J MEDICINE 2026; 27: 21-26

Original Article

Depression Among Medical Students and Interns in a Selected Teaching Hospital in Southern Bangladesh

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Abstract

Background: *Depression is one of the leading causes of human disability worldwide. Among vulnerable groups, medical professionals are disproportionately effect by depression. Almost 1 in 4 medical students, especially female, suffers from depression worldwide. Ironically, 80% of these cases are reported from low and middle income countries. This can impact not only the health of the sufferer but also all of those who receives medical care from them.*

Methods: *This cross sectional study was conducted in Ad-din Sakina Women's Medical College, Jasore. One hundred seventy seven participants including students of different batches and Intern doctors were enrolled by convenience sampling in this study. A self administered form including nine item Patient Health Questionnaire (PHQ-9) was used to collect data from September 2024 to April 2025. SPSS was used to run the statistical analayis.*

Results: *Overall 85.3% of participants were found to be in depressive spectrum with 10.7% falling into the category of severe depression. The highest mean PHQ-9 was found among fourth year students (14.48±5.17) and in the 24-26 year-old age group (11.66±5.9). The response "Feeling tired or having little energy" was reported mostly (34.5%) amidst the nearly everyday category Followed by Feeling bad about yourself – or that you are a failure or have let yourself or your family down" (31.1%). 11.3% despondence had suicidal ideation.*

Conclusion: *The staggeringly high proportion of depressive symptoms should raise the alarm to take mental health of medical students and interns seriously. Every institute should have means to screen and diagnose depression and take actions accordingly to avoid the negative impacts of the condition including planned or completed suicide.*

Key-words: *Medical students, Internship, Patient health questionnaire, depression.*

DOI: *https://doi.org/10.3329/jom.v27i1.88274*

Received: *07 July, 2025* ***Accepted:*** *12 October, 2025*

Background:

Humans possess a remarkable gift of metacognition- the ability to reflect on their own cognition. Thus, ailments belonging to the mental processes was historically familiar to men as a cause of sickness on par with the physical illness. What we label as depression nowadays was described as demonic possession in Mesopotamia (2000 BCE), melancholia by Hippocrates (From melas-black and chole-bile) and gained its root as a distinctive Psychological disorder in the early 19th century. The word depression has its origin from latin deprimere (de- down and premere- press) which literally meant "to press down" or "to sink". As one of the leading cause of disability, depression affects 280 million people globally[1]. The spectrum of presentation of this disorder can range from sleep disurbance, eating problems, feeling of hopelessness and worthlessness etc but can also lead to take someones life by themselves. Depressive disorder has a 30 times greater risk of suicide than general people[2]. Furthermore, depression related loss of work hours negatively impact the economy. While depression can affect people from every walk of life, healthcare professionals are more likley to suffer from it than others[3]. Moreover, woman are about 50% more succeptible to depression than man[4]. The prevalence of depression is about five times higher among medical students compared to other academic branches and female students suffer more than male students[5]. Medical study can be a stressor for many due to the factors like high academic rigor, exposure to sickness

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and death at an early age, fear of failure, lack of sleep and percieved loss of control[6]. Bangladesh is a resource constrained, densely populated Asian country in which the apparent burden of metal health problem is high and the untapped magnitude is even higher. Mental health is frequently seen as a social taboo and it is not customary to seek professional help. Recent COVID-19 pandemic had caused a steep rise of mental health disorders and a nationwide study had revealed that, post pandemic prevalence of depression is 57.9%[7]. Unfortunately mental healthcare workforce is severely understuffed in Bangladesh. There is only 0.16 psychiatrist per 100,000 people[8]. Studies on depression among Bangladeshi medical students are scarce. Some researchers had found the prevalence of depression amidst undergraduate medical students were 39.1%[9] whereas others had found it to be 54%[10]. The current study was undertaken to investigate the proportion of depression among first year to fifth year medical college students along with intern doctors studying in a private medical institution in the southern region of Bangladesh. The features that set this study apart from the previous work are the female only study sample and inclusion of intern doctors.

Materials and Methods:

