the 2004 Southeast Asia tsunami. BMC Public Health 2013; 13:58. Retrieved from: http://www.biomedcentral.com/1471-2458/13/58

14. North C.S, Ringwalt C.L, Downs D, Derzon J, Galvin D. Post disaster Course of Alcohol Use Disorders in Systematically Studied Survivors of 10 Disasters. Arch Gen Psychiatry. 2011;68(2):173-80.

Viewpoint

"WERTHER EFFECT"–MEDIA, A POTENTIAL PREVENTIVE TOOL FOR SUICIDAL BEHAVIOUR

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ABSTRACT

Suicide, with all its psychosocial impacts, is a major public health problem and needs prompt preventive approaches considering its increasing magnitude. In this era of the internet, people started to rely more on data available at their fingertips than the print media. And this is the time to apply the knowledge we had gained of print media reporting on suicide (its limitations and possibilities) to online media. This article tries to bring attention to some of the recommendations for media reporting on suicide and the need for research based on the online media platform.

Keywords: Werther effect, suicide, social media

Suicide, with its broad social, emotional and financial consequences is a major public health problem. Worldwide there are around 800 000 suicides a year, and every 40 seconds someone is taking their own life.[1] Social learning is a known cause of suicide, and these "copycat" suicides result at least in part by exposure to another person's suicide.

Media has got a significant role by either enhancing or weakening suicide prevention efforts. The media may provide useful educational information about suicide or may spread misinformation, thus may minimize or increase the risk of imitative (copycat) suicide.[2]

When the reporting is extensive, prominent, sensational and overtly describes the method adopted it puts the vulnerable individuals (young people, people with mental illness, past history of suicidal behaviour or those bereaved by suicide) at risk of engaging in imitative behaviours. The risk further increases when it's a celebrity, someone with higher social status or someone who can be easily identified with. Fictionalized suicide can also have a negative impact on individuals (Philips, 1974). However, in the studies conducted, there was no significant difference with respect to the negative emotions generated after watching the censored vs uncensored suicide scenes. It was the extent to which they could identify with the character who committed suicide that caused depression, which then led to modelling the character.

The effect of media reports on increasing suicides is referred to as the "Werther effect", after the title character in Goethe's novel 'The sorrows of young Werther', who died by suicide when faced with the loss of his love which had a mass effect on the people who later committed the act. The terms suicide contagion or suggestion and copycat suicide are common synonyms. It was first described scientifically by David Philipps in 1974 which has been considered to be a pioneer work till now; it also invites the need for further studies.[3,4,5]

An Indian study had demonstrated that it's not just the content of the news. Its placement and prominence (defined as reporting inside special boxes, the news printed on the front page, and the word "suicide" in the

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headline) can also influence copycat suicides. They observed that when compared to foreign studies, there was an increase in the reporting of such news by Indian print media on front pages probably to enhance sales of their newspapers. After the celebrity suicide, the prominence given to the news stories were also found to have increased.[6] Studies linked the prominence given to the suicide news with an increase in the suicidal rates within a month of publication.[6,7]

Sensational (cited as use of catchphrases and adjectives, the photograph of the victim and the location, illustrative descriptions, blame being put on an isolated event) and trivialized reporting (suicide being projected just as one other coping mechanism)[6] were observed to have increased after a celebrity suicide and had an impact on the suicidal rate.[6,8]

It was also noted by the authors[6] that the media had not at all played its role to generate awareness regarding mental illness and its strong association with suicide even though the celebrity after the suicide of whom the study was conducted suffered from mental illness.

Stories that portray an adaptive response to adverse circumstances and the reports that are resource-oriented were found to have a positive effect by reducing the suicide rate. This is called the "Papageno effect ", after the character in "The Magic Flute."[3,4,5] Reporting with a focus on suicidal ideation not followed by an attempt or completed suicide can have a protective effect. The focus on individual suicidal ideation may help in identification with that individual and thus may highlight the outcome of 'going on living'. When the articles are on individuals who refrained from suicidal gestures by adopting positive coping strategies that can promote preventive measures.[9]

In this internet era, social networking sites have become increasingly popular, and having access to them is just a basic need, especially for the youth. The social media platforms, available online such as Twitter, Facebook, Instagram etc. are powerful resources for people seeking information and support, for a variety of problems including psychological and health challenges.[10] They allow anonymous or pseudonymous participation providing individuals with a platform for communicating ideas on sensitive topics and for Vulnerable patients, as described above, can get misled by this information, can contemplate further on their ideas of ending life and can take it up to completion. Exposure to suicide-related contents in social media can have distant effects even on those who are not directly involved, which highlights the importance of the accidental exposure on people have no intention of self-harm or maybe who are not even vulnerable.

Recommendations for proper reporting[11,12]

Do not

1. Give precise details on the suicide method
2. Give personal information on the person who has committed suicide
3. Give some expressions such as "self-inflicted death."
4. Don't place stories about suicide prominently and don't unduly repeat such stories
5. Don't use language which sensationalizes or normalizes suicide, or presents it as a constructive solution to problems
6. Don't explicitly describe the method used
7. Don't provide details about the site/location
8. Don't use sensational headlines
9. Don't use photographs, video footage or social media links

Do's

1. Do provide accurate information about where to seek help
2. Do educate the public about the facts of suicide and suicide prevention, without spreading myths
3. Do report stories of how to cope with life stressors or suicidal thoughts, and how to get help
4. Do apply particular caution when reporting celebrity suicides
5. Do apply caution when interviewing bereaved family or friends
6. Do recognize that media professionals themselves may be affected by stories about suicide

Developing preventive strategies for suicide is complex, as the contributing factors are not fully understood. It should also consider media reporting as an important tool in this era of social networking. Researches on this aspect, particularly lack from this part of the world. Let us take it up and work on it. As professionals should we also insist on getting No objection Certificate (NOC) before matters concerning mental health and suicide are portrayed on movies, series, etc.??

