Section: Community Medicine

Original Research Article

DEPRESSION, ANXIETY, STRESS AND ITS CONTRIBUTING FACTORS AMONG MEDICAL GRADUATES: A CROSS SECTIONAL STUDY

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ABSTRACT

Background: Medical students frequently experience depression, anxiety, and stress due to academic demands, extensive study hours, and performance pressures. These mental health challenges impact both well-being and academic performance, underscoring the need for institutional support.
Materials and Methods: A cross-sectional survey was conducted among 319 undergraduate medical students at Lala Lajpat Rai Memorial Government Medical College, Meerut, Uttar Pradesh during April-June 2025. Participants included MBBS students from all years who had spent over six months at the college and consented to participate. Students absent during assessment or with diagnosed psychiatric illness were excluded.
Results: Depression, anxiety, and stress prevalence rates were 13.47%, 18.18%, and 9.71%, respectively. Significant associations were found between psychological disorders and factors including religion, parental living status, parental education and occupation, residence type, year of study, age, and socioeconomic status. Key contributing factors included academic pressure, adjustment difficulties, financial concerns, romantic relationships, and family conflicts.
Conclusion: The prevalence of these psychological conditions among medical students necessitates urgent interventions and support systems within educational institutions. Prioritizing mental health awareness and providing appropriate resources can help students manage these challenges effectively, fostering a healthier learning environment that enhances both academic success and overall well-being.
Keywords: Anxiety, Depression, DASS, Medical graduates, Stress.

INTRODUCTION

To lead a meaningful life, it is essential to have stable, healthy thoughts and mind, making right decisions with positive outlook. Mental health is often being neglected or given least priority because of its unrecognizable changes. A medical student usually experiences academic burden and challenges in coping after joining the course.
This may lead to stress, which is sometimes good for achieving desired goals but may lead to negative impact on overall well-being and sometimes suicidal attempts.
Thus, it is needed to evaluate the prevalence of common psychological conditions emerging among medical graduates to provide needful prevention and intervention management.

Objectives:
1. To estimate the prevalence and severity of psychiatric conditions (depression, anxiety and stress level) among medical undergraduate students.
2. To find out various contributing factors leading to these conditions among study participants.

MATERIALS AND METHODS

A cross-sectional survey was conducted among medical undergraduate students of Lala Lajpat Rai Memorial Government Medical College in the city

of Meerut, Uttar Pradesh, during the period of April–June 2025.

Students from all academic years, i.e., first year to final year, were included in the study. Each year, 100 students are enrolled in the first year of the college.

The study was approved by the Ethical Committee of the Institute (Letter No. SC-1/2023/2825).

Sample size calculation: For calculating sample size, the prevalence of depression was taken 32% as per reported in a study by Chakraborty et al,[1] and 0.05% error,

$$n = \frac{Z^2 \times p \times q}{L^2}$$

$$n = (1.96)^2 \times 0.32 \times 0.68/(0.05)^2$$

$$= \mathbf{335}$$

Considering the absentees at the time of data collection, and the forms which had incomplete information, the final number of students taken for the analysis was 319.

Inclusion criteria

All medical students enrolled in the government medical college from first to final year MBBS who had spent more than six months in the college and were willing to participate in the study were included. They were informed about the anonymous and voluntary nature of participation, without any fear of stigma or adverse documentation. The study was conducted in the month of April 2025 to ensure that students were not engaged in any university examinations or college events/festivals.

Exclusion criteria

Students who were absent on the day of assessment and those suffering from any psychiatric illness were excluded from the study.

Study tool: In this study, the DASS-21 scale was used to assess the levels of depression, anxiety, and stress among medical undergraduate students. DASS-21 is a previously validated and standardized 21-item questionnaire that includes three self-report scales designed to measure the negative emotional states of depression, anxiety, and stress. Each of these three scales contains 14 items, which are further divided into subscales of 2–5 items with similar content.

The depression scale assesses dysphoria, devaluation of life, hopelessness, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The anxiety scale assesses situational anxiety, skeletal muscle effects, and the subjective experience of anxious affect. The stress scale is sensitive to levels of chronic non-specific arousal and assesses difficulty in relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive, and impatient. Respondents are asked to use 3-point severity/frequency scales to rate the extent to which they have experienced each state over the past week.[2]

