International Journal of Community Medicine and Public Health
Tandon M et al. Int J Community Med Public Health. 2026 Aug;13(8):4181-4187
https://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20262339

Original Research Article

Silent struggles in medical education: a cross-sectional study on anxiety and depression among medical interns

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Received: 18 May 2026
Accepted: 03 July 2026

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ABSTRACT

Background: Medical internship is a demanding transition period characterized by heavy clinical responsibilities, prolonged working hours, emotional strain, and academic pressure, which may adversely affect mental health. The present study aimed to estimate the prevalence and severity of anxiety and depression among medical interns and assess their association with workload characteristics and lifestyle disturbances during internship.
Methods: A cross-sectional observational study was conducted among 113 medical interns at a tertiary care teaching hospital. Data were collected using a pre-tested semi-structured questionnaire on socio-demographic details, workload parameters, and lifestyle impact. Anxiety and depression were assessed using the generalized anxiety disorder-7 (GAD-7) and patient health questionnaire-9 (PHQ-9) scales. Data were analyzed using descriptive statistics, Chi-square test, and Pearson's correlation coefficient.
Results: The prevalence of anxiety and depression was 13.3% and 17.7%, respectively. Mild anxiety and depression were observed in 27.4% and 23.0% of interns, while moderate-to-severe symptoms were present in 13.2% and 17.6%, respectively. Female gender was significantly associated with depression ($p=0.014$). Previous mental illness and current treatment status were significantly associated with both anxiety and depression. Mental and emotional workload showed significant association with anxiety ($p=0.022$), whereas working hours and night duties did not. Appetite disturbance was significantly associated with anxiety ($p=0.041$). Anxiety and depression demonstrated a strong positive correlation ($r=0.639$, $p<0.001$).
Conclusions: Anxiety and depression affect a considerable proportion of medical interns. Routine mental health screening and supportive interventions during internship are essential to promote psychological well-being and safe clinical practice.

Keywords: Medical interns, Anxiety, Depression, Workload, Lifestyle disturbances, Mental health

INTRODUCTION

Mental health is one of the most significant determinants of quality of life and satisfaction.[1] In most parts of the world, mental health and mental disorders are not accorded the same degree of importance as physical health and have largely been ignored or neglected.[2]

Different psychological and psychiatric studies conducted in developed and developing countries over the past decades have shown that the prevalence of stress, anxiety, and depression is higher among university students compared with the general population.[1] Psychological distress among students may adversely affect academic performance and quality of life and may contribute to alcohol and substance abuse and reduced empathetic behaviour.[3]

Medical education is highly demanding in India and often has a significant impact on the mental health and well-being of students, leading to increased levels of psychological distress and vulnerability to negative

affective states. Long working and study hours, environments not ideally suited to learning, sleep deprivation, and disturbances in personal life are common during this period.[4]

The transition from being a medical student to becoming an intern physician has always been viewed as an important milestone. Interns are required to handle primary responsibilities related to patient care in hospitals. Sudden transition from studies to patient care, communication problems, work overload, patient responsibility, emotional investment toward patients, and inadequate support in clinical settings have been recognized as factors contributing to this challenging period.[5]

Untreated poor mental health can cause distress among students and negatively influence their quality of life and academic performance, including lower academic integrity, alcohol and substance abuse, reduced empathetic behaviour, relationship instability, lack of self-confidence, and suicidal thoughts.[1] Early identification and management of mental illness may help prevent adverse outcomes such as suicide.[6]

According to the WHO world mental health report and mental health atlas 2024, more than one billion people worldwide are living with mental health conditions, with anxiety and depressive disorders being the most common. WHO reports that the global age-standardized prevalence of mental disorders is 13.6%, with anxiety and depression accounting for the majority of cases. It has been demonstrated that 25-90% of medical students experience stress, which is an important determinant of anxiety and depression.[7]

Depression is a common mental disorder characterized by depressed mood, loss of interest or pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration. Depression is often accompanied by symptoms of anxiety. These conditions can become chronic or recurrent and may lead to substantial impairment in an individual's ability to carry out everyday responsibilities.[2]

Anxiety and depression are among the most common mental health disorders affecting medical trainees worldwide. Psychological distress during internship not only impairs personal well-being but may also compromise clinical judgment, learning capacity, professional behaviour, and patient safety.