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REFERENCES

1. World Health Organization. Preventing suicide: A global imperative. World Health Organization; 2014.
2. Sinyor M, Schaffer A, Nishikawa Y, Redelmeier DA, Niederkrotenthaler T, Sareen J, et al. The association between suicide deaths and putatively harmful and protective factors in media reports. CMAJ.2018;190(30): E900-7.
3. Phillips DP. The influence of suggestion on suicide: Substantive and theoretical implications of the Werther effect. Am Sociol Rev. 1974:340-54.
4. Sisask M, Värnik A. Media roles in suicide prevention: A systematic review. Int J Environ Res Public Health. 2012; 9(1):123-38.
5. Vijayakumar L. Media Matters in suicide–Indian guidelines on suicide reporting. Indian J Psychiatry. 2019; 61(6):549-51.
6. Harshe D, Karia S, Harshe S, Shah N, Harshe G, De Sousa A. Celebrity suicide and its effect on further media reporting and portrayal of suicide: An exploratory study. Indian J Psychiatry. 2016;58(4):443-47.
7. Wang X. Media guidelines for the responsible reporting of suicide. Crisis. 2012. 2012;33(4):190-8.
8. Lee J, Lee WY, Hwang JS, Stack SJ. To what extent does the reporting behavior of the media regarding a celebrity suicide influence subsequent suicides in South Korea?. Suicide Life-Threatening Behav. 2014;44(4):457-72.
9. Niederkrotenthaler T, Voracek M, Herberth A, Till B, Strauss M, Etzersdorfer E, et al. Role of media reports in completed and prevented suicide: Werther v. Papageno effects. Br J Psychiatry. 2010;197(3):234-43.
10. Park M, McDonald DW, Cha M. Perception differences between the depressed and non-depressed users in twitter. In: Proceedings of the 7th International Conference on Weblogs and Social Media, ICWSM 2013.
11. World Health Organization. Preventing suicide: A resource for media professionals. World Health Organization; 2017.
12. Ramadas S, Kuttichira P, John CJ, Isaac M, Kallivayalil RA, Sharma I, et al. Position statement and guideline on media coverage of suicide. Indian J psychiatry. 2014;56(2):107-10.

Viewpoint

BORDERLINE INTELLIGENCE, DISABILITY PROVISIONS AND FUZZY BORDERS

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ABSTRACT
The diagnosis and boundaries of borderline intellectual functioning (BIF) lack clarity. The nosological status in DSM 5 and ICD 10 and 11 are also dubious. The provision of 'borderline disability' of 25 % for the category of Intellectual Disability, in the RPWD (Rights of persons with disability) act, falls below the benchmark disability criteria. The Kerala State commissioner for persons with disabilities categorises those with IQ between 70 and 84, as 'borderline intelligent' and provides the benefits of scribe/interpreter to them. Can the psychiatrist certify an entity which does not exist in the current classificatory systems? The author tries to highlight the fallacies in the implementation of disability provisions in Kerala for students with BIF and provides alternative solutions vis a vis the disability plea.
Keywords: borderline intelligence, disability

What are the challenges in the diagnosis of borderline intellectual functioning and service provisions? The term borderline intellectual functioning (BIF), which was previously used to describe individuals with a full-scale IQ in the range of 70 to 84, is no more a diagnostic category under DSM 5. It has been mentioned in DSM-5 in the section "Other Conditions that may be a Focus of Clinical Attention".[1] In ICD 10 and 11 also, there is no such diagnostic entity. It is considered as a condition requiring early intervention in ICD 11[2] and not a disorder. Though people with BIF are at a higher risk than individuals with normal IQ to develop mental health and academic problems[3], not all of them have difficulties with adaptive behaviour or require support[4]. Can the psychiatrist certify a disorder which does not exist either in DSM 5 or ICD 10 or 11? Moreover, intelligence is normally distributed in the population, and wherever the cut off for disability is placed, there are always individuals who fall just below the cut-off and miss the disability benefits.

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As per the Rights of persons with disabilities (RPWD) act,[5] when the Vineland Social Maturity Scale (VSMS) score is between 70 and 84, the beneficiaries get a disability of 25%. The cut off for IQ is not specified (concurring with the DSM 5 guidelines). Is the diagnosis of the above condition then borderline intelligence with a disability of 25%, or intellectual disability (ID) with borderline adaptive functioning with a disability of 25%, considering both intellectual and adaptive functioning as the guiding criteria for the diagnosis of ID? It falls below the benchmark disability of 40% also, precluding them from disability services. What then is the use of such a provision?

The Kerala State commissioner for persons with disabilities, state that those with IQ between 70 and 84, should be categorised as borderline intelligent and benefits of scribe/interpreter be given to them.[6] What are the concerns in these benefits given for students with BIF?

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Students with BIF are given the provision of scribe/interpreter during an examination. Is there a scientific rationale in doing so, if the child does not have specific learning disorder (SLD)?

What is the motive behind these children crowding the psychiatry OP for certification, just a few months before the final examination, pressured by the school authorities? In a study conducted in a tertiary care centre in Kerala, it was found that majority of children who seek certification for scholastic backwardness was slow learners (IQ between 71 and 89).[7] Most of them(60%) were from high school and 80 % of the high school students were attending for their first ever assessment of SB. [7]

Nevertheless, these children deserve attention and assistance, beginning from the early years. Certain suggestions are given below.