RESULTS

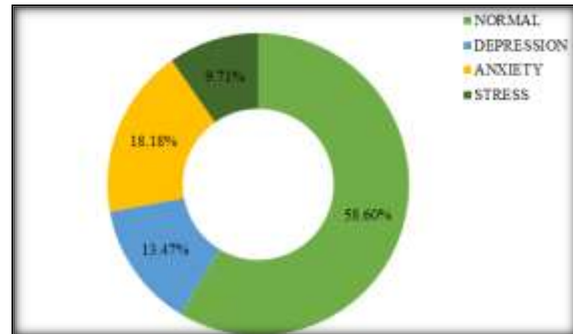

Figure 1: Distribution of psychiatric conditions in study participants

[Figure 1] illustrates the distribution of psychiatric conditions—depression, anxiety, and stress—among medical undergraduate students. According to the data, 187 students (58.60%) were classified as normal, showing no signs of depression, anxiety, or stress. However, a significant proportion exhibited mental health concerns: 43 students (13.47%) were found to be experiencing depression, 58 students (18.18%) were suffering from anxiety, and 31 of them (9.71%) were affected by stress. These findings highlight that more than 40% of the surveyed students experienced some form of mental health distress, underscoring the need for targeted mental health support and interventions within medical education environments.

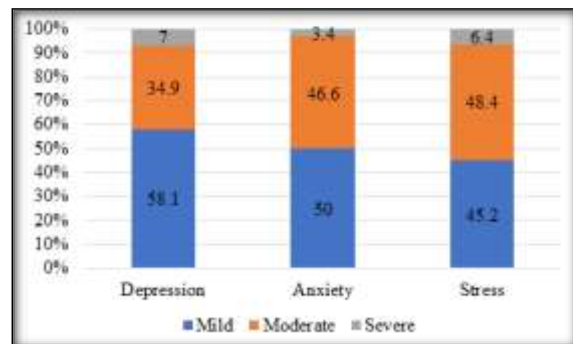

Figure 1: Distribution of patients with psychiatric conditions based on severity

[Figure 2] shows that out of the 43 students who were suffering from depression, 25 students (58.1%) had mild depression, 15 students (34.9%) had moderate depression, and 3 students (7%) were experiencing severe depression. Among the 58 students identified with anxiety, 29 students (50%) had mild anxiety, 27 students (46.6%) had moderate anxiety, and 2 students (3.4%) were classified as having severe anxiety. Of the 31 students suffering from stress, 14 students (45.2%) had mild stress, 15 students (48.4%) had moderate stress, and 2 students (6.4%) were experiencing severe stress. Overall, out of the 132 students affected by psychological conditions, 68 students (51.5%) exhibited mild severity, 57 students (43.2%) showed moderate

severity, and 7 students (5.3%) were classified as having severe psychiatric conditions.

Table 1: Association Between Sociodemographic Factors and Psychiatric Disorders

S. No.	Sociodemographic Factors	Normal N (%)	Depression N (%)	Anxiety N (%)	Stress N (%)	Total N (%)	Chi-square (χ^2), Df, P-value
1.	Age						
	Less than 20 years	72 (53.7)	26 (19.4)	26 (19.4)	10 (7.5)	134 (100)	8.355, 3, 0.0391*
	Above 20 years	115 (62.2)	17 (9.2)	32 (17.3)	21 (11.4)	185 (100)	
2.	Gender						
	Male	89 (55.3)	28 (17.4)	25 (15.5)	19 (11.8)	161 (100)	7.019, 3, 0.071^{NS}
	Female	98 (62)	15 (9.5)	33 (20.9)	12 (7.6)	158 (100)	
3.	Religion						
	Hindu	152 (64.4)	31 (13.1)	36 (15.3)	17 (7.2)	236 (100)	27.536, 6, <0.001**
	Muslim	29 (46)	8 (12.7)	19 (30.2)	7 (11.1)	63 (100)	
	Others	6 (30)	4 (20)	3 (15)	7 (35)	20 (100)	
4.	Residence						
	Urban	134 (58.8)	32 (14)	40 (17.5)	22 (9.6)	228 (100)	0.368, 3, 0.946^{NS}
	Rural	53 (58.2)	11 (13.6)	12.1 (19.8)	9 (9.9)	91 (100)	
5.	Socioeconomic Status (Modified B.G. Prasad scale)						
	V	106 (63.8)	20 (12)	28 (16.9)	12 (7.2)	166 (100)	22.24, 12, 0.034*
	IV	53 (58.2)	13 (14.3)	17 (18.7)	8 (8.8)	91 (100)	
	III	21 (52.5)	9 (22.5)	5 (12.5)	5 (12.5)	40 (100)	
	II	4 (30.8)	1 (7.6)	4 (30.8)	4 (30.8)	13 (100)	
	I	3 (33.3)	0 (0)	4 (44.4)	2 (22.2)	9 (100)	
6.	Type of Family						
	Nuclear	143 (62.2)	30 (13)	38 (16.5)	19 (8.3)	230 (100)	4.942, 3, 0.176^{NS}
	Joint	44 (49.4)	13 (14.6)	20 (22.5)	12 (13.5)	89 (100)	
7.	Parent Living Status						
	Together	180 (62.9)	37 (12.9)	45 (15.7)	24 (8.4)	286 (100)	23.5, 3, <0.001**
	Separated	7 (21.2)	6 (18.2)	13 (39.4)	7 (21.2)	33 (100)	
8.	Father's Education						
	Illiterate	6 (100)	0 (0)	0 (0)	0 (0)	6 (100)	27.07, 12, 0.007**
	Primary	5 (29.4)	2 (11.8)	4 (23.5)	6 (35.3)	17 (100)	
	HSC/SSC	34 (53.1)	10 (15.6)	15 (23.4)	5 (7.8)	64 (100)	
	Graduate	79 (55.6)	24 (16.9)	25 (17.6)	14 (9.9)	142 (100)	
	PG	63 (70)	7 (7.8)	14 (15.6)	6 (6.7)	90 (100)	
9.	Mother's Education						
	Illiterate	22 (47.8)	4 (8.7)	10 (21.7)	10 (21.7)	46 (100)	24.79, 12, 0.015*
	Primary	21 (50)	9 (21.4)	6 (14.3)	6 (14.3)	42 (100)	
	HSC/SSC	40 (57.1)	10 (14.3)	10 (14.3)	10 (14.3)	70 (100)	
	Graduate	61 (64.2)	14 (14.7)	17 (17.9)	3 (3.2)	95 (100)	
	PG	43 (65.2)	6 (9.1)	15 (3.2)	2 (3)	66 (100)	
10.	Father's Occupation						
	Service	95 (65.5)	14 (9.7)	23 (15.9)	13 (9)	145 (100)	37.65, 12, <0.001**
	Business	73 (62.9)	14 (12.1)	22 (19)	7 (6)	116 (100)	