This was a cross-sectional observational study. The study was conducted in Ad-din Sakina Women's Medical College and Hospital with the permission of institutional review board. Total 150 students studying in different academic years of the Bachelor of Medicine and Bachelor of Surgery (MBBS) course and 27 intern doctors were enrolled as participants on non-probability sampling. The inclusion criteria were: 1) First year to fifth year graduate course medical students, 2) Intern doctors working in the same institute. The exclusion criteria were: 1) Known cases of diagnosed psychiatric disorder or currently on any psycoactive medication 2) Anyone with a chronic health condition. A small pilot study was done beforehand to assess the feasibility. Data were collected using Google form. The link was provided to 250 students and 40 interns with a return rate of 60% and 62.5% respectively. Basic background information like academic year, age group of participants were gathered. For the evaluation of depression, Patient Health Questionnaire (PHQ-9) was used. The PHQ-9 is a validated, commonly used, self-administered screening tool to assess the severity of depressive symptoms based on the nine diagnostic criteria for major depressive disorder (MDD) as outlined in the diagnostic and statistical manual of mental disorders, fifth edition (DSM-5). Four possible responses in each question is set in a likert scale and is scored from 0-3. A total score of ≥5 indicates mild, ≥10 moderate, ≥15 moderately severe and ≥20 severe depression and ≥4 indicates no depression. Statistical analysis was done using IBM statistical package for social science (SPSS) version 30. Data were represented as mean±SD and significance level was set at 0.05 or lower. ANOVA with post hoc Turkey test was performed to compare age group and academic years to the PHQ-9 total score. Chi-squared test was used to compare age group and academic groups to depression categories. Non-parametric Friedman test was performed to compare the response items in the likert scale of PHQ-9 questionnaire.

Results:

The total number of participants in the study was 177 (150 students and 27 intern doctors). First year students were the major bulk (23.7%) and third year respondants were the smallest in number (12.4%). The fourth year MBBS students had the highest mean PHQ-9 score among all (14.48±5.17), whereas third year had the lowest mean score (7.27±4.9).

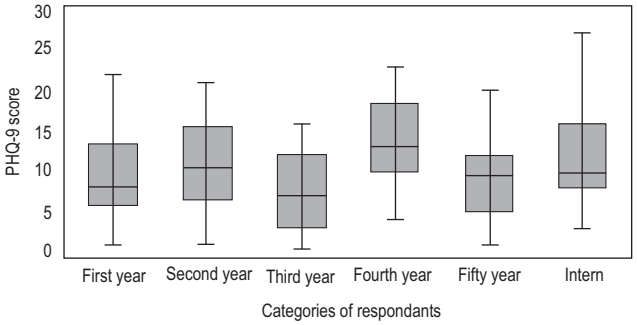

Figure1: *Mean PHQ-9 Score across different academic groups*

We had participants with age ranging from 18 to 24 and most of them fell into the 21-23 age group (59.3%). However, the highest PHQ-9 mean (11.66±5.9) was noted among the 24-26 age group (n=38).

Table I

PHQ-9 scores (mean±SD) in different academic years and age group

Academic year	Total participants	PHQ-9 score (mean±SD)
First year	42 (23.7%)	9.67±5.7
Second year	25 (14.1%)	10.4±6.3
Third year	22 (12.4%)	7.27±4.9
Fourth year	29 (16.4%)	14.48±5.17
Fifth year	32 (18.1%)	9.06±5.04
Intern doctors	27 (15.3%)	12.78±5.9
Age group		
18-20	34(19.2%)	8.53±5.77
21-23	105(59.3%)	10.93±6
24-26	38(21.4%)	11.66±5.9

In the current study, a staggering 151 (85.3%) respondents were found to have some sort of depression and 14.7% (n=26) had no depression. Despite the huge prevalence of depression, severe depression was found among 10.7% (n=19) participants.

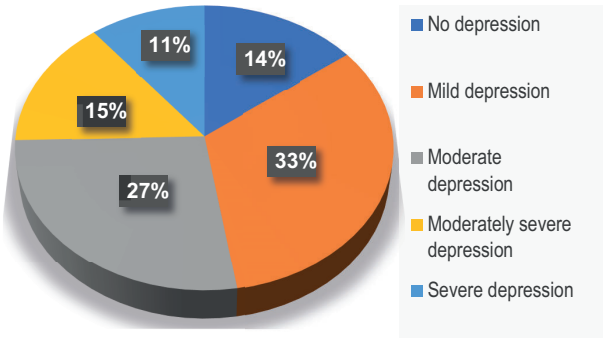

Figure 2: *Overall categories of depression among participants (rounded to the nearest complete figure)*

20.7% fourth year MBBS students were found to have severe depression while 31.8% second year students had no depression which are the highest proportion in each respective category. More than a third of the interns (37%) had mild depression and 14.8% had severe depression.

When the mean scored was compared across the academic years only fourth year versus first, third and fifth year was found to be ststitically significant.

Mild depression was the predominat finding among 18-20 years (41.2%) and 24-26 years (31.6%) old students. Whereas moderate depression (34.3%) was the dominant proportion among 21-23 years old category. The differences of different categories of depression among three age group was found to be statistically significant (P=0.022).

The mean PHQ-9 score of various academic groups was compared to see any statistically significant difference. The only meaningful contrast were found in first year against fourth year (P=0.007), third year against fourth year (P< 0.001) and fourth year against fifth year (P=0.003).

34.5% participants reported to suffer from "Feeling tired or having little energy" nearly every day. 55 students (31.1%) have reported to feel bad about themselves nearly everyday. A staggering 11.3% (n=20) respondants thought that, they would be better off dead, or of hurting themselves in some way, nearly every day. Friedman test was conducted to see whether certain depressive symptoms were more frequently reported at higher severity levels. Difference in response severity was found to be statistically significant ($p < 0.001$).