Despite increasing recognition of mental health issues in medical education, anxiety and depression often remain under-recognized and under-reported because of stigma, fear of professional repercussions, and limited access to mental health support. In India, there is limited literature regarding the burden of mental health disorders among medical interns.[8]

The present study was conducted to assess the burden of anxiety and depression association with workload and lifestyle disturbances among medical interns in a tertiary care teaching hospital.

METHODS

Study design and setting

A cross-sectional study was conducted among medical interns posted in various clinical and non-clinical departments of a tertiary care teaching hospital from 9 April 2026 to 9 May 2026.

Study participants

The study included all medical interns undergoing compulsory rotatory internship during the study period who were willing to provide informed consent. Interns who did not consent to participate were excluded from the study.

Sampling technique and sample size

Universal sampling technique was adopted, wherein all eligible medical interns available during the study period were invited to participate. A total of 113 interns participated in the study.

Data collection tools

Data were collected using a pre-tested, semi-structured, self-administered questionnaire comprising socio-demographic details, posting characteristics, workload parameters, and lifestyle-related disturbances.

Standardized and validated screening tools were used to assess psychological distress: GAD-7 scale for assessment of anxiety and PHQ-9 for assessment of depression.

The questionnaires were distributed either personally during duty breaks or through scheduled departmental visits. Adequate time was provided for completion, and completed questionnaires were collected on the same day to minimize recall bias and non-response.

Participants who reported severe psychological distress were guided regarding appropriate professional mental health support services.

Data analysis

The collected data were entered and coded in Microsoft Excel and analyzed using Epi Info 7 software.

Descriptive statistics were used to summarize socio-demographic characteristics, workload variables, and lifestyle disturbances in terms of frequencies and percentages.

Inferential statistics were applied to assess associations between independent variables and mental health outcomes. The Chi-square test was used to determine associations between categorical variables. Pearson's correlation coefficient was applied to assess the correlation between anxiety and depression scores. A $p<0.05$ was considered statistically significant.

Ethical considerations

Ethical approval was obtained from the institutional ethics committee prior to commencement of the study. Written informed consent was obtained from all participants. Confidentiality and anonymity of collected information were strictly maintained throughout study.

RESULTS

A total of 113 medical interns participated in the study. The majority of participants were aged 23 years (37.2%), followed by 24 years (30.1%). Male interns constituted 54.9% of the study population, while females accounted for 45.1%. Most participants resided in hostels (50.4%), followed by rented accommodation (41.6%). Previous diagnosis of mental disorder was reported by 10.6% of interns, while 5.3% were currently receiving treatment for mental illness (Table 1).

The prevalence of anxiety and depression among medical interns was 13.3% and 17.7%, respectively (Figure 1). According to GAD-7 grading, 59.3% had minimal anxiety, 27.4% had mild anxiety, 8.8% had moderate anxiety, and 4.4% had severe anxiety. Based on PHQ-9 grading, 59.3% had no/minimal depression, 23.0% had mild depression, 5.3% had moderate depression, 8.8% had moderately severe depression, and 3.5% had severe depression (Table 2 and Figure 2).

Female gender showed a statistically significant association with depression ($\chi^2=6.068$, $p=0.014$). Previous diagnosis of mental disorder was significantly associated with anxiety ($\chi^2=9.401$, $p=0.002$). Interns currently receiving treatment demonstrated significantly higher prevalence of both anxiety ($\chi^2=15.691$, $p<0.001$) and depression ($\chi^2=10.431$, $p=0.001$). However, age and residence did not show statistically significant associations with anxiety or depression (Table 3).

Among workload characteristics, mental and emotional workload showed a statistically significant association with anxiety ($\chi^2=11.396$, $p=0.022$). However, type of posting, average working hours, average number of night duties, and physical workload were not significantly associated with anxiety or depression (Table 4).