	Unemployed	3 (11.1)	9 (33.3)	7 (25.9)	8 (29.6)	27 (100)	
	Retired	8 (44.4)	4 (22.2)	4 (22.2)	2 (11.1)	18 (100)	
	Farmer/Labour	8 (61.5)	2 (15.4)	2 (15.4)	1 (7.7)	13 (100)	
11.	Mother's Occupation						
	Homemaker	150 (67)	22 (9.8)	35 (15.6)	17 (7.6)	224 (100)	46.13, 9, <0.001**
	Service	33 (55)	10 (16.7)	9 (15)	8 (13.3)	60 (100)	
	Business	4 (16)	9 (36)	8 (32)	4 (16)	25 (100)	
	Retired	0 (0)	2 (20)	6 (60)	2 (20)	10 (100)	
12.	Current Residence						
	Hostel	159 (68.2)	21 (9)	37 (15.9)	16 (6.9)	233 (100)	45.11, 9, <0.001**
	Paying Guest	6 (16.2)	12 (32.4)	11 (29.7)	8 (21.6)	37 (100)	
	Home	19 (48.7)	8 (20.5)	7 (17.9)	5 (12.8)	39 (100)	
	Relative	3 (30)	2 (20)	3 (30)	2 (20)	10 (100)	
13.	UG Student Year						
	First	40 (50.6)	17 (21.5)	15 (19)	7 (8.9)	79 (100)	40.02, 9, <0.001**
	Second	53 (70.7)	5 (6.7)	15 (20)	**3 (2.7)**	76 (100)	
	Third	64 (74.4)	5 (5.8)	10 (11.6)	7 (8.1)	86 (100)	
	Fourth	29 (37.2)	16 (20.5)	18 (23.1)	15 (19.2)	78 (100)	
14.	Addiction						6.91, 6, 0.329^{NS}
	Smoke	23 (46)	8 (16)	15 (30)	4 (8)	50 (100)	
	Alcohol	26 (60.4)	6 (13.9)	6 (14)	5 (11.6)	43 (100)	
	None	138 (61.1)	29 (12.8)	37 (16.4)	22 (9.7)	226 (100)	

Df= Degree of freedom; *→ Statistically significant (p<0.05 at 95% of CI); **→ Statistically significant (p<0.01 at 99% of CI); NS→ Non-significant (p>0.05 at 95% of CI).

