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Original Article

Mental Health, Suicidality, Health, and Social Indicators Among College Students Across Nine States in India

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ABSTRACT

Background: The prevalence of mental health issues among youth is significantly high globally. This article presents findings from a survey that examined psychological distress, suicidal thoughts and behaviors, and health and social indicators among college students in India.

Methods: The study recruited 8,542 students from 30 universities spanning nine Indian states, utilizing a questionnaire that included the Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7) to measure depression and anxiety symptoms. It also examined the prevalence of suicidal thoughts, attempts, non-suicidal self-injury, and other health and social factors.

Results: Findings indicate that 18.8% and 12.4% of students had considered suicide over their lifetime and in the past year, respectively, with 6.7% having attempted it at some point in their lives. Among those with lifetime suicidal thoughts, more than one-third (38.1%) reported having previously disclosed these thoughts to someone, with friends being the most common confidants. Furthermore, one-third (33.6%) of participants reported moderate to severe symptoms of depression, and one-quarter (23.2%) reported moderate to severe symptoms of anxiety.

Conclusions: The study revealed a significant prevalence of depressive and anxiety symptoms, as well as suicidal thoughts and attempts among college students in India. The study underscores the critical need for interventions aimed at improving mental health and supporting this demographic.

Keywords: Self-harm, youth, psychological stressors, suicide, academic stress

Key Messages: Mental Health problems among young adults are increasing globally and suicide and depression are the major concerns. Prevention, early detection, and intervention are found to be effective methods to deal with these disabling conditions. The current study is a cross-sectional observational study, screening 8,542 students from 30 universities spanning nine Indian states. The findings of the study provide us with a bird's eye view of suicidality and

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depression among college students and help us in formulating effective policies and programs to manage mental health conditions.

Globally, one-quarter of the population consists of individuals between the ages of 10 and 24 years, and mental health problems are highly prevalent in this age group.[1] The World Health Organization (WHO) recognizes that 13% of young people aged 10–19 years experience a mental disorder, constituting a significant global disease burden.[2] It is well established that numerous mental health issues take root early and, without proper intervention, continue into adulthood, often going unnoticed.[3] Research predominantly from high-income nations indicates widespread depression, anxiety, and suicidal thoughts among the younger population.[4–6] In contrast, the situation in South Asia, particularly among its college students, remains under-researched, although existing studies reveal a comparable incidence of psychiatric symptoms.[7]

India, with a young population of 356 million, is at a higher risk of increased non-fatal burden of diseases and mortality due to mental and substance use disorders.[3] Nearly 30 million young people in India attend colleges for various courses, and the gross enrollment ratio had increased by 11.4% by 2021. The prevalence of mental and substance use disorders in the age group of 18–29 years when young people attend college and employment is 7.9%.[8] In these formative years, suicide emerges as a leading cause of death, often precipitated by academic failures, relationship issues, and familial strife. This accentuates the need for a nuanced understanding and approach to mental health care for the youth. Psychiatric issues, illicit substance use, and general psychological distress of young people often go unnoticed and are underdiagnosed and undertreated, as mental health issues add to their distress, while stigma and other environmental factors prevent them from seeking help.[9–11]

Prevailing literature, however, indicates a dearth of comprehensive studies addressing mental health issues among Indian youth, especially outside the medical student community. With less than 20 significant studies in this area, research encompassing a more varied youth demographic that spans different socioeconomic, educational, and geographic backgrounds is imperative. This is vital for developing targeted interventions and policies to bolster mental health and overall well-being among this demographic.[12]

To address this gap, we surveyed college students from several states across India, assessing psychological distress, suicidal thoughts and behaviors, and health and social indicators. The ensuing report delineates descriptive outcomes to enhance the understanding of this group's profile, aiming to inform and guide interventions tailored for these young individuals.

