Exploring the enigma of low prevalence of post-traumatic stress disorder in India

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ABSTRACT

Introduction: Post-traumatic stress disorder (PTSD) is a chronic psychiatric condition associated with significant distress and dysfunction. While worldwide estimates of prevalence range from 3.9% to 24%, little research has been conducted to identify the prevalence of PTSD in the general population of India. This study analyzes data from the National Mental Health Survey 2015-2016, a comprehensive epidemiological study of mental health disorders in India, to explore the unique characteristics and prevalence of PTSD in the Indian population.

Materials and Methods: The National Mental Health Survey 2015-2016 employed a multiple-stage, stratified, cluster-sampling methodology, covering 39,532 individuals in 12 states of India. The Mini-International Neuropsychiatric Interview (MINI) version 6.0.0 was used to diagnose psychiatric disorders, including PTSD. A detailed analysis of sociodemographic profiles, prevalence patterns, comorbidities, economic and social impact, and treatment-seeking behavior was conducted. Firth penalized logistic regression was employed to identify associated sociodemographic factors.

Results: The study revealed a low prevalence of PTSD in India at 0.2%, significantly lower than global averages. Factors associated with PTSD included female gender, middle age (40-49 years), and urban residence. The study also highlighted a high rate of comorbid mood and anxiety disorders, substantial disability, poor treatment-seeking behavior, and significant suicidal risk among individuals with PTSD.

Conclusion: Our findings underscore the need for culturally informed diagnostic and management programs to accurately identify and address PTSD in the Indian population. Cultural nuances, stigma, and the use of Western-derived diagnostic instruments likely contribute to the underidentification and undertreatment of PTSD in India. The study emphasizes the importance of recognizing and addressing these challenges to improve mental health outcomes in India.

Key words: India, National Mental Health Survey, post-traumatic stress disorder, PTSD, resilience

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INTRODUCTION

Post-traumatic stress disorder (PTSD) is a chronic psychiatric disorder associated with significant dysfunction.[1] The current understanding of PTSD is that it is a trauma/stressor-related disorder with a chronic overactivation of the fear circuitry and associated symptoms in the four domains of intrusions, cognitive and affective dysregulation, avoidance, and hyperarousal.[2,3] PTSD appears to be a fairly common disorder worldwide, with a cross-national lifetime prevalence of 3.9%-5.6% in the World Health Organization world mental health surveys.[4] However, other studies have found that lifetime prevalence rates may range from 8% to as high as 24%, albeit with higher prevalence in developed countries than developing countries.[2] In the Indian context, there has been a scarcity of rigorously conducted studies that employ standardized methodologies with precise operational definitions to investigate the prevalence of PTSD in the general population.[5]

The National Mental Health Survey 2015-2016 was a comprehensive epidemiological attempt at understanding the prevalence and multiple other factors associated with mental, neurological, and substance use disorders. It covered information about the prevalence, patterns, and treatment gap of various psychiatric disorders, including PTSD, in a representative population from 12 states of India.[6,7] In this paper, we aim to comprehensively analyze the current prevalence and sociodemographic determinants linked to PTSD among individuals in India. Additionally, this paper will try to understand the prevalence in developing countries, by comparing and contrasting findings in global data. Understanding these unique patterns has significant implications for mental health practitioners, policymakers, and researchers in improving mental health awareness, enabling targeted interventions, and enhancing overall wellbeing in the Indian population.[8]

MATERIALS AND METHODS

The detailed methodology of the NMHS 2015-2016 has already been described elsewhere.[7,9] In brief, it was a large national survey, covering the representative adult population (age 18 years and more), in a multiple-stage, stratified, cluster sampling based on probability proportional to size fashion. In total, NMHS interviewed 39,532 people from more than 700 clusters in 43 districts of India. Before starting, ethical clearance was obtained and informed consent formed the base of all patient encounters. The diagnosis of psychiatric disorders, including PTSD, was done using the Mini-International Neuropsychiatric Interview (MINI) version 6.0.0,[10] which was adapted to the different Indian languages. All consenting adults in eligible households were interviewed by the specially trained NMHS field team. Furthermore, information was also obtained about the disability using Sheehan's disability scale,[11,12] and the sociodemographic characteristics, socioeconomic impact, and health-seeking behavior using a specially designed questionnaire. The current prevalence for PTSD was reported for the past 1 month, as defined in the MINI version 6.0.

In this present analysis of the existing data, conducted by a team of researchers at the National Institute of Mental Health and Neurosciences in September 2023, we have focused on a descriptive analysis of the patient sociodemographic profiles, state-wise and cluster-wise prevalence patterns, comorbidities, economic and social impact, and treatment received (if any) for the population diagnosed as having PTSD. Additionally, we performed Firth penalized logistic regression (FPLR)[13] with PTSD as the dependent variable.