1. From a medical point of view, students with poor scholastic performance need to have a provision for availing mental health services. Several models can be postulated. One model which is feasible in Kerala is the stepped care model. The class teacher initially identifies children with academic difficulties, does a preliminary evaluation and then refers to the school counsellor. The counsellor evaluates and provides services. Problems which cannot be handled at the school level shall be referred to psychiatrists. The psychiatrist evaluates, incorporating the services of other mental health professionals and medical specialists and plans management. There should be a feedback policy and liaising with school authorities. The results of such comprehensive evaluation can be incorporated to individualise the child's curriculum, learning and overall development Regular training to school teachers and school counsellors needs to be done to equip them with the necessary knowledge and skills. There are several school mental health programs run by several agencies from different government sectors in a parallel manner in the state.[8] These can be coordinated and streamlined to address the academic, mental health and psychosocial well-being of children.

2. From a pedagogical point of view, an educational approach should also be adopted simultaneously. Students who perform poorly can be identified early either by the class teacher or the special education teacher and can be assessed for their strengths, abilities, and aptitude. The concept of multiple intelligences by Gardener[9] needs to be adopted in schools. Educational authorities need to design curricula with various levels of difficulty and a wider choice of subjects to cater to the differing needs of children. A flexible educational approach with lower curricular load and simplified assessment system may be planned. Alternative education systems and open schools need to be considered. Choice of omission of subjects, electives, peer mentoring, differentiated instruction[10] and functional academics are helpful strategies. A 'one size fits all curriculum' and assessment system are not suitable for them. Burdening students with BIF with a curriculum beyond their intellectual capacity adds to their stress levels and may precipitate mental health problems, for which they are more vulnerable. The principle of equity is being compromised here. Rather than the quest for disability labelling, we need to explore and enrich their abilities. Unnecessary disability labels may also inadvertently lower the expectations from the child and may contribute to stigma.

The system of scribes and interpreters as practised in our educational system since long needs to be viewed with scepticism. Scribes write the exam, contributing their intellectual content in lieu of students with intellectual disability (ID). Students with intellectual disability, passing the exams scoring higher marks than the usual students is not uncommon.[7]In the quest of getting a centum pass in schools and the desire of parents to see their children passing 10th standard by hook or by crook, an illogical and unscrupulous system thrives in Kerala. Do we need to be part of this system?

3. When the entire educational system is transforming into an online mode, cannot the same services and gadgets be used for teaching, learning and assessment of children with learning difficulties? Smart and appropriate use of technology can replace the manual scribes and interpreters and their purported misuse. A fair and equitable educational system is the need of the hour, for the well-being of students.

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REFERENCES

1. American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. Arlington, VA, American Psychiatric Association, 2013.
2. World Health Organization. International Statistical Classification of Diseases and Related Health Problems (11th Revision). 2018. https://icd.who.int/en. Accessed 21 Nov 2019. [last accessed 1-8-2020]
3. Emerson E, Einfeld S, Stancliffe RJ. The mental health of young children with intellectual disabilities or borderline intellectual functioning. Soc Psychiatry Psychiatr Epidemiol. 2010;45:579–87
4. Peltopuro M, Ahonen T, Kaartinen J, Seppälä H, Närhi V. Borderline intellectual functioning: a systematic literature review. Intellect Dev Disabil. 2014;52:419-43
5. Guidelines for Assessment of Disabilities – Gazette; 5 January 2018. Available from: https://thedispatchondisability.files.wordpress.com/2018/01/guidelines-for-assessment-of-various-disabilities-under-rpwd-act-2016.pdf. [Last accessed on 2020 June 12]
6. State Commissioner and Government secretary (2020). Court of State Commissioner for persons with disabilities, No.448/S2/20/SCPWD dated 14-2-2020, Thiruvanathapuram.
7. Ramadas S, Vijayan VV. Profile of students referred for the assessment of scholastic backwardness at a tertiary care center. Indian J Psychiatry 2019;61:439-43
8. Ramkumar GS. Mental health provisions in schools of Kerala: a narrative overview of programs and interventions. Kerala Journal of Psychiatry 2015;28:82-93.
9. Gardner, H. Intelligence reframed: Multiple intelligences for the 21st century. New York: Basic Books;1999.
10. Tomlinson C, Brighton C, Hertberg H, Callahan C, Moon T, Brimijoin K, et al. Differentiating Instruction in Response to Student Readiness, Interest, and Learning Profile in Academically Diverse Classrooms: A Review of Literature. J Educ Gift. 2003;27:119–45.

Column: Tips on Research and publication

WRITING THE INTRODUCTION SECTION IN A MANUSCRIPT

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As per the widely followed IMRAD structure, the introduction is the first section in a research manuscript. The section is a straightforward statement of why your research was needed in the first place. It is best organized into three parts, without any subheadings: begin with what is known in the field, then bring out the existing gaps in knowledge in that area, and then unveil your plan of attack, i.e., the study objectives.

The introduction section is best written after writing most other sections of the manuscript. One recommended order of writing a manuscript is tables and figures, results, methods, introduction, discussion, and abstract (the acronym TReMIDA may be useful to remember this).

In terms of the breadth in which the material is covered, the shape of the final manuscript is like an 'hour-glass.' The introduction starts in a broad manner, starting with information about your topic that is more general than what is covered in your study. Then the focus is gradually narrowed down to your actual topic. The methods and results sections maintain that narrow focus, and in the end, the discussion section gradually broadens again when you discuss the implications of your findings, generalizability, etc.