Method

Study Design

The study was conducted among undergraduate and postgraduate students studying various subjects at recognized educational institutes in 15 cities in India, including Chennai, Hyderabad, Kanpur, Jhansi, Ranchi, Deoghar, Moodabidri, Kohima, Itanagar, Ziro, Shillong, Diomukh, Jullang, Kamalpur, and Agartala, between February and September 2019. The study was conducted in collaboration with five centers that facilitated data collection from young adults across 15 cities in 9 states (Karnataka, Tamil Nadu, Andhra Pradesh, Uttar Pradesh, Jharkhand, Tripura, Nagaland, Arunachal Pradesh, and Meghalaya) across four regions (South, North, East, and North-East) of India. The collaborating centers were the Dept. of Psychiatry, K. S. Hegde Medical College, Mangaluru, Karnataka; the Dept. of Psychiatric Social Work, National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore, Karnataka, India (an institute of national importance [INI]); Dept. of Psychiatry, Kasturba Medical College, Manipal Academy of Higher Education, Manipal, Karnataka, India; Dept. of Psychiatric Social Work, LGB Regional Institute of Mental Health, Tezpur, Assam, India; and Dept. of Psychiatric Social Work, Central Institute of Psychiatry (CIP), Ranchi, Jharkhand, India. The investigating team trained the field officers regarding the purpose of the study and enabled them to clarify any queries that may arise from the participants during the survey. Ethical approval was obtained from the Central Ethics Committee of NITTE (deemed to be university), Mangaluru, Karnataka, India, with reference number NU/CEC/2018/0.

Participants

College students aged 18 years and above attending one of the 30 participating colleges were considered for the study. Engagement in the research was optional and confidential, ensuring that no personal names or identifiable data were documented throughout the study process.

Sampling Method

Permission was obtained from the 30 educational institutions to approach the students for the study. Data was collected from students in the class by the field officers. Before the survey, the field officers briefed the participants about the survey, including the terminology used. The data were collected through a "paper-and-pencil" method administered during lectures across all departments of the colleges by the field officers. The survey took approximately 30–35 minutes to complete. During the class time, the surveys were placed on the desks. The students could choose to complete or not complete, with no consequences for non-participation. A total of 8,735 surveys were placed in front of students, and 8,542 young adults (median age: 19, IQR: 19, 21) completed the survey (98% response rate).

Data Collection and Measurement

The questionnaire was self-administered in a hard copy format. It contained questions in the domains of (a) demographics; (b) symptoms of depression, anxiety, suicidality, and self-harm; and (c) health and social indicators (substance use, relationships, academic stress, etc.). The questionnaire was kept brief and took approximately 35 minutes to complete. Since the survey was conducted across multiple states with different languages, and the medium of instruction at the educational institutions was English, it was decided to keep the questionnaire in English.

Demographics

Basic demographic information, including age, gender, marital status (of self and parents), residence type, internal migration, annual family income (in Indian Rupees [₹]), course stream, and year of study, was collected.

Symptoms related to depression were assessed using the Patient Health Questionnaire (PHQ-9), a validated nine-item screening tool aligned with criteria for depressive disorders as outlined in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV).[13] The PHQ-9 demonstrates robust criterion, construct, and external validity.[13] This questionnaire inquires whether participants have experienced nine specific symptoms over the past two weeks, with response choices on a four-point Likert scale: not at all (0), several days (1), more than half the days (2), and nearly every day (3). The PHQ-9 is relatively short to administer, with scores ranging from 0 to 27. Scores 5, 10, 15, and 20 represent thresholds marking the lower limits of mild, moderate, severe, and severe depression. The conventional cut-off is ≥10, yielding a sensitivity of 88% and a specificity of 88% for major depression.[14] The PHQ has previously been validated among South Asian populations and used in previous studies measuring the prevalence of depressive symptoms among various communities in India.[15–19]

The study utilized the Generalized Anxiety Disorder 7-item scale (GAD-7) to assess anxiety symptoms. This scale comprises seven items and follows a format similar to the PHQ-9, with response options on a four-point Likert scale. Scores on the GAD-7 range from 0 to 21, with cut-off scores of 5, 10, and 15 indicating mild, moderate, and severe anxiety symptoms, respectively. The sensitivity and specificity of the GAD-7 at a cut-off score of 10 were reported to exceed 0.8,[20] and its internal consistency was estimated at 0.92.[13]

For assessing suicidal ideation, questions adapted from the Suicide Behaviors Questionnaire (SBQ) were used. These questions covered thoughts of suicide during a lifetime and the previous 12 months, planning for suicide during a lifetime and the last 12 months, and suicide attempts during a lifetime and the previous 12 months. Non-suicidal self-injury was evaluated by inquiring whether participants had intentionally harmed themselves without intending to die, both in their lifetime and in the previous 12 months.

The study also examined various health and social indicators. Family relationship quality was assessed on a scale from 1 (very bad) to 5 (very good). Sexual relationships were evaluated through questions regarding sexual attraction, history of sexual intercourse, and number of sexual partners in the preceding 12 months. Participants were asked about experiences of forced or coerced sexual contact.

