

Original Research Article

Prevalence and socioeconomic correlates of depression, anxiety and stress among undergraduate students from reserved social categories in a rural college of West Bengal: a cross-sectional study

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ABSTRACT

Background: Common mental disorders such as depression, anxiety and stress are increasingly reported among young adults, particularly college students. Evidence from India suggests that socio-economic disadvantage and social stratification may influence mental health outcomes; however, limited data exist focusing specifically on students from socially reserved categories. This study aimed to estimate the prevalence of depression, anxiety and stress and to examine their socio-demographic correlates among undergraduate students belonging to reserved social categories in a rural college of West Bengal.

Methods: A census-based cross-sectional study was conducted among 176 undergraduate students aged 18–24 years belonging to Scheduled Castes, Scheduled Tribes and Other Backward Classes in a government college of Purulia district. Data were collected using a pretested questionnaire and the Depression Anxiety Stress Scale-21 (DASS-21). Scores were categorized using standard cut-offs. Associations between socio-demographic variables and outcomes were assessed using the chi-square test, with $p < 0.05$ considered statistically significant.

Results: The prevalence of depression, anxiety and stress was 34.1%, 42.0% and 43.2%, respectively. Nearly half of the participants (48.9%) had at least one form of mental morbidity. Most cases were mild to moderate; however, severe to extremely severe forms were observed in 3.9% (depression), 14.2% (anxiety) and 9.1% (stress). No statistically significant associations were found between socio-demographic variables and mental health outcomes.

Conclusions: A substantial burden of psychological morbidity was observed among students from reserved social categories, highlighting an important yet underexplored vulnerable group. Targeted mental health interventions and institutional support systems are needed. Future research using qualitative or mixed-method approaches is recommended to explore contextual and psychosocial determinants not captured in quantitative assessments.

Keywords: Anxiety, Depression, Reserved social category, Rural college, Stress, Undergraduate students

INTRODUCTION

Common mental disorders, particularly depression, anxiety and stress-related conditions, constitute a major and growing public health concern globally. These conditions are characterized by persistent disturbances in

mood, cognition and behaviour, often accompanied by somatic symptoms such as sleep disturbances, fatigue and impaired concentration, which significantly affect functional capacity and quality of life.¹ According to the World Health Organization, depression is one of the leading causes of disability worldwide, contributing

substantially to the global burden of disease, especially among young people.^{1,2} The transition from adolescence to early adulthood, typically spanning 18–24 years, represents a critical developmental period marked by increased psychological vulnerability. Undergraduate students are exposed to multiple stressors, including academic pressure, career uncertainty, financial constraints and social adjustments, which may predispose them to mental health disorders.^{3,4} Evidence from diverse settings indicates a considerable burden of depression, anxiety and stress among college students, with prevalence estimates ranging widely across populations and contexts.³⁻⁵ In low- and middle-income countries (LMICs), these challenges are often compounded by limited access to mental health services and sociocultural stigma, resulting in under-recognition and inadequate management of these conditions.^{2,6}

Within the Indian context, mental health disparities are closely linked to social determinants such as caste, socioeconomic status and place of residence. Historically marginalized communities, including Scheduled Castes (SC), Scheduled Tribes (ST) and Other Backward Classes (OBC), continue to experience structural disadvantages, including limited access to education, economic opportunities and healthcare.^{7,8} These inequities may translate into increased psychosocial stress and vulnerability to common mental disorders. Studies have demonstrated that individuals from disadvantaged social groups are at a higher risk of psychological distress due to cumulative exposure to social exclusion, discrimination and economic insecurity.⁸⁻¹⁰

Despite the growing recognition of mental health issues among students, most existing studies in India have been conducted in urban settings or among professional course students such as those in medical and engineering institutions.^{3,5,11} There remains a relative paucity of evidence focusing on students enrolled in general degree colleges, particularly in rural areas where access to resources and support systems is often limited. Furthermore, there is limited research specifically examining mental health outcomes among students from socially reserved categories, who may experience a distinct set of stressors shaped by structural inequalities and social disadvantage.

Understanding the burden and correlates of depression, anxiety and stress in this population is essential for designing targeted, equity-oriented interventions. Such evidence is particularly relevant in rural settings, where institutional support mechanisms for student mental health are often underdeveloped. Additionally, early identification of mental health problems in this age group is crucial, as these conditions can adversely affect academic performance, social functioning and long-term wellbeing and may increase the risk of self-harm and suicidal behaviour.^{2,12} In this context, the present study was conducted to estimate the prevalence of depression, anxiety and stress among undergraduate students

belonging to reserved social categories in a rural college of West Bengal and to examine their socioeconomic correlates. By focusing on a relatively underexplored and socially vulnerable population, this study aims to contribute to the existing literature and inform context-specific public health strategies for improving student mental health.