Organization of introduction section

Swales suggested the "Create a Research Space (CARS)" model of writing the introduction section. It involves three "moves": a) Establishing a territory (setting the context of the research); b) Establishing a Niche (identifying the knowledge gap); and c) Occupying the niche (explaining how you are going to fill the research space you just identified). The following six categories of *elements* go into the introduction section: Leave out any information that does not fit into one of these.

1. Importance and magnitude of the problem

The opening sentence (or paragraph) should briefly assert how significant, relevant, and important your chosen topic is (e.g., "Many women with migraine report an association between migraine attacks and menses," "Major depression is a common mental disorder with a serious public health impact."). Such statements usually require no citation. However, statements that include exact rates should be cited, especially if intended for a wide readership who may not be familiar with them (e.g., "Schizophrenia is a severe mental disorder prevalent in 0.8% of the population" may require citation if published in a journal for general practitioners). Phrases that may be useful for highlighting the importance are "Recently there is a surge in interest in ..." or "Discussion on X is relevant as …".

2. Background of the research question

Next, introduce the terminology that is specific to your study area. Depending on the target readers of the intended journal, some terms may need to be defined. For example, suppose you are submitting to a general medical journal. In that case, terms such as magical

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thinking or metacognition may need to be defined, which may not be necessary if you are submitting to a psychiatry journal. Likewise, the "historical candidate gene" need not be defined if you are submitting to a genetics journal. Still, the meaning will need an explanation if you are submitting to a general psychiatry journal.

Many inexperienced authors elaborate the terms in their title in individual paragraphs. This is unnecessary. For example, suppose the topic is "Theory of Mind and Executive Functions in Obsessive-Compulsive Disorder." In that case, there is no need to have one paragraph in which you talk in detail about Theory of Mind, then another paragraph about executive functions, followed by one paragraph on obsessive-compulsive disorder, like that.

Abbreviations should be defined within brackets following the full term to which they apply. Once introduced, use them throughout the paper. For example, "Major depressive disorder (MDD) is a common disorder with implications for psychological, immunological, and metabolic health. Although the psychosocial consequences were known for long, the understanding of metabolic effects of MDD is relatively recent."

3. Previous research in the area

Cite the ''seminal articles'' in the field, sometimes even mentioning the first author by name. If there is a recent (and thorough) review article, that is also worth citing. If several studies need to be included, use a summary table. If a recent systematic review is available in that area, use its findings to provide a summary of the existing literature. Any studies done after the data collection date of the systematic review can then be included separately.

You may have reviewed the literature while preparing your protocol months or even years ago. Now that you have completed the study and are preparing it for publication, don't forget to update your previous review – many more studies may have got published in the meantime, and you should not leave it to the journal editors or peer reviewers to point them out to you.

Read the full text of all relevant articles, not just the abstracts. To make their abstracts more attractive, the authors of those articles may have presented a highly selective or distorted version of their findings. By blindly believing and reproducing the interpretations served in the abstracts, you would be misleading your own readers. Besides, the reviewers would have read the full articles and may give a verdict against you for misrepresenting the existing literature.

Rarely is it necessary to list more than ten articles in the introduction. Leave detailed descriptions, speculations, and criticisms of specific studies for the discussion section.

Consider citing studies in chronologic order, beginning with the oldest one (e.g., Praharaj et al. 2006; Ameen et al. 2014; Praharaj and Ameen 2018). While citing previous research, the authors' names can be part of the sentence, i.e., integral citation (e.g., "Praharaj et al. reported that …"), or can appear in parentheses only, i.e., nonintegral citation [e.g., "Several studies have suggested that …. (Praharaj et al. 2010; Ameen et al. 2017)].

4. Problems with available research

Next, bring out the shortcomings of the previous research you just listed. Common mistakes in published research you should be able to identify easily include wrong study design leading to inappropriate conclusions, limited generalizability because of the selected sample, problems in arriving at a correct diagnosis, use of imperfect measurement instruments, very short follow-up period, inappropriate statistical analysis, etc. Other ways to identify the gaps in the knowledge would be to bring out questions raised in previous research or extending a previous work (e.g., "Praharaj et al. have demonstrated X …., which raises several questions including …" or "Study by Ameen et al. suggested X. Further work is needed to establish Y").

However, the following principles should be kept in mind: a) Don't criticize an aspect of a study unless your work represents an improvement (e.g., criticizing a previous study of being cross-sectional in design when your study too has the same design); b) Don't be hypercritical or overly detailed in your criticism. That is unprofessional. Besides, the possibility also exists that the researchers you are criticizing may be selected as your manuscript's peer reviewers. This is very likely because editors assign research manuscripts to

researchers who have worked on the area or are cited in the article; c) Avoid antagonistic phrases (e.g. 'failed to,' 'made the mistake of,' 'used invalid techniques,' etc.); d) Avoid singling out a specific author for blame; instead, describe the general category of the problem (e.g., "It is difficult to infer causality in cross-sectional design").

Some techniques are useful in criticizing previous literature in a manner that does not put you in a bad light or cause the criticized researchers to feel animosity towards you. One way is to cite another author who has criticized the study in an editorial, review, or letter to the editor (e.g., "Some have suggested that the results of this study can be interpreted as showing…"). Also, the use of the passive voice (e.g., "The results of that study have been questioned because…") makes your criticism appear milder.

If nothing is wrong with previous research, you can substantiate the need for your study by highlighting the inconsistencies (e.g. "Of the four previous studies, two found that treatment X was effective, one did not show any benefit, whereas yet another one revealed a worsening of the symptoms"). Another technique you can use here is to refer to gaps in current knowledge (e.g., "However, it is still unknown whether the high rate of internet addiction in adolescents is related to…").