Among lifestyle disturbances, appetite affected was significantly associated with anxiety ($\chi^2=4.181$, $p=0.041$). Sleep affected, academic learning affected, and social life affected did not show statistically significant associations with anxiety or depression (Table 5).

Pearson's correlation analysis demonstrated a strong positive correlation between anxiety and depression scores among medical interns ($r=0.639$, $p<0.001$).

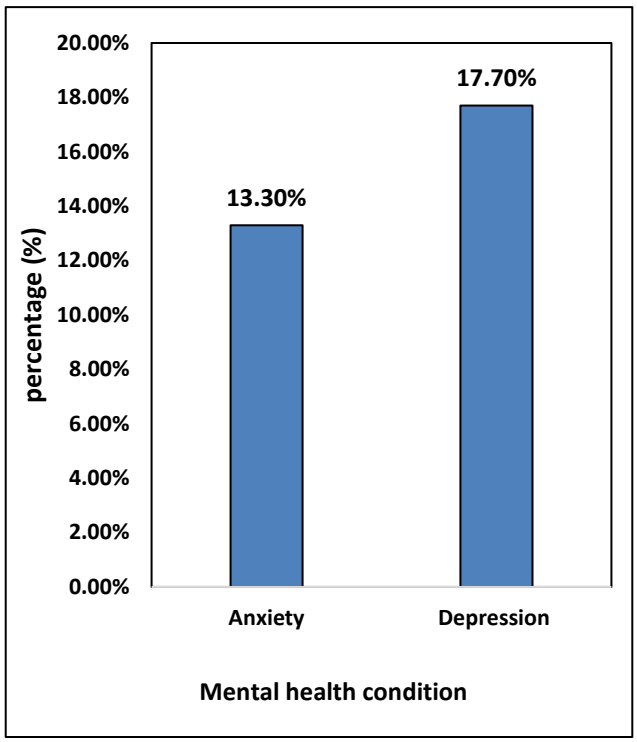


Figure 1: Prevalence of anxiety and depression among medical interns.

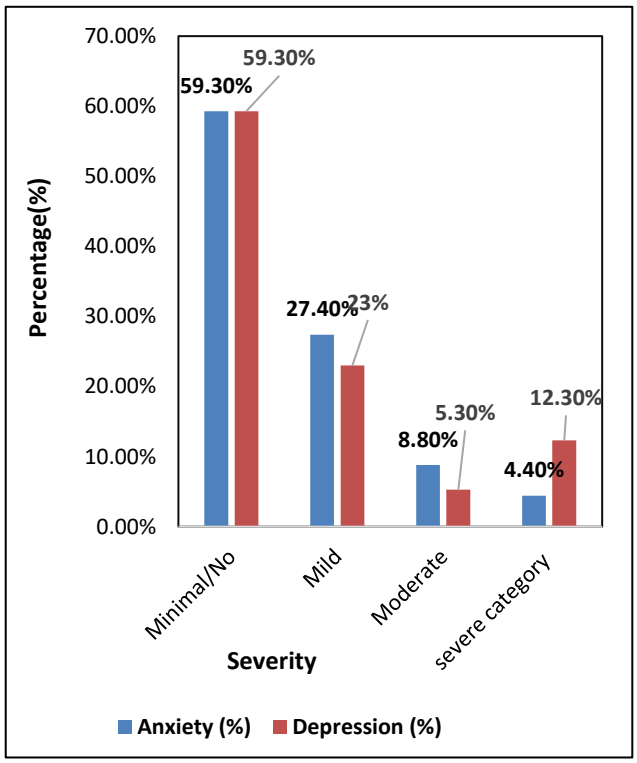


Figure 2: Severity distribution of anxiety and depression among medical interns.

Table 1: Socio-demographic characteristics of medical interns (n=113).

Variables	N	Percentage (%)
Age (in years)		
22	15	13.3
23	42	37.2
24	34	30.1
25	22	19.5
Gender		
Male	62	54.9
Female	51	45.1
Residence		
Hostel	57	50.4
Rented accommodation	47	41.6
With family	9	8.0
Previously diagnosed mental disorder		
Yes	12	10.6
No	101	89.4
Currently on treatment		
Yes	6	5.3
No	107	94.7

Table 2: Prevalence and severity of anxiety and depression among medical interns (n=113).