METHODS

An institution-based cross-sectional study was conducted among undergraduate students at Chunaram Govinda Memorial Government College in Purulia district of West Bengal, India, from March to September 2025. The study population comprised students aged 18–24 years enrolled in the college. The study specifically focused on individuals belonging to socially reserved categories, namely Scheduled Castes, Scheduled Tribes and Other Backward Classes, to examine mental health outcomes within socially disadvantaged groups.⁸

All eligible students from the reserved categories who were present during the data collection period and provided informed consent were included in the study, thereby adopting a complete enumeration approach. Students with a self-reported prior diagnosis of psychiatric illness or severe medical conditions were excluded to minimize potential confounding of the outcomes.

Data were collected using a pre-designed and pre-tested self-administered questionnaire that captured socio-demographic information including age, gender, caste category, socioeconomic status (assessed using the Modified B.G. Prasad scale 2025), family type, residence, course and year of study.¹³ Mental health status was assessed using the Depression, Anxiety and Stress Scale-21 (DASS-21), a validated screening tool comprising three subscales measuring depression, anxiety and stress, each with seven items. The Bengali version of the Depression Anxiety Stress Scale-21 (DASS-21), a validated and reliable tool for assessing depression, anxiety and stress, was used.¹⁴ Scores for each domain were calculated by summing the responses and multiplying by two and categorized into normal, mild, moderate, severe and extremely severe based on standard cut-offs.

Depression was defined as a condition characterized by persistent sadness, loss of interest and reduced energy, as described by the World Health Organization, while anxiety was defined as an emotional state characterized by tension, worried thoughts and physiological arousal, as per the American Psychological Association.^{1,15} The presence of mental morbidity was defined as having depression and/or anxiety and/or stress above the normal category on the DASS-21 scale.¹⁴

Following administrative approval, eligible participants were approached in their classrooms. The purpose of the

study was explained and written informed consent was obtained prior to participation. The questionnaire was administered in a supervised setting to ensure completeness while maintaining anonymity and minimizing information bias.

Data were entered into Microsoft Excel and analysed using Jamovi software (version 2.6.26). Descriptive statistics were used to summarize socio-demographic characteristics and the prevalence of depression, anxiety and stress, expressed as frequencies and percentages. Although a census approach was adopted by including all eligible students belonging to reserved social categories, inferential statistical analysis was undertaken to explore associations between socio-demographic variables and mental health outcomes. This approach is justified as the study population represents a specific subset of a broader conceptual population of undergraduate students from socially disadvantaged groups and the objective extends beyond mere description to identifying meaningful relationships. The chi-square test was employed as an appropriate non-parametric test for assessing associations between categorical variables, allowing evaluation of whether observed differences are unlikely to have occurred by chance. A p value of <0.05 was considered statistically significant.

The study protocol was approved by the Institutional Ethics Committee of the All-India Institute of Hygiene and Public Health, Kolkata. Written informed consent was obtained from all participants and confidentiality and anonymity were strictly maintained throughout the study.

RESULTS

A total of 176 undergraduate students from reserved social categories were included in the study. The mean age of the participants was 19.2 ± 1.4 years, with the majority (70.5%) aged below 20 years. Female students constituted a slightly higher proportion (54%) compared to males (46%).

With respect to caste distribution, most participants belonged to the Other Backward Classes (65.9%), followed by Scheduled Tribes (18.8%) and Scheduled Castes (15.3%). Nearly half of the students (47.7%) belonged to the lower middle socioeconomic class, while 23.9% and 22.7% were from lower and middle classes, respectively; representation from upper socioeconomic strata was minimal.

Academically, a large majority of students were enrolled in the arts stream (87.5%) and more than half (58.5%) were in their first year of study (Table 1). The distribution of depression, anxiety and stress severity among the participants is presented in table 2. Approximately one-third (34.1%) of students experienced some degree of depression, with most cases falling in the mild (17.7%) and moderate (12.5%) categories, while severe to extremely severe depression was relatively low (3.9%).