5. What you did to fix those problems

After summarizing the drawbacks in the previous research on the topic, position your study as a solution to at least some of those problems. That way, the editors, reviewers, and readers will recognize that your study makes a significant contribution to the field.

You can achieve this by highlighting the innovative features of your design, sample, or measurement methods. Explain how these measures will overcome the deficiencies in previous research and fill the gap in the knowledge you have identified. For example, if the cross-sectional design was not appropriate to answer the question, you can highlight that yours, being a longitudinal study, overcomes that limitation. Another example could be that your study has a longer follow up period, as shorter follow-ups in previous studies were not adequate to examine the persistence of some effects. You can also point out that your sampling was better and hence has better generalizability (e.g., random sampling over convenient sampling, community-based sample over hospital sample). The selection of controls could be more representative of the population of interest (e.g., use of 'neighbourhood' sample from the same catchment area as that of the cases, rather than the hospital staff, as controls). Or, the measurement instruments you used may be culturally valid and, thus, more appropriate for the local population.

6. Aims and hypothesis

End the introduction with a one-sentence overview of your study. Some readers may regard a "tested-the-hypothesis" statement as pedantic, artificial, and not in the clinical idiom. Better pose the research purpose as a question. Mention only the central question, even if you have examined several other variables (e.g., "We conducted a cross-sectional study to determine whether condition X is associated with risk factor Y"). Mentioning the hypothesis conveys clarity of thought to the readers. For example, say "We hypothesized that there is a positive association between X and Y," rather than an awkward statement such as "This is an attempt to find whether there is an association between X and Y." It is not always necessary to write a null hypothesis (e.g. "There is no association between X and Y"), and an alternate hypothesis is acceptable if it is backed by theory.

Language is important

Style of writing

Many authors use the *pedantic style* to summarize previous research. Here, all the individual studies are described. (e.g., "There have been six previous studies in this area. Varma et al., in a study of 83 patients from Chandigarh, found.… Mathew and Nair, studying 46 patients in Vellore, showed... Kumar et al. followed 79 patients and found…"). This style of writing can be boring for the readers. In contrast, the *synthetic style* is better appreciated. Here, as the name implies, you write a synthesis of the findings of the previous studies (e.g., "Previous studies in this area have had conflicting results, some suggesting that…, whereas others found that…")

Tense

Use present simple tense when the research findings have the status of a fact (e.g., "Major depression is a common mental disorder with a serious public health impact"). When citing single reports, use the simple

past tense (e.g., "Praharaj and Ameen reported that …"). When summarizing the findings as in the synthetic style mentioned above, use the present perfect tense (e.g., "Other investigators have shown that…" or "Several studies have reported…."). The present perfect tense is to be also preferred when the statement is considered more relevant to the current situation (e.g., "In the available literature, insufficient attention has been paid to the…").

Choose the verbs with care

The verbs you use while citing previous research should inform the readers about the nature of the observation – i.e., whether that was an opinion, a research finding, etc. While referring to findings of actual research, use verbs such as associated, compared, demonstrated, examined, observed, showed, etc. (e.g., "Praharaj et al. observed that ….."). On the other hand, if you are talking about what the previous researchers said about their work, in their discussion or conclusion section for example, use verbs such as hypothesized, noted, proposed, or stated (e.g., Ameen et al. hypothesized ….."). Also, if you are talking not about research findings but the opinions or general personal observations of those authors, use verbs such as noted, postulated, stated, opined, etc. (e.g., "Ameen and Praharaj opined that…").

How long should the section be?

This should be the leanest section in the manuscript. However, in reality, in most submitted manuscripts, this section is 30 to 40% of the overall space. A good manuscript should have an introduction section that doesn't take more than 10% space. One reason why this happens is that while preparing the journal paper, authors copy paste lots of text from the literature review section of their theses or dissertations. In contrast to dissertations, not all literature, but only the relevant ones, need to be cited in the introduction. The literature review is a part of the introduction and is not written under a separate heading.

All is well that begins well!

A good introduction will bind the reader to the manuscript. It brings clarity to the whole manuscript. This section may require several revisions before a crisp introduction is ready. Spend a little more time in writing this, revise, and take opinions from friends and experienced researchers before finalizing this section.

Suggested readings

1. Cargill M, O'Connor P. Writing Scientific Research Articles - Strategy and Steps. John Wiley & Sons: Chichester, UK. 2009.
2. John M. Swales's Genre Analysis: English in Academic and Research Settings. Cambridge University Press: Cambridge, UK. 1990.
3. Katz MJ. From Research to Manuscript - A Guide to Scientific Writing, 2e. Springer Science: Cleveland. 2009.

Book Review

STILL ALICE: A JOURNEY THROUGH THE LOOKING GLASS OF ALZHEIMER'S DISEASE

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Author of the Book: Lisa Genova, Publisher: Simon & Schuster, Year: 2014, Pages: 320, Price: $4.28 US

With the rapid strides in healthcare and the medical breakthroughs that have come to epitomise the 21st century, there has been a significant increase in the average life spans of people across the globe. Kerala, with its enviable health indices, has mirrored the developed world in this aspect.[1] Consequently, psychiatrists in our state treat elderly patients quite frequently in their routine clinical practice. Disorders of cognition, especially Alzheimer's disease (AD), form a sizeable proportion of this caseload. However, we often find that, as professionals, we are unable to fully understand and appreciate the world in which these patients live. The book reviewed here, titled "Still Alice", can help us to make better sense of the day-to-day struggles of the Alzheimer's patient. [2]

The author of the book, Lisa Genova, holds a PhD in Neuroscience from Harvard University. She writes that her background in psychology and neuroscience helped to lay the foundations for the scientifically accurate, yet lucid descriptions of the neurobiology and therapies of AD detailed in the book. Genova reveals that the inspiration for her creative work was her grandmother, who was diagnosed with AD when the author was in her late twenties. This work was the culmination of dedicated research, interviews with clinicians and scientists, and hours spent with AD patients and their caregivers, all in an attempt to connect better with a beloved family member.