FPLR is a statistical method that addresses bias and instability in traditional logistic regression by applying a penalization technique. It is particularly useful when dealing with rare events or small sample sizes and has been successfully used in similar medical studies.[13,14] Based on the existing literature, we chose a set of key sociodemographic characteristics, including gender, age, education, occupation, marital status, and place of residence, as independent variables.[15] For further details on FPLR, please see.[16] Statistical analysis was done using IBM SPSS (Statistical Package for Social Sciences) version 27.0 and 'R' software (version 3.6.2).

RESULTS

Of a total of 34,802 people who were interviewed, 64 were found to have a current diagnosis of PTSD (0.2%). In the sociodemographic parameters of the sample, as shown in Table 1, the majority of people suffering from PTSD were found to be female (70%), and more than half of them were in the middle age groups of 30-49 years, with 25% being between 30 and 39 years and 29% being between 40 and 49 years of age. Only 26% of the individuals had been educated higher than secondary school, with almost one-third (30%) being illiterate. There was an almost equal distribution between those employed and unemployed, with the number of individuals not being formally employed slightly higher (52%). More than two-thirds of the sample (73%) was married, while 9% had never married and 17% were widowed. Sixty four percent of the population belonged to middle socioeconomic class or lower. There was a slightly higher percent (60%) of the respondents with PTSD belonging to rural areas. Among the states, Jharkhand had the highest number of people affected by PTSD (17.2%), followed by Uttar Pradesh, West Bengal, and Kerala (each having 14.1%), while notably there were no cases reported in Rajasthan.

Exactly half of the respondents belonged to a district with a currently active district mental health program team. Almost all of them (98.4%) reported wanting to seek allopathic

Table 1: Sociodemographic characteristics (*n*=64)

Parameter	Category	Frequency	Percentage
Age (years)	18-29 years	12	18.8
	30-39 years	16	25.0
	40-49 years	19	29.7
	50-59 years	6	9.4
	> 60 years	11	17.2
Gender	Male	19	29.7
	Female	45	70.3
Education qualification	Illiterate	19	29.7
	Primary	10	15.6
	Secondary	12	18.8
	High School	12	18.8
	Pre-University/Vocational	8	12.5
	Graduate/Post-Graduate/Professional	3	4.7
Occupational Status	Employed	31	48.4
	Not Formally employed	33	51.6
Marital Status	Married	47	73.4
	Never Married	6	9.4
	Widowed	11	17.2
Socio Economic Category (in Quantiles)	Lowest	19	29.7
	Second	9	14.1
	Middle	13	20.3
	Fourth	10	15.6
	Highest	13	20.3
Cluster location	Rural	39	60.9
	Urban Non-Metro	11	17.2
	Urban Metro	14	21.9
State	Assam	2	3.1
	Chhattisgarh	1	1.6
	Gujarat	5	7.8
	Jharkhand	11	17.2
	Kerala	9	14.1
	Manipur	5	7.8
	Madhya Pradesh	4	6.3
	Punjab	5	7.8
	Tamil Nadu	4	6.3
	Uttar Pradesh	9	14.1
	West Bengal	9	14.1
	Rajasthan	0	0

treatment from private or public hospitals. The average duration of illness was 63 months. However, only 23% had sought treatment with an average duration between onset of symptoms and consultation being 12.2 months. The respondents reported traveling an average of 18 km and spending around Rs. 2,239 per visit. There was a high rate of comorbidity among the participants, with lifetime prevalence of mood disorders (45.3%) being most common, followed by anxiety disorders (29.7%), substance use disorders (26.6%), OCD (17.2%), and psychotic disorders (6.1%). Importantly, suicidal risk was noted in 45% of the individuals with PTSD [Table 2].

Additionally, the data pertaining to the impact of PTSD on disability levels among the study participants showed a significant burden of disability. In terms of work life, a substantial portion of individuals faced disability, with 32.8% experiencing mild disability and 26.6% reporting moderate disability. In the realm of social life, mild social disability was prevalent among 35.9%, while 23.4% encountered moderate social disability. Within the family life domain, a significant proportion 39.1% reported mild disability.

On applying FPLR [Table 3], the sociodemographic correlates (risk factors) which were identified were female gender, age group of 40-49 years, and residing in an urban metro.