Anxiety was more prevalent, affecting 42.0% of participants, with a substantial proportion categorized as moderate (19.8%) and extremely severe (7.4%). Stress was observed in 43.2% of students, predominantly in the mild (19.9%) and moderate (14.2%) categories, with 9.1% experiencing severe to extremely severe levels. Overall, anxiety and stress showed a higher burden compared to depression, with a notable proportion of students experiencing moderate to severe forms across these domains (Table 2).

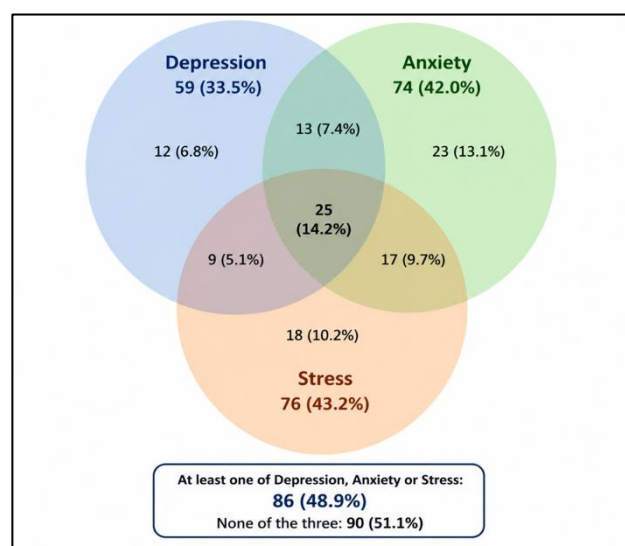


Figure 1: Venn diagram of the overlap of depression, anxiety and stress among undergraduate students (n=176).

Nearly half of the study participants (48.9%) exhibited at least one form of mental morbidity (depression, anxiety or stress), while 51.1% were categorized as normal across all domains. Individually, 34.1% of students had depression, 42.0% had anxiety and 43.2% had stress. A higher proportion of students were classified as normal for depression (65.9%) compared to anxiety (58.0%) and stress (56.8%).

These findings indicate that although a slight majority of students did not exhibit mental morbidity overall, a substantial proportion experienced one or more psychological conditions, with anxiety and stress being more prevalent than depression (Table 3). None of the studied variables, including age, gender, caste, year of study, stream and socio-economic status, showed a statistically significant association with depression, anxiety or stress ($p > 0.05$ for all). However, certain patterns were observed. A relatively higher proportion of depression was noted among females (37.9%) compared to males (29.6%). Anxiety and stress were more prevalent among students aged below 20 years and those in the second year of study. Participants belonging to ST and SC categories exhibited comparatively higher proportions of anxiety and stress than those from OBC. Despite these observed differences, the lack of statistical significance

suggests that these variations may be due to chance and no definitive socio-demographic predictors of mental

health outcomes were identified in the study population (Table 4).

Table 1: Socio-demographic characteristics of study participants (n=176).

Variables	Category	Number	(%)
Age (in years)	<20	124	70.5
	≥20	52	29.5
Mean±SD		19.2±1.4	
Median (IQR)		19 (2)	
Range		18–27	
Gender	Male	81	46.0
	Female	95	54.0
Caste category	OBC	116	65.9
	SC	27	15.3
	ST	33	18.8
Socio-economic status*	Lower	42	23.9
	Lower middle	84	47.7
	Middle	40	22.7
	Upper middle	10	5.7
	Upper	0	0
Course of study	Arts	154	87.5
	Science	22	12.5
Year of study	First year	103	58.5
	Second year	47	26.7
	Third year	26	14.8

*As per Modified B.G. Prasad scale 2025.

Table 2: Distribution of depression, anxiety and stress among students based on DASS-21 (n=176).

Category	Depression N (%)	Anxiety N (%)	Stress N (%)
Normal	116 (65.9)	102 (58.0)	100 (56.8)
Mild	31 (17.7)	14 (8.0)	35 (19.9)
Moderate	22 (12.5)	35 (19.8)	25 (14.2)
Severe	5 (2.8)	12 (6.8)	10 (5.7)
Extremely severe	2 (1.1)	13 (7.4)	6 (3.4)

*Based on DASS-21 scoring criteria.

Table 3: Overall mental morbidity and distribution of depression, anxiety and stress among students (n=176).

Mental health status	Overall mental morbidity N (%)	Depression N (%)	Anxiety N (%)	Stress N (%)
Normal	90 (51.1)	116 (65.9)	102 (58.0)	100 (56.8)
Presence of morbidity	86 (48.9)	60 (34.1)	74 (42.0)	76 (43.2)

*Based on DASS-21 scoring criteria.