'Still Alice' is written from the perspective of a Harvard Professor who is diagnosed with early-onset AD at the age of fifty years. The book is divided into 25 chapters, with each chapter representing one month of the year, spanning two years from September 2003 to September 2005. This layout is effective as it also serves as a record of the progressive nature of AD. The first few chapters introduce the reader to the world of the protagonist, Dr Alice Howland; a brilliant professor specialised in the fields of linguistics and psychology. Alice's life is portrayed as one that is intensely academic; days spent teaching students and guiding clinical fellows; nights engaged in reviewing scientific papers; summers spent attending conferences at distant locations, and sabbatical years devoted to writing scientific treatises.

The book does an exemplary job of enticing the readers to immerse themselves in life, as seen through the eyes of Alice. We are slowly, yet surely, introduced to the lurking shadow of AD that gradually rears its head; in the guise of missed appointments, getting lost in familiar places, and words that Alice cannot recollect in the lectures that she has delivered effortlessly countless times. Alice's doubts and insecurities are portrayed well, from the denial of the cognitive lapses, attempting to explain them away as jet lag, stress, or over-work, to the finality of the diagnosis of early-onset AD following genetic testing.

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AD impacts every aspect of life, from relationships and work to one's sense of self and independence. As Alice's lectures lose structure and coherence, she takes the painful decision to step down from her official duties at Harvard. With her once-packed itineraries emptied, she struggles to contemplate the so-called loss of meaning to her life. This loss of identity and self-esteem is a familiar backdrop to the story of each of our Alzheimer's patients. After all, without her lectures, publications, and presentations, was Alice still Alice? This question forms the quintessential pillar and bedrock of the book and provides the unassuming reader with adequate scope for some philosophical reflection.

As mental health professionals, we are keenly aware of the toll taken by AD on caregivers and family members. 'Still Alice' is raw and explicit in detailing the intricacies of the relationships between the lead character and her loved ones, and how they cope with the newfound knowledge of her diagnosis. It soon becomes evident that strong familial bonds and social support go a long way in improving the quality of life of AD patients. The positive role played by patient and caregiver support groups for AD is also elaborated upon and is perhaps something that has scope for further development in our state. In the end, Alice is able to come to terms with her illness and live out her years in peace, grace, and happiness, with the love and support of her family.

The book also touches upon the currently available medications for AD and the research that is being undertaken in the search for newer therapies. We are well aware that the drugs currently available in the psychiatrist's armamentarium are limited in their efficacy to slow the rate of cognitive decline. In the book, Alice is enrolled in a clinical trial for a fictional drug 'Amylix', that is aimed at reducing the build-up of beta-amylase in the brains of AD patients. This drug was modelled after an actual molecule 'Flurizan', that was undergoing research and development at the time of publication but unfortunately failed to show sufficient clinical improvement in those patients enrolled in the phase three trials. [3] Reading through the pages of 'Still Alice' brings to life the weight of the decision made by patients to enroll in these trials, the uncertainty of not knowing whether the drug that they are taking is a revolutionary molecule or a placebo, and the frustration and disappointment of resigning oneself to the idea that the clinical trial has failed.

These trials and tribulations, more often than not, also lead to mood disturbances and depressive episodes in patients.[4] During the course of the disease, Alice goes through one such dark phase, which leads her to write down a list of five questions to ask herself, when she feels that the disease has overshadowed her will to survive. She adds a note to her future self that if she is unable to recall any of these basic facts, such as the name of her daughter, she needs to go to her bedroom, overdose on her supply of medication, and lie down to pass away silently. The quiet conviction with which she makes these decisions impresses upon us, the treating physicians, the importance of actively seeking out depressive symptoms in the clinical setting.

In conclusion, reading this book would be a worthwhile investment for psychiatrists, psychologists, and any other mental health professional working with persons suffering from AD. 'Still Alice' is a truly mesmerising journey through the looking glass of AD that can help clinicians to better place themselves in the shoes of their patients. This, in turn, can instill a stronger sense of empathy in ourselves; thereby making us better physicians in the long run.

REFERENCES

1. Saheeda CO. Expected Life Time at Birth in Kerala. Int J Statistics and Applications 2019; 9:79-91.
2. Genova L. Still Alice. New York: Simon & Schuster; 2014.
3. Flurizan–Anti-Amyloid Drug for Treatment of Alzheimer's Disease - Clinical Trials Arena [Internet]. Clinical Trials Arena. 2020 [cited 30 August 2020]. Available from: https://www.clinicaltrialsarena.com/projects/flurizan/
4. Steck N, Cooper C, Orgeta V. Investigation of possible risk factors for depression in Alzheimer's disease: A systematic review of the evidence. Journal of Affective Disorders 2018; 236:149-56.

Column: Methods in Psychiatric Research

DESCRIPTIVE STUDIES

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ABSTRACT

Descriptive studies are observational studies which range from the case and case series report to extensive epidemiological studies. The essential features of the descriptive studies are its cross-sectional nature. From an epidemiological perspective, there are two types of descriptive studies; prevalence studies and ecological studies. In prevalence studies, the focus is on describing disease and exposure variables with reference to person, place and time on an individual level. They help to assess the disease and sometimes the exposure burden. Sequentially conducted descriptive studies can give time trends. Case-control analysis of descriptive studies can help identify an association, which could be tested by true analytical studies like case-control and cohort studies. The essential validity threats to descriptive studies are selection bias and information bias. Using appropriate random sampling methods, taking steps to prevent response failure and administering validated questionnaires for data collection are the measures to circumvent them. Cross-sectional designs are also used to validate diagnostic tests and research instruments, staging of illnesses and deriving normative values.