Alcohol consumption was gauged using two questions from the Alcohol Use Disorders Identification Test (AUDIT), covering frequency of alcohol intake and number of drinks on a typical day. Tobacco use was assessed by inquiring about daily or occasional use, while drug use was explored by asking about non-medical drug use and specifics about the types of drugs.

General physical health was rated on a scale from 1 (poor) to 5 (excellent). Additional social indicators assessed through various scales and questionnaires included daily internet use, academic pressure, social support availability, and life events.

Data entry was conducted using SPSS version 20 with cross-checking to ensure accuracy. Preliminary tables were generated to identify invalid entries or inconsistencies. Data analysis was performed using Stata version 11, providing frequencies for categorical variables and measures such as range, median, and standard deviation for continuous variables, facilitating a comprehensive data analysis.[21]

Results

A total of 8,542 students participated in the study from 15 cities, with data collected from five centers facilitating data collection. The participation rate was nearly equal between males (43.5%) and females (56.5%), with a relatively balanced representation of both genders. The mean age of the participants was 20 years (SD ±1). About 40% of them were pursuing their first year of college, and one-third (34.9%) were in their second year, pursuing either humanities (31.1%) or science (26.4%) courses.

The majority of participants were unmarried (94.6%). Slightly more than half of them (51.1%) resided at home, while nearly one-third of the participants (29.8%) lived in hostels. Most lived outside their home district (45.5% within the state and 41.5% outside their state).

Regarding parental status, most participants (90.1%) reported their parents being in a marital relationship, while 2.5% had parents who were divorced or separated. Most participants belonged to low-income (38.2%) or lower-middle-income families (39.5%).

Nearly half of the participants (47.1%) reported good health. The majority (76.1%) reported using the internet for six or fewer hours daily. While most participants (85.4%) reported having good or very good relationships with their families, a small percentage (2.5%) reported poor relationships.

Assessing sexual relationships in terms of attraction, 51% of participants reported attraction to the opposite gender, 2.7% to the same gender, and 10.6% to both genders, with the remainder unsure or not feeling attracted to either gender.

In terms of sexual history, 10.2% of participants reported a history of sexual intercourse, with varying numbers of sexual partners in the past 12 months. Additionally, 6.4% reported a history of being forced or coerced into sexual contact.

More than three-fourths of the participants (77.6%) reported never consuming alcohol. 15% reported monthly or less than monthly alcohol consumption. In comparison, 4.7% reported alcohol consumption two to four times a month, 1.2% reported alcohol consumption two to three times a week, and 1.5% reported alcohol consumption more than four times a week. On a typical drinking day, 60.8% reported having one or two drinks, while 4.3% reported having more than seven drinks, and 6.3% reported having 10 or more drinks.

Most participants (82.9%) reported never using tobacco, 7.6% reported using tobacco less than daily, and 5.85% reported using tobacco daily. 7.1% of the participants reported using drugs other than those required for medical use. Among those, nearly half of them (49.3%) reported using marijuana/cannabis, and

another 46.7% reported using prescribed or over-the-counter (OTC) drugs for non-medical purposes. 8.6% reported ecstasy, 10.5% reported using cocaine, 8.4% reported using heroin/opiates, and 13.4% reported using other drugs.

The majority of participants (61.9%) reported experiencing academic pressure due to future education and employment opportunities, and more than one-third reported pressure due to competition among classmates (33.9%) or due to parents who care about academic grades (39.1%). Additionally, nearly half of the participants (42.2%) reported feeling that they had disappointed teachers when their test/exam results were not ideal and feeling stressed about not living up to their standards (57.7%).

More than half of the participants (65.2%) feel that having someone to advise on a crisis is helpful, and even more (67.4%) believe it is beneficial to have someone provide information to help them understand a situation. Additionally, over half of the participants (59.1%) desire someone to confide in and discuss their problems, including their most private worries and fears (57.8%).

Nearly one-fourth of the participants have experienced a significant life event in the past 12 months, such as a financial crisis (26.1%), failure in an exam (22.2%), death of a close family member (21.9%), conflict in the family (17.9%), breakup (14.6%), or injury (14.8%) as the significant events.