DISCUSSION

The NMHS 2015-2016 was a pioneering large-scale study that comprehensively looked at the nationwide prevalence and patterns of mental health issues in India. Analyzing data pertaining to PTSD, we found a remarkably low prevalence at 0.2%. Factors linked to PTSD included being female, of middle age, and residing in urban areas. Notably, individuals grappling with PTSD displayed prolonged symptom duration, limited treatment-seeking behavior, substantial disability, a high incidence of comorbid psychiatric disorders, and a significant risk of suicide.

Table 2: Clinical and treatment details

Parameter	Category	Frequency (*n*=64)	Percentage
Presence of District Mental Health program	Yes	32	50
	No	32	50
Source of treatment for illness preferred	Public Allopathic Doctor/Healthcare Worker	36	56.3
	Private Allopathic Doctors/Health Care Workers	27	42.2
	Alternative modes of treatment	1	1.6
Individuals who had sought treatment	Yes	15	23.4
	No	49	76.6
Comorbidities (lifetime prevalence)	Substance Use Disorder	17	26.6
	Tobacco	17	26.6
	Alcohol	7	10.9
	Other Substances	3	4.7
	Mood Disorder	29	45.3
	Anxiety Disorder	19	29.7
	OCD	11	17.2
	Psychotic Disorder	4	6.1
Suicidal Risk	Mild	12	18.8
	Moderate	9	14.1
	Severe	8	12.5
Average duration of illness in months (SD)		63 (114.8)	
Average duration between onset of symptoms and consultation in months (SD)		12.2 (16.9)	
Average distance traveled for consultation in kms (SD)		18 (17.8)	
Average money spent on each visit in Rs. (SD)		2,239 (3,044)	

Table 3: Firth penalized logistic regression

Parameter	Factor	Adjusted OR	95% CI
Age (years)	18-29 years (reference)	1.0	
	30-39 years	1.932	0.869-4.488
	40-49 years	2.625*	1.190-6.141
	50-59 years	1.156	0.390-3.221
	> 60 years	1.822	0.728-4.639
Gender	Male (reference)	1.0	
	Female	0.408*	0.219-0.748
Education	Illiterate (reference)	1.0	
Qualification	Primary	0.837	0.374-1.774
	Secondary	1.133	0.524-2.367
	High School	0.974	0.447-2.053
	Pre-University/Vocational	1.323	0.525-3.100
	Graduate/Post-Graduate/Professional	0.452	0.114-1.349
Occupational Status	Employed (reference)	1.0	
	Not Formally employed	0.726	0.414-1.292
Marital Status	Married (Reference)	1.0	
	Never Married/Widowed	1.129	0.460-3.145
Residence	Rural (Reference)	1.0	
	Urban nonmetro	1.071	0.526-2.016
	Urban metro	2.195*	1.142-4.001

*Significant odds (P<0.05)

Although there is a significant amount of data reporting a high prevalence of PTSD in developed countries, data from developing countries are sparse and generally portrays lower prevalence rates. An analysis of World Health Organization mental health surveys, which covered a total of 26 nations and surveyed more than 70,000 people showed that the lifetime prevalence of PTSD was twice in high-income countries (5%) as compared to lower (2.1%) and upper-middle economy countries (2.3%), both for the general population as well as for trauma exposed population.[4] Additionally, even when approached from the more narrow approach of the ICD 11 criteria, the prevalence rates of PTSD are quite high, with a study showing 1 month prevalence rates of 1.5% in a developed country.[17] On similar lines, in our representative national survey conducted in a lower-middle income country, we found a very low prevalence of PTSD, at only 0.2%.

This seemingly inverse relationship in prevalence and economic status of the countries has been termed as the 'vulnerability paradox' by Dückers[18] There have been many explanations offered for this paradox. These include difficulty in meeting stringent diagnostic criteria, especially in adolescent populations in developing countries,[19] lack

of culturally sensitive diagnostic instruments,[20] traditional collectivist cultural values, and other resilience promoting cultural health factors like family and social support in developing countries that might limit the development of PTS symptoms.[20,21] Additionally, there may be differences in the country-specific trauma rates,[22] prevalence of stigma related to mental health conditions that might lead to under-reporting,[23] and fallacies in the study designs and analysis itself.[24]

In diagnosing PTSD, there have been differing schools of thought. The International classification of diseases (ICD-11) and Diagnostic and Statistics Manual for Mental disorders (DSM V) criteria differ in their approach in the diagnosis of PTSD, with the newer ICD-11 being more stringent and emphasizing the importance of re-experiencing symptoms in the present, while the older ICD -10 and DSM V are more broad and cover a wider range of presentations.[25]