Keywords: descriptive studies, cross-sectional, ecological study, prevalence studies

INTRODUCTION

Descriptive studies include a spectrum of research designs from case report and case series study to extensive population-based surveys. The common characteristic is its cross-sectional nature. The previous sections of the series had indicated how a case report and case series are classified as descriptive studies. The emphasis in this section is descriptive studies from an epidemiological perspective.[1, 2,3]

From an epidemiological perspective, descriptive studies focus on the general characteristics of the distribution of a disease or condition, especially in relation to person, place and time.[3] Good descriptive studies answer basic "W" questions regarding the phenomenon studied – by describing "who," "what," "when," "where," rather than "why". Who are affected by the disease? (Age and sex are generally described along with other features like religion, education, occupation etc.). What is the condition studied? (Explicit, measurable, stringent diagnostic criteria are developed for case definition in descriptive studies).

When and where is the condition seen commonly or less frequently? (Time and geography provide important clues regarding health events). [4]

Based on whom the data is collected from, descriptive studies can be individual-based or population-based. Individual-based descriptive studies are clinic-based as well as population-based cross-sectional studies. In ecological studies, population-based or group based aggregate exposure or disease data are analysed.[3]

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CROSS-SECTIONAL STUDIES

They are also known as prevalence studies, epidemiologic studies and surveys. In these studies, data collected on a group of subjects at one time, rather than a period are described.[5] Information is collected on the presence or level of one or more variables of interest – exposure or outcome – in a defined population at one particular time. Usually, cross-sectional studies are conducted to estimate the prevalence of an outcome of interest in a defined population. Along with the information regarding the outcome, data can also be collected regarding exposure to risk factors. Thus, they provide a 'snapshot' of the outcome and the characteristics associated with it, including exposure variables, at a specific point of time.[6] Sometimes, these studies may investigate the association between risk factors and the outcome. As the risk factor and outcome are measured simultaneously, the temporal sequence of events cannot be delineated. Hence, causal inferences cannot be made.[7] But they provide clues regarding the cause, which can be addressed using other true analytical research designs, like case-control, cohort or experimental study designs.

Importance of cross-sectional studies

Generally, a cross-sectional study design provides the prevalence of disease, traits or risk factors. Thus they are very good at assessing disease burden and health care needs.[6] They also help assess the prevalence of health-related attitudes, knowledge or behaviour among patients and health personnel. Such surveys are a useful research design to employ when new insight is to be gained about a puzzling topic or people's attitude about an issue is to be understood. Such information helps in planning interventions.[8]

To assess changes in exposure and outcome variables in a particular population, "serial cross-sectional studies" or "serial surveys" can be conducted in the same population over time (for, e.g., the National HIV Sentinel Surveillance). They are less expensive compared to cohort studies.[9] Surveillance refers to "the ongoing systematic collection, analysis and interpretation of health data essential to planning, implementation and evaluation of public health practice." [3] Ongoing surveillance studies can help in time-trend analysis, where data collected from a population over time can be used to look for changes and trends.

In short, prevalence studies are useful to assess the burden of disease and risk factors and time trends of health events. This helps in planning interventions. They may also be useful in generating theories of causation.

Conducting a cross-sectional study: Points to keep in mind.

The research question has to be formulated; the study population has to be described explicitly. The outcome of interest and the characteristics or variables to be studied should be defined clearly. Cross-sectional studies may be based on the entire population's data (e.g., the census) or a sample of a sub-population of interest (e.g., married women of reproductive age group).[8] Whether based on the entire population or a sample drawn from it, they aim to estimate the prevalence of an outcome of interest for the whole population. Hence, the sample drawn from a sampling frame has to represent the entire population to which the findings are to be generalised. For this, the sampling frame and the sampling strategy have to be appropriate. Different types of random sampling techniques can be used to ensure high representativeness and reduce sampling bias.[7] The sample should also be of sufficient size to ensure results with required precision; for this, the sample size can be calculated before the study. Data collection or measurement of the outcome and exposure variables is also important. The variables have to be defined conceptually and operationally. Psychosocial research employs validated questionnaires or data collection tools to measure abstract concepts like the quality of life or patient satisfaction. They help to bring down measurement bias and improve the response rate. Repeated attempts to collect data is also important to enhance the response rate.[10]

Advantages and disadvantages

The advantages of cross-sectional studies are that they are quick and relatively less expensive than long-duration cohort studies. As the study population is assessed only at one point of time and no follow-up is required, less time and resources are required for this study design.[7,10] They help estimate the prevalence of diseases or other outcomes of interest and public health planning. Hypotheses can be generated regarding the probable risk factors for a disease, even associations can be studied, but hypothesis testing requires analytical

study designs.[11] These studies are more susceptible to selection bias like non-response bias and information bias like recall bias.[7,12] If the association of exposure to outcome is assessed in these studies, confounding can distort the findings.[12]

ECOLOGICAL STUDIES

They are also known as correlational studies; are population-based descriptive studies, and use data from entire populations rather than individuals. They compare frequencies of diseases or data regarding factors like health, behaviour, attitude, economic status or other exposure variables between different populations during the same period or in the same population at different points in time.[3] The data used in these studies are secondary data, usually obtained from government databases or reports of international agencies. (E.g., the sales of alcohol and frequency of deaths due to road traffic accidents in a specific population at different points of time or the rate of exposure to pesticides and incidence of mental retardation in different geographical areas.)