Table 4: Association of socio-demographic factors with depression, anxiety and stress among students (n=176).

Characteristics	Category (N)	Depression present N (%)	Anxiety present N (%)	Stress present N (%)	χ^2 (df) Depression (P value)	χ^2 (df) Anxiety (P value)	χ^2 (df) stress (P value)
Age group (in years)	<20 (124)	45 (36.3)	56 (45.2)	57 (46.0)	0.904 (1) (0.342)	1.67 (1) (0.196)	1.33 (1) (0.249)
	≥20 (52)	15 (28.8)	18 (34.6)	19 (36.5)			
Gender	Male (81)	24 (29.6)	31 (38.3)	38 (46.9)	1.33 (1) (0.249)	0.877 (1) (0.349)	0.852 (1) (0.356)
	Female (95)	36 (37.9)	43 (45.3)	38 (40.0)			
Caste	OBC (116)	39 (33.6)	44 (37.9)	47 (40.5)	2.63 (2) (0.276)	2.43 (2) (0.296)	1.23 (2) (0.540)

Continued.

Characteristics	Category (N)	Depression present N (%)	Anxiety present N (%)	Stress present N (%)	χ^2 (df) Depression (P value)	χ^2 (df) Anxiety (P value)	χ^2 (df) stress (P value)
	SC (27)	8 (29.6)	13 (48.1)	14 (51.9)	2.96 (2) (0.228)	2.38 (2) (0.249)	2.94 (2) (0.230)
	ST (33)	13 (39.4)	17 (51.5)	15 (45.5)			
	1 st (103)	34 (33.1)	39 (37.9)	42 (40.8)			
Year of study	2 nd (47)	20 (42.6)	25 (53.2)	25 (53.2)	0.52 (1) (0.471)	0.653 (1) (0.419)	0.476 (1) (0.490)
	3 rd (26)	6 (23.1)	10 (38.5)	9 (34.6)			
Stream	Arts (154)	51 (33.1)	63 (40.9)	65 (42.2)	7.00 (4) (0.136)	5.98 (4) (0.201)	5.45 (4) (0.244)
	Science (22)	9 (40.9)	11 (50.0)	11 (50.0)			
Socio-economic status	Lower (42)	18 (42.9)	22 (52.4)	22 (52.4)			
	Lower middle (84)	21 (25.0)	28 (33.3)	29 (34.2)			
	Middle (40)	18 (45.0)	20 (50.0)	20 (50.0)			
	Upper middle (10)	3 (30.0)	4 (40.0)	5 (50.0)			

DISCUSSION

The present study assessed the prevalence and socio-demographic correlates of depression, anxiety and stress among undergraduate students belonging to socially reserved categories in a rural college of West Bengal. The findings revealed a substantial burden of common mental health problems, with 34.1% of students experiencing depression, 42.0% anxiety and 43.2% stress. Nearly half of the participants (48.9%) had at least one form of mental morbidity. These findings underscore the growing public health concern of mental health disorders among young adults, particularly in vulnerable and socially disadvantaged populations.

The observed prevalence is consistent with global and regional estimates indicating a high burden of psychological distress among university students. The World Health Organization has highlighted that depression is a leading cause of illness and disability worldwide, particularly affecting adolescents and young adults transitioning into adulthood.^{1,2} The prevalence estimates in the current study are comparable to findings reported by Taneja et al who documented depression, anxiety and stress among college students in Delhi as 32%, 40.1% and 43.8%, respectively.³ Similarly, Priyanka Shah et al, reported even higher levels of anxiety (59.3%) and stress (45.1%) among medical students, reflecting the variability across academic settings.⁵ International evidence also supports these findings; for instance, Nurhan Bayram and Nuran Bilgel observed comparable prevalence levels among university students in Turkey.⁴

The relatively high burden observed in the present study may be attributed to multiple contextual factors, including academic stress, uncertainty regarding future

employment, financial constraints and social pressures. The focus on students from reserved social categories adds another layer of vulnerability, as structural inequalities related to caste and socioeconomic disadvantage continue to shape health outcomes in India. Studies by Thorat et al and Newman et al have demonstrated persistent caste-based disparities in access to opportunities and resources, which may indirectly influence mental health.⁸ Similarly, Subramanian et al, emphasized that health inequalities in India are strongly stratified along axes such as caste and socioeconomic status.¹⁰ These structural determinants may contribute to chronic stress exposure and psychological vulnerability among marginalized groups.