More than one-fourth of the participants have heard someone express thoughts of killing themselves (27.1%) or personally know someone who died by suicide (26.7%). Among them, almost half (47.5%) have lost a family member or close friend to suicide, while the other participants (47%) have known someone who died by suicide.

A significant proportion (18.8%) of the participants reported having suicidal thoughts over their lifetime, with 12.4% of them having had suicidal thoughts in the past 12 months. Among those, almost one-fifth (14.8%) have suicidal thoughts often, and another (16.5%) have them very often. 13.1% of participants have made a suicidal plan in their lifetime, and nearly one-tenth (9.2%) have made a suicidal plan in the past 12 months. Among the participants who have had suicidal thoughts in the past 12 months, 60.8% have made a suicidal plan, 6.7% have attempted suicide in their lifetime, and 2.5% have attempted suicide in the past 12 months. Among the participants who reported having suicidal thoughts in the past 12 months, a significant proportion (72.4%) have attempted suicide during this period. 21% of the participants have engaged in non-suicidal self-injury (NSSI) in their lifetime, and 12.1% have done so in the past 12 months. Over one-third of participants (38.1%) who experienced suicidal thoughts disclosed their thoughts, with the majority of those disclosures primarily made to their friends (66.7%).

Based on the PHQ-9 categories, nearly 22% of the participants have moderate symptoms, and 10% have moderately severe to severe symptoms. On GAD-7 scores, 17.5% have moderate symptoms and 5.7% have severe symptoms. Almost one-tenth of the participants (9.5%) have received a diagnosis of a mental health issue, while 11.1% reported that their family members have been diagnosed with a mental health issue.

Discussion

The present study included college students from 13 major cities in India, with most respondents aged between 18 and 21 years, a transitional age from adolescence to young adulthood marked by significant physical and cognitive changes. Our study found that one in five participants endorsed substantial depressive symptoms, while one in four participants endorsed significant anxiety symptoms, suggesting a considerable burden of mental health morbidity. Additionally, nearly one in five respondents reported experiencing suicidal thoughts during their lifetime, with 6.7% having attempted to end their life. Academic pressure and stressful life events were identified as everyday stressors, and this group expressed a need for crisis support service options.

Globally, there has been a notable increase in the percentage of students facing mental health challenges, particularly symptoms associated with depression and anxiety, in the past decade. This trend was exacerbated during the ongoing COVID-19 pandemic. Since mental health problems exist on a spectrum, it is conceivable that many students might report distress even if they do not meet the diagnostic criteria for a specific mood or anxiety disorder.[22] Our findings, in line with global research, indicate that a considerable number of college students are likely dealing with common mental health issues such as depression and anxiety, prompting questions about the most effective models for screening and intervention in this demographic.[23–26]

Recommendations to improve help-seeking behaviors and advance research in this field include initiatives to reduce stigma, enhance mental health awareness, utilize digital platforms for screening and connecting students with appropriate services, and train individuals to identify, intervene with, and refer students experiencing mental health crises.[27–29]

Most of the study participants were from low- to lower-middle-income economic status, with over half residing with their parents. The study revealed that a significant number of college students suffer from moderate to severe depressive symptoms (10% severe, 22% moderate), which is consistent with prior studies on college students in low- and middle-income countries, including India.[30–32] On assessing the symptoms of anxiety, it was found that nearly one-fourth had moderate to severe anxiety symptoms (23.2%), which is consistent with studies in the same age group.[4,33] The high prevalence of depression and anxiety symptoms in this group highlights the need for targeted interventions to prevent the occurrence of clinical depression/anxiety and associated issues such as substance use and suicidality.[34–36]

Internet addiction and substance use disorders were also explored in the current study, and it was found that a significant number of college students (24%) used the internet for more than six hours, although addiction was not assessed. These findings are comparable to studies related to internet addiction.[37–42] Although the usage of the internet for academic versus non-academic purposes was not separately assessed in our study, given that the data collection was completed before the onset of the pandemic and considering

the broad concurrence between our findings and prior research, there is a need for a more granular investigation of internet usage patterns among this population.[43–48]