[Table 1] examined the association between various sociodemographic factors and psychiatric disorders specifically depression, anxiety, and stress using Chi-square tests to determine statistical significance. Regarding age, individuals under 20 years showed a lower percentage of normal mental health (53.7%) compared to those over 20 years (62.2%), with a statistically significant difference ($\chi^2 = 8.355$, df = 3, p = 0.0391). Gender did not show a significant association ($\chi^2 = 7.019$, df = 3, p = 0.071), though females (62%) had a slightly higher percentage of normal mental health than males (55.3%). Religion, however, showed a highly significant association with psychiatric disorders ($\chi^2 = 27.536$, df = 6, p < 0.001), with Hindus reporting a higher percentage of normal status (64.4%) compared to Muslims (46%) and others (30%). The type of residence was not significantly associated with psychiatric disorders ($\chi^2 = 0.368$, df = 3, p = 0.946), with nearly identical rates of normalcy in both groups (58.8% and 58.2% respectively). Socioeconomic status showed a significant effect ($\chi^2 = 22.24$, df = 12, p = 0.034), with those in class V showing higher normalcy (63.8%) and class I and II having the lowest (33.3% and 30.8% respectively). The type of family did not show significant differences ($\chi^2 = 4.942$, df = 3, p = 0.176), although individuals from nuclear families reported higher normal mental health (62.2%) than those from joint families (49.4%). Parental living status had a highly significant impact ($\chi^2 = 23.5$, df = 3, p < 0.001), where students with parents living together had higher normal mental health (62.9%) compared to those whose parents were separated (21.2%). Father's education showed significant influence ($\chi^2 = 27.07$, df = 12, p = 0.007), with postgraduates' children showing higher normal mental health (70%), and illiterate fathers' children showing the highest (100%), possibly due to small sample size. Similarly, mother's education had a significant association ($\chi^2 = 24.79$, df = 12, p = 0.015), where higher maternal education (PG, 65.2%) corresponded with better mental health in children, and lower education (illiterate, 47.8%) with worse. Father's occupation was significantly related to mental health outcomes ($\chi^2 = 37.65$, df = 12, p < 0.001). Children of employed fathers (service: 65.5%, business: 62.9%) reported higher normalcy, while children of unemployed fathers had the lowest (11.1%). Similarly, mother's occupation was significantly associated ($\chi^2 = 46.13$, df = 9, p < 0.001), with homemakers' children showing the highest normalcy (67%) and retired mothers'

children the lowest (0%). Current residence also showed a strong association ($\chi^2 = 45.11$, df = 9, $p < 0.001$), with hostel residents reporting the highest normalcy (68.2%) and paying guest residents the lowest (16.2%). The year of study in undergraduate programs had a highly significant impact ($\chi^2 = 40.02$, df = 9, $p < 0.001$), with third-year students reporting the highest normalcy (74.4%) and fourth-year students the lowest (37.2%). Finally, addiction status was not significantly associated with mental health outcomes ($\chi^2 = 6.91$, df = 6, $p = 0.329$), although individuals with no addiction showed better mental health (61.1%) than smokers (46%).

Overall the study found significant associations between mental health and factors like age, religion, socioeconomic status, parental living status, parental education, and occupation, with better mental health linked to higher parental education, stable family environments, and higher socioeconomic status. Students from Hindu backgrounds, hostel residents, and third-year students showed better mental health. However, gender, residence type, family type, and addiction status showed no significant impact on mental health outcomes.

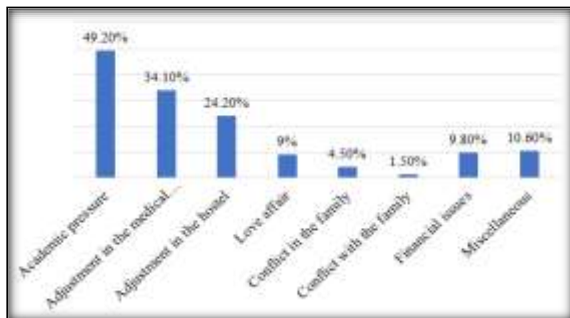

Figure 3: Etiologies of Psychiatric conditions#

 # Multiple answers

[Figure 3] shows student stressors with academic pressure as the dominant concern (49.20%), followed by adjustment to medical college (34.10%) and hostel life (24.20%). Less significant stressors include miscellaneous issues (10.60%), financial concerns (9.80%), love affairs (9%), conflicts within family (4.50%), and direct family conflicts (1.50%). This data clearly indicates that academic and institutional adaptation challenges far outweigh personal, financial, and social factors as sources of student stress.