They help to generate hypotheses regarding exposure and outcome, but cannot be used to test them. As these studies assess whole populations rather than individuals, the exposure cannot be linked to disease occurrence in an individual. Any probable association observed from these studies could be due to the effect of some other underlying factor.[11] When data collected at a group level are analysed, and conclusions are drawn to apply to associations at the individual level, it is called an ecological fallacy.[13]

Advantages and disadvantages

The advantages of ecological studies are that they are quick, inexpensive, and help generate hypotheses that can be tested using more stringent research designs. The ecological fallacy has to be kept in mind while drawing inferences from these studies.

REPORTING DESCRIPTIVE STUDIES

In reporting descriptive studies, the CARE guidelines provide a checklist of information to include while writing a case report.[14] The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement gives the guidelines for reporting observational studies in general – including cross-sectional studies.[15] Lack of clear, specific and reproducible definition of cases and other characteristics or variables, and conclusions which go beyond the data are frequent fallacies observed while reporting descriptive studies. It is imperative to remember that causal inferences cannot be drawn from studies which do not have a comparison group.

OTHER CROSS-SECTIONAL STUDIES

Other than prevalence and ecological studies, some other cross-sectional designs are also worth mentioning in this context.

1. The usefulness of a diagnostic test procedure can also be examined using this study design. Validation of measurement instruments like questionnaires also utilises cross-sectional design. For both, optimum cut-off scores can be calculated using Receiver Operating Characteristic curves; sensitivity, specificity, predictive values and reliability can be calculated. [9,16] They can also contribute to developing the staging of a disease or establishing normative values (for, e.g., establishing normative values for heart rate variation to deep breathing or the norms for serum glucose levels).[5]
2. Generally, cross-sectional study designs involve a single sample without any comparison group. But a cross-sectional comparative design can be used to compare group differences based on the outcome studied. The comparisons try to determine whether significant differences exist for some characteristics or variables between groups based on the outcome evaluated.[16]
3. Cross-sectional studies can sometimes be clinic-based, they do not give a true oprevalence.[9]

STATISTICS IN DESCRIPTIVE STUDIES

The data could be summarised as mean/ median (with SD/Interquartile range) for continuous variable and proportion(or per cent) for categorical variables. Comparison or association could be tested by t-test or chi-square test or other similar statistical methods. The correlation could be attempted to establish the relationship between continuous variables. If one adopts an analytical paradigm odds ratio with its confident intervals, it could show the magnitude of the association. Some researchers even attempt a multivariate analysis of a set of variables against the outcome variable.[16]

CONCLUSION

Descriptive studies are the first scientific "toe in the water," when a new disease or domain of interest is evaluated in medical research. They help to estimate the burden of disease in a population. Such studies are undertaken in the same population at different points of time, or in different populations at the same time can help in identifying temporal changes or geographic trends in disease frequencies.[4] This can help health administrators to monitor trends and plan the utilisation of resources.[2] Irrespective of the subtype, they are easy to conduct, quick and inexpensive. They help to generate hypotheses, which can be tested using more complex study designs.[4]

REFERENCES

1. Indu PV, Vidhukumar K. Research designs–an overview. Kerala Journal of Psychiatry 2019;32(1): 64-67.
2. Indu PV, Vidhukumar K. Case report and case series. Kerala Journal of Psychiatry 2020;33(1):88-92.
3. Grimes DA, Schulz KF. Descriptive studies: what they can and cannot do. Lancet 2002;359:145-49.
4. Hennekens CH, Buring JE, Mayrent SL. Epidemiology in Medicine. First edition. Boston: Little, Brown; 1987. pp.16.
5. Dawson B, Trapp RG. Basic & clinical biostatistics. Fourth edition. New York: McGraw-Hill; 2004. pp. 9-11.
6. Aggarwal R, Ranganathan P. Study designs: Part 2 – descriptive studies. Perspect Clin Res 2019;10:34-6.
7. Levin KA. Study design III: cross-sectional studies. Evidence-Based Dentistry 2006;7: 24–5.
8. Kesmodel US. Cross-sectional studies – what are they good for? Acta Obstetricia et Gynecologica Scandinavica 2018;97:388-93.
9. Setia MS. Methodology series module 3: Cross-sectional studies. Indian J Dermatol 2016;61:261-4.
10. Mann CJ. Observational research methods. Research design II: cohort, cross-sectional, and case-control studies. *Emerg Med J* 2003;20:54–60.
11. Omair A. Selecting the appropriate study design for your research: Descriptive study designs. Journal of Health Specialties 2015;3:153-6.
12. Pandis N. Cross-sectional studies. Am J Orthod Dentofacial Orthop 2014;146:127-9
13. Sedgwick P. Understanding the ecological fallacy. BMJ 2015;351:h4773. doi: 10.1136/bmj.h4773.
14. Gagnier JJ, Kienle G, Altman DG, Moher D, Sox H, Riley D, et al. The CARE guidelines: consensus-based clinical case reporting guideline development. J Med Case Rep [Internet]. 2013;7(1):223. Available from: https://doi.org/10.1186/1752-1947-7-223
15. Vandenbroucke JP, von Elm E, Altman DG, Gøtzsche PC, Mulrow CD, Pocock SJ, et al. Strengthening the reporting of observational studies in epidemiology (STROBE): Explanation and elaboration. PLoS Med. 2007;4:e297. doi: 10.1371/journal.pmed.0040297
16. Zangirolami-Raimundo J, Echeimberg JO, Leone C. Research methodology topics:Cross-sectional studies. Journal of Human Growth and Development 2018;28:356-60.