Variables	N	Percentage (%)
Anxiety status		
Present	15	13.3
Absent	98	86.7
Depression status		
Present	20	17.7
Absent	93	82.3
GAD-7 grading		
Minimal anxiety	67	59.3
Mild anxiety	31	27.4
Moderate anxiety	10	8.8
Severe anxiety	5	4.4
PHQ-9 grading		
No/Minimal depression	67	59.3
Mild depression	26	23.0
Moderate depression	6	5.3
Moderately severe depression	10	8.8
Severe depression	4	3.5

Table 3: Association of socio-demographic factors with anxiety and depression among medical interns.

Variables	Anxiety present, N (%)	χ^2	P	Depression present, N (%)	χ^2	P
Age (in years)						
22	2 (13.3)	1.083	0.781	3 (20.0)	1.984	0.576
23	6 (14.3)			6 (14.3)		
24	3 (8.8)			5 (14.7)		
25	4 (18.2)			6 (27.3)		
Gender						
Male	5 (8.1)	3.239	0.072	6 (9.7)	6.068	0.014*
Female	10 (19.6)			14 (27.5)		
Residence						
Hostel	6 (10.5)	3.160	0.206	8 (14.0)	4.440	0.109
Rented	9 (19.1)			12 (25.5)		
With family	0 (0.0)			0 (0.0)		

Continued.

Variables	Anxiety present, N (%)	χ^2	P	Depression present, N (%)	χ^2	P
Previously diagnosed mental disorder						
Yes	5 (41.7)	9.401	0.002*	4 (33.3)	2.253	0.133
No	10 (9.9)			16 (15.8)		
Currently on treatment						
Yes	4 (66.7)	15.691	<0.001*	4 (66.7)	10.431	0.001*
No	11 (10.3)			16 (15.0)		

*Statistically significant at p<0.05, χ^2=Chi-square test

Table 4: Association of workload characteristics with anxiety and depression among medical interns.

Variables	Anxiety present, N (%)	χ^2	P value	Depression present, N (%)	χ^2	P value
Type of posting						
Clinical	7 (10.9)	0.700	0.403	10 (15.6)	0.436	0.509
Non-clinical	8 (16.3)			10 (20.4)		
Average working hours						
<6 hours	2 (22.2)	5.447	0.142	3 (33.3)	2.299	0.513
6-8 hours	1 (4.0)			3 (12.0)		
8-10 hours	1 (4.8)			3 (14.3)		
>10 hours	11 (19.0)			11 (19.0)		
Average number of night duties						
1-4 duties	3 (21.4)	1.708	0.635	4 (28.6)	1.539	0.673
5-8 duties	5 (16.7)			4 (13.3)		
More than eight duties	6 (10.3)			10 (17.2)		
No night duties	1 (9.1)			2 (18.2)		
Physical workload						
Low	0 (0.0)	8.595	0.072	1 (14.3)	3.259	0.515
Moderate	1 (2.7)			4 (10.8)		
High	6 (18.8)			6 (18.8)		
Very high	8 (22.9)			9 (25.7)		
Mental and emotional workload						
Very low	1 (14.3)	11.396	0.022*	2 (28.6)	8.457	0.076
Low	0 (0.0)			2 (16.7)		
Moderate	1 (3.1)			2 (6.3)		
High	4 (12.9)			4 (12.9)		
Very high	9 (29.0)			10 (32.3)		

*Statistically significant at p<0.05, χ^2=Chi-square test

Table 5: Association of lifestyle factors with anxiety and depression among medical interns.

Variables	Anxiety present, N (%)	χ^2	P value	Depression present, N (%)	χ^2	P value
Sleep affected						
Yes	14 (15.2)	1.624	0.203	18 (19.6)	1.183	0.277
No	1 (4.8)			2 (9.5)		
Appetite affected						
Yes	15 (16.5)	4.181	0.041*	19 (20.9)	3.245	0.072
No	0 (0.0)			1 (4.5)		
Academic learning affected						
Yes	13 (14.3)	0.415	0.519	16 (17.6)	0.004	0.947
No	2 (9.1)			4 (18.2)		
Social life affected						
Yes	14 (16.1)	2.608	0.106	17 (19.5)	0.880	0.348
No	1 (3.8)			3 (11.5)		

*Statistically significant at p<0.05, χ^2=chi-square test.