Regarding substance use, our findings are consistent with those of other research on youth substance use, with the prevalence of significant alcohol use at 7% and tobacco use at 14%.[49–51] Notably, nearly half of the sample had used cannabis, and nearly 1 in 10 had used other illicit psychoactive substances such as ecstasy, heroin and cocaine. These figures are considerably higher than figures for the general population in India and estimates from Indian reviews on medical students.[52–54] However, they are more comparable to global reviews where lifetime cannabis use was reported in a third of medical students. Of note, lifetime usage of cannabis in regions such as America was 48.1%. According to the United Nations Office on Drugs and Crime, cannabis use has been steadily and rapidly increasing worldwide. There is a need to explore the correlates of increasing substance use among college students, given the costs of human and social capital. That this indulgence is despite being aware of the harmful effects of substance use is a telling argument for targeted prevention programs in the school and community.[55]

The findings from this study on internet usage, substance use, and suicidality among college students are consistent with prior research, highlighting the need for further investigation and intervention in these areas. The prevalence of significant alcohol use, tobacco use, and drug use among college students is in line with previous studies, with particular concern raised about the high proportion of narcotics use. This calls for intensified awareness programs to educate young adults about the physical and psychological consequences of substance use as well as sustainable institutional mechanisms for early detection and referral.

The study also found that suicidality among college students is a significant concern, with a significant proportion of respondents endorsing lifetime and past 12-month suicidality and a history of attempted suicide among 6.4% of the respondents. These findings are comparable to those from a recent review highlighting the considerable burden of suicidal behavior among post-secondary students in the South-East Asian region. Notably, there was a high rate of transition across the suicide behavior spectrum: three out of four with past-year suicide ideation reported a suicide attempt.[56] These findings are concerning and indicate the need to prioritize mental health issues and suicidality in college students' research and prevention agenda and to drive evidence-based suicide prevention activities in educational settings, including pragmatic trials, multisite studies, and inclusion of narratives from those with lived experiences of suicide.[57–59]

Only a little more than half of those surveyed self-identified as being attracted to the opposite sex only; just under 1 in 10 was attracted to both sexes, while a small proportion (2.8%) reported same-sex attraction only. Importantly, one in five reported being unsure or that they do not experience feelings of attraction to either sex, which may be indicative of the younger age group and period of personal sexual development. Our findings are very consistent with those from a global report that found (a) one in four Indians were unwilling or unable to define their sexual orientation, (b) 9% of Indians identified as bisexual (c.f. the global average of 4%), (c) 3% of Indians identified as attracted only to the opposite sex (c.f. the global average of 3%), and (d) 59% of Indians identified as heterosexual (c.f. the global average of 80%).[60] Sexual activity with at least one partner was reported by more than one-tenth of students. These figures are much lower compared to what authors found in previous Indian and international studies done on a similar population.[61,62] Apart from the possibility of underreporting, other reasons for these differences may be the increasing tendency of adolescents to engage in digital interactions that may delay the need for physical sex for college students. Though this assertion has not been formally examined, the decline in sexual activity among young adults is a well-documented phenomenon globally and merits further examination in the Indian setting.[63]

Academic stress related to exam performance and future and parental pressure was also highly significant among college students, corroborating previous research. The association between academic difficulties and suicidal behavior among adolescents from India and other Asian countries reinforces the need to enhance positive coping and resilience among college students to manage academic stressors better and reduce the likelihood of suicidal ideation.[64–68] Promoting resilience is linked to reduced stress and mental health issues such as depression and anxiety among adolescents in educational settings, which further underscores the importance of addressing academic stress in college students.[69,70]

Limitations and Conclusion

The study has several limitations that should be acknowledged. First, the sample is overrepresented in the North-East, which may limit the generalizability of the findings to college students from other parts of the country. A more diverse sample encompassing regions such as the West and North of India would have enhanced the comprehensiveness of the study.

Second, convenience sampling was employed instead of probability-based sampling, which may have introduced selection bias and reduced the ability to generalize the results to the broader population of college students in India. This approach might only capture part of students' full spectrum of experiences and perspectives.

Third, the assessment of depression and anxiety symptoms relied on self-report screening tools rather than formal psychiatric diagnosis. While these tools are commonly used in research, they may not fully capture the complexity of psychiatric conditions; this could lead to an overestimation or underestimation of mental health disorders' prevalence in the study population.

Despite these limitations, the study offers valuable insights into prevalent mental health issues and suicidal tendencies among college students in India. It emphasizes the importance

of addressing factors such as academic pressure and exam stress that contribute to psychological distress. Early interventions and support services are crucial for promoting better mental health outcomes and facilitating a healthy transition to adulthood for college students. Further research and targeted interventions focusing on the mental health needs of this population are warranted to improve their overall well-being.

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Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval

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