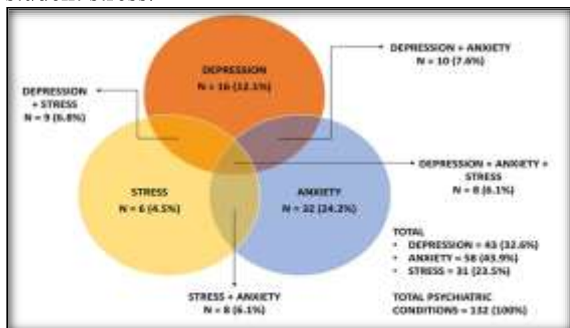

Figure 4: Distribution of psychiatric conditions including mixed psychiatric conditions

[Figure 4] reveals that 16 students (12.1%) exhibited only depression, while 32 students (24.2%) displayed only anxiety symptoms, and 6 students (4.5%) experienced only stress. Additionally, several students presented with mixed conditions: 9 students (6.8%) suffered from both depression and stress, 10 students (7.6%) experienced a combination of depression and anxiety, and 8 students (6.1%) showed symptoms of both stress and anxiety. Furthermore, 8 students (6.1%) manifested all three conditions simultaneously—depression, anxiety, and stress.

DISCUSSION

The present study assessed the prevalence and severity of depression, anxiety, and stress among medical undergraduate students and identified contributing factors to these conditions. Results showed that 58.6% of students exhibited no psychological conditions, while 41.4% demonstrated at least one condition. The prevalence rates for depression, anxiety, and stress were 13.47%, 18.18%, and 9.71% respectively.

Existing literature shows considerable variation in prevalence rates. Raja et al. (2022),[3] reported rates of 59% for depression, 43% for anxiety, and 11% for stress among South Indian medical students. Babar et al. (2020),[4] found rates of 60.94%, 73.37%, and 37.27% respectively in Central India, while Taneja et al. (2018),[5] reported 32%, 40.1%, and 43.8% in New Delhi. The lower rates in our study may be attributed to data collection during April-June, after university examinations when students typically experience less stress.

Regarding severity, our study found depression cases were 58.1% mild, 34.9% moderate, and 7% severe. Anxiety cases were 50% mild, 46.6% moderate, and 3.4% severe, while stress cases were 45.2% mild, 48.4% moderate, and 6.4% severe. These findings differ from Kumar et al. (2016),[6] Ahad et al. (2021),[7] and Gupta et al. (2022),[8] who generally reported higher percentages of severe cases.

Statistical analysis revealed highly significant associations ($p<0.01$) between psychiatric disorders and religion, parental living status, father's education and occupation, mother's occupation, current residence, and year of study. Significant associations ($p<0.05$) were found with age, socioeconomic status, and mother's education. No significant associations emerged with gender, permanent residence, family type, or addiction status. This partially aligns with findings from Merchant et al. (2018),[9] and Babar et al. (2020),[4] though some differences exist in the significance of factors like gender and addiction.

The most common causes of psychiatric conditions were academic pressure, adjustment to medical college, adjustment to hostel life, financial issues, love affairs, and family conflicts. This contrasts with

Yiwen Hu et al. (2021),[10] who emphasized biological factors and environmental factors, and Omodona et al. (2012),[11] who highlighted international student-specific factors like cultural adjustment and loneliness. However, our findings align with Babar et al. (2020),[4] who similarly identified academic factors as the primary contributors to psychological distress.

Limitation of the study

Results would have shown significant differences if the students from private medical colleges will be taken into consideration. The distance from permanent residence will also be an important factor influencing the mental health of the students.

CONCLUSION

The study revealed prevalence rates of depression, anxiety, and stress at 13.47%, 18.18%, and 9.71% respectively, with most affected students experiencing these conditions at mild intensity levels. Several factors demonstrated significant associations with psychological disorders, including religion, parental living status, father's education and occupation, mother's occupation, current residence, undergraduate year of study, age, socioeconomic status, and mother's education. The most common contributors to psychological conditions were identified as academic pressure, adjustment challenges in medical college and hostel environments, financial concerns, romantic relationships, and both conflicts within and with family members.

Recommendations

To reduce psychiatric disorders among medical students, institutions should implement Compassion Cultivation Training (CCT), which has demonstrated effectiveness in enhancing self-compassion, mindfulness, and emotion regulation while simultaneously reducing stress, anxiety, and burnout. Addressing mental health stigma through educational initiatives, personal narrative sharing, and improved support systems would also prove beneficial. Students should be encouraged to develop effective coping strategies such as positive reframing, methodical planning, self-distraction techniques, peer support networks, engagement in extracurricular activities, and appropriate use of humor. Additionally, incorporating stress management techniques—including regular physical exercise, efficient time management, and cultivation of strong social support networks—is essential for maintaining optimal mental well-being throughout medical education.

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