DISCUSSION

The present study assessed the prevalence of anxiety and depression among medical interns and evaluated their association with workload characteristics and lifestyle disturbances during internship training.

In the present study, the prevalence of anxiety and depression among medical interns was found to be 13.3% and 17.7%, respectively. Singh et al reported depression among 15.8% of medical interns in a tertiary care teaching hospital.[9] Chakraborty et al reported depression, anxiety, and stress among medical students and interns in 18.5%, 24.2%, and 37.6% participants, respectively.[8] Similarly, Shad et al observed depressive symptoms among interns and junior doctors during clinical training.[10] Kumar et al reported moderate to severe stress among nearly one-third of medical interns in a tertiary care teaching hospital.[11] The findings of the present study are comparable with previous literature, indicating that internship remains a psychologically demanding phase of medical training.

Female interns demonstrated significantly higher prevalence of depression compared to males in the present study (p=0.014). Similar observations were reported by Iqbal et al and Anand et al who documented higher psychological distress among female medical trainees.[12,13] Emotional stress perception, hormonal influences, and gender-related psychosocial stressors may contribute to increased vulnerability among female interns.

The present study found significant association between previous diagnosis of mental illness and anxiety (p=0.002). Interns currently receiving treatment for mental illness also demonstrated significantly higher prevalence of anxiety and depression. Similar findings were reported by Dyrbye et al who identified pre-existing psychiatric illness as an important predictor of psychological distress among medical trainees.[14] Internship-related stress, clinical responsibilities, and irregular schedules may aggravate underlying mental health conditions.

Mental and emotional workload showed statistically significant association with anxiety in the present study (p=0.022). A study conducted by Abdulghani et al reported that excessive workload, emotional exhaustion, and academic pressure were major contributors to stress and anxiety among medical trainees.[15] Likewise, Sreeramareddy et al observed significant association between clinical workload and psychological morbidity among medical students and interns.[16] Internship is often associated with long duty hours, emergency responsibilities, sleep deprivation, fear of making mistakes, and emotionally demanding patient interactions, all of which may contribute to anxiety symptoms.

Among lifestyle-related disturbances, appetite affected showed statistically significant association with anxiety (p=0.041). Similar findings were reported by Mikolajczyk et al who demonstrated that psychological stress among healthcare students was associated with disturbed eating behaviour and appetite changes.[17]

In the present study, sleep disturbances and social life disturbances did not demonstrate statistically significant association with anxiety or depression. However, previous studies among medical interns have reported significant relationship between sleep deprivation and psychological distress. Differences in institutional work schedules, coping strategies, and social support systems may explain this variation.

Pearson's correlation analysis demonstrated a strong positive correlation between anxiety and depression scores (r=0.639, p<0.001). Similar findings have been reported in previous psychiatric studies showing that anxiety and depression frequently coexist and share overlapping psychosocial and biological determinants.[18]

Limitations

The present study has certain limitations. Being a cross-sectional study, causal relationship between associated factors and mental health outcomes could not be established. The study was based on self-reported questionnaires and may therefore be subject to reporting bias. In addition, the study was conducted in a single tertiary care teaching hospital, limiting the generalizability of findings.

CONCLUSION

Psychological distress during internship may adversely affect quality of life, clinical judgment, communication skills, empathy toward patients, and professional performance. Untreated anxiety and depression may further increase the risk of burnout, substance abuse, and suicidal ideation. Therefore, early screening, counselling services, mentorship programs, stress management workshops, and institutional mental health support systems are essential for improving the psychological well-being of medical interns.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Tandon M, Dhoble S. Silent struggles in medical education: a cross-sectional study on anxiety and depression among medical interns. Int J Community Med Public Health 2026;13:4181-7.