Cultural factors may significantly influence the prevalence of PTSD. With collectivist societies like in India, there may be strong societal bonds that promote open communication about trauma. Importantly, avoidance symptoms may not be noticeable if the traumatic circumstances are related to or within the families or at work places or circumstances linked to the livelihood of the individual. The individuals may still be enduring significant distress while facing or living within the persisting traumatic circumstances. Such accommodation may not be easily identified without appropriate training and in worst case may be conceptualized as resilience of the individual or society. Additionally, cultural norms can affect recognition and acknowledgment of traumatic events, especially in societies where patriarchal structures persist, such as in India.[5,26,27]

One crucial factor that emerges from the Indian context and may have significantly influenced our findings pertains to the culturally ingrained responses and expressions of distress. These culturally specific reactions might not have been fully captured by our survey, which relied on the MINI scale—a diagnostic tool rooted in Western perspectives. Pillai *et al*.,[28] in their research, argue that while the manifestations of psychological distress following trauma indeed vary, studies assessing the validity and presence of PTSD in the Indian population have affirmed its diagnostic validity, even amid diverse prevalence rates. This underscores the applicability of the overarching PTSD construct in India. At the same time, it accentuates the imperative need to acknowledge and incorporate the pivotal role of cultural nuances in the identification and treatment of mental health issues stemming from trauma.

Furthermore, a comprehensive review that explored the cross-cultural validity of PTSD in India analyzed 56 studies and arrived at a similar conclusion. It highlighted the influence of sociocultural, religious, and economic factors in shaping the construct, manifestations, and health-seeking behavior related to PTSD. Nevertheless, it observed that in clinical practice and research, there is most often a reliance on Western-derived conceptualizations of PTSD. This tendency, in turn, contributes to the under-recognition and suboptimal treatment of PTSD within the Indian context.[5]

Indeed, this culturally insensitive approach seems to correlate with a lower likelihood of affected individuals seeking treatment. This observation is supported by our study, in which more than half of those diagnosed with PTSD reported chronic symptoms and substantial disability, yet less than one-fourth sought treatment despite having accessible treatment options. This trend mirrors findings from the World Mental Health survey, where only 22% of individuals in lower and middle-income countries sought treatment for mental health issues.[4]

Our findings provoke essential inquiries regarding the primary factors contributing to these observations. It prompts us to explore whether existing diagnostic instruments are insufficient in capturing cultural responses to trauma. Additionally, we must consider whether traditional collectivistic values and other cultural factors are promoting resilience and acting as protective factors against PTSD. The possibility of inadequate training and limited awareness about PTSD among mental health professionals leading to its underdiagnosis and undertreatment also demands examination.[29] These questions warrant further research, offering valuable insights to shape PTSD management policies in India and, by extension, in other developing countries.

Additionally, our study found that PTSD seemed to be significantly more prevalent in the female gender, middle-aged (40-49 years) population, and those living in urban metros, and nearly half had suicidal risk. These findings are in line with what has been consistently reported in the literature.[30-33] There has been research into these risk factors and certain theoretical explanations have been proposed. For instance, studies suggest that individuals living in urban environments exhibit disrupted brain connectivity and aberrant neural processing of social distress, leading to increased activation of the amygdala and anterior cingulate cortex.[34] This heightened neural response may elevate the likelihood of developing PTSD.[32] Furthermore, women are more likely to experience early-life, high-impact trauma, which can result in neurobiological developmental abnormalities. Additionally, women tend to have a more sensitized hypothalamus pituitary axis compared to men, potentially further increasing their vulnerability to the disorder.[31] However, interestingly our study found no relation to education, which is an independent risk factor in other studies in developed countries.[35] This discovery warrants further

investigation, particularly in understanding the influence of education and intelligence on the development of PTSD in developing countries, as opposed to developed countries. Finally, our study also showed mild-moderate disability, chronic duration of symptoms, high comorbidity of mood and anxiety disorders, and significant suicidal risk among those affected. This further illustrates the importance of developing effective identification and treatment programs because poor quality of life, high morbidity, and mortality from treated as well as untreated PTSD have been widely reported.[36-38]

CONCLUSION

In our nationally representative population survey, we found that the prevalence of PTSD in the general population appears to be quite low. While this study sheds light on the unique patterns of PTSD in India, it is important to acknowledge the complexity of this issue—including the interplay of cultural factors, as well as culturally ingrained responses to trauma in the local population. Further studies are essential to look at the types and levels of trauma experienced by the general population, as well as to take into perspective of lived experiences of trauma in the populace.

The significance of our research extends beyond the prevalence rates. We uncovered that individuals suffering from PTSD in India experience significant disability and yet exhibit very poor treatment-seeking behavior. This highlights the urgent need for developing culturally informed diagnostic and management programs that can accurately identify and address PTSD in the Indian population, to enhance the overall mental health landscape of the country.

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Conflicts of interest

There are no conflicts of interest.

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