Despite these contextual vulnerabilities, the present study did not find any statistically significant association between socio-demographic variables and mental health outcomes. This finding aligns with several studies that suggest that psychological distress among students may be more uniformly distributed across demographic groups, driven primarily by shared academic and developmental stressors rather than individual socio-demographic characteristics. For instance, a systematic review by Ibrahim et al reported consistently high prevalence of depression among university students globally, with limited evidence of strong demographic predictors.¹² Similarly, Mirza et al found no consistent association between socio-demographic variables and mental health outcomes among students in Saudi Arabia.¹¹

Another possible explanation for the lack of significant associations in this study is the relative homogeneity of the study population, as all participants belonged to reserved social categories. This restricted variability may have reduced the ability to detect statistically significant

differences between subgroups. Additionally, the modest sample size and the cross-sectional design may have limited the statistical power to identify subtle associations. It is also important to consider that mental health outcomes are multifactorial and influenced by complex interactions between biological, psychological and environmental factors, which may not be fully captured through basic socio-demographic variables alone. The use of the DASS-21 scales, a validated and widely used screening tool, strengthens the reliability of the findings. Previous studies have demonstrated good psychometric properties of the scale, including its applicability in South Asian populations.¹⁴ However, it is important to note that DASS-21 is a screening instrument and does not provide clinical diagnoses, which may lead to overestimation or underestimation of true prevalence.

The findings of this study have important public health implications. The high burden of mental health problems among students, particularly those from socially disadvantaged backgrounds, highlights the need for targeted mental health interventions at the institutional level. As emphasized by the Lancet Commission on global mental health and sustainable development, integrating mental health services into educational settings is essential for early identification and management of psychological disorders.⁶ Interventions such as counselling services, stress management programs, peer support systems and mental health awareness initiatives may help mitigate the burden of mental morbidity among students.

In addition, addressing broader social determinants such as socioeconomic inequality and educational disadvantage is crucial for improving mental health outcomes in marginalized populations. Evidence from India suggests that socioeconomic disparities are strongly linked to mental health inequalities, necessitating multisectoral approaches for effective intervention.⁹ Strengthening policies aimed at reducing social inequities and improving access to educational and employment opportunities may indirectly contribute to better mental health outcomes.

Overall, the present study contributes to the limited body of literature focusing specifically on mental health among students from reserved social categories in rural India. By highlighting both the high burden and the absence of clear socio-demographic predictors, the study underscores the need for universal as well as targeted mental health strategies within educational institutions.

The present study has certain limitations that should be considered while interpreting the findings. Being a cross-sectional study, causal relationships between socio-demographic factors and mental health outcomes cannot be established. The study was conducted in a single rural college and included only students from reserved social categories, which may limit the generalizability of the findings to other student populations, including those

from unreserved categories or urban settings. The use of a self-administered screening tool (DASS-21), although validated, may be subject to reporting bias and does not provide clinical diagnosis. Additionally, potential confounding factors such as academic performance, substance use, family environment and recent life events were not explored, which might have influenced the observed outcomes. Finally, the relatively homogeneous nature of the study population may have reduced variability, thereby limiting the ability to detect statistically significant associations between socio-demographic variables and mental health outcomes.

CONCLUSION

The present study demonstrates a high burden of depression, anxiety and stress among undergraduate students belonging to socially reserved categories in a rural college of West Bengal, with nearly half of the participants experiencing at least one form of mental morbidity. While the prevalence levels are comparable to existing literature, the key novel contribution of this study lies in its focused assessment of mental health exclusively among students from SC, ST and OBC, an underexplored and socially vulnerable group in the Indian context. Despite this substantial burden, no significant associations were observed between socio-demographic variables and mental health outcomes, suggesting that psychological distress in this population may be influenced more by complex, unmeasured contextual and psychosocial factors rather than conventional demographic determinants.

These findings highlight the need for strengthening institution-based mental health interventions, including regular screening, counselling services and stress management programs tailored to the needs of socially disadvantaged students. At the same time, the absence of identifiable predictors in the current study underscores an important research gap. Future studies employing qualitative or mixed method designs are warranted to explore underlying factors such as perceived discrimination, academic pressure, coping mechanisms, social support and lived experiences, which may not be adequately captured through quantitative approaches. Such in-depth exploration will be crucial for designing context specific and equity oriented mental health interventions and policies aimed at improving student well-being.

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