Table II. Distribution of depression prevalence across the academic years and age groups

	No depression	Mild depression	Moderate Depression	Moderately severe depression	Severe depression	Total
First year	6 (14.3%)	19 (45.2%)	9(21.4%)	6(14.3%)	2(4.8%)	42(100%)
Second year	5(20.0%)	9(36.0%)	4(16.0%)	3(12.0%)	4(16.0%)	25(100%)
Third year	7(31.8%)	7(31.8%)	5(22.7%)	2(9.1%)	1(4.5%)	22(100%)
Fourth year	1(3.4%)	3(10.3%)	12(41.4%)	7(24.1%)	6(20.7%)	29(100%)
Fifth year	6(18.8%)	10(31.3%)	13(40.6%)	1(3.1%)	2(6.3%)	32(100%)
Intern	1(3.7%)	10(37.0%)	5(18.5%)	7(25.9%)	4(14.8%)	27(100%)
Total	26(14.7%)	58(32.8%)	48(27.1%)	26(14.7%)	19(10.7%)	177(100%)
Age group 1(18-20 years)	10(29.4%)	14 (41.2%)	3(8.8%)	6(17.6%)	1(2.9%)	34(100%)
Age group 2(21-23 years)	12(11.4%)	32(30.5%)	36(34.3%)	12(11.4%)	13(12.4%)	105(100%)
Age group 3(24-26 years)	4(10.5%)	12(31.6%)	9(23.7%)	8(21.1%)	5(13.2%)	38(100%)

*Percentage indicates proportion within the category

Table III. Comaprison of mean PHQ 9 scores among different academic years

Year	Mean difference	95% CI		P value
		LB	UB	
1st vs 2nd	-.733	-4.83	3.37	.996
1st vs 3rd	2.394	-1.88	6.67	.589
1st vs 4th	-4.816	-8.73	-.90	.007
1st vs 5th	.604	-3.20	4.41	.997
1st vs Intern	-3.111	-7.11	.89	.225
2nd vs 3rd	3.127	-1.62	7.87	.406
2nd vs 4th	-4.083	-8.51	.35	.090
2nd vs 5th	1.338	-2.99	5.67	.949
2nd vs Intern	-2.378	-6.88	2.13	.651
3rd vs 4th	-7.210*	-11.80	-2.62	<.001
3rd vs 5th	-1.790	-6.28	2.71	.861
3rd vs Intern	-5.505*	-10.17	-.84	.011
4th vs 5th	5.420*	1.26	9.58	.003
4th vs Intern	1.705	-2.64	6.05	.867
5th vs Intern	-3.715	-7.96	.53	.123

In the category of nearly every day, the most refquently reported symtom was feeling tired or having little energy (34.5%), followed by negative self image (31.1%) and sleep disturbance (26%). Suicidal ideation or the thought of deliberate self harm was found among 11.3% participants. Thirty respondants (16.9%) had reported to have little interest or pleasure in doing things for more than half the days and 73 participants (41.2%) was feeling down, depressed or hopeless several days within the last two weeks of collecting data.

Discussion:

Our study aimed to explore the proportion and severity of depression based on the PHQ-9 scale among medical students as well as intern doctors. The number of published studies on this crucial issue in Bangladesh is limited. The results indicates that, the burden of depression is quite high among undergraduate medical students with an alarming frequency of suicidal ideation.

Overall, 85.3% had symptoms of depression. This finding is comparable with the Bangladeshi study[11] that reported the percentage to be 79.68% and also close to the studies done in Saudi Arabia (83.4%)[12] and in India (76.4%)[13] but higher than the study result of Nepal (5.5%)[14].

32.8% of our study participants had mild depression, 27.1% moderate depression, 14.7% moderately severe depression and 10.7% was found to have severe depression. These ratios are in alignment with the proportion of mild (27.8%) and moderate (29.3%) depression of an Indian study[15] but contradicts with their moderately severe (7.5%) and severe depression (6.7%). On the other hand, our moderately severe and severe depression percentage were comparable with a Saudi Arabian study[12] which reported similar moderately severe (15.9%) and severe depression (11.6%) prevalence in their study. This high rate of depressive symptoms among undergraduate medical students may be explained by two categories of stressors: extrinsic and intrinsic. Extrinsic drivers may include academic factors like a change of study language from predominantly Bangla (for most of the students) to English, a complete new set of vocabulary in medical studies, sheer load of tests and assignments, exposure to disease and death etc. Separation from family to stay on campus, sense of getting lost without a clear navigation, fear of failure, highly competitive environment, a moral urge of perfection in crafting the art, lack of sleep and physical activity, financial constrain and the dire consequence of not passing on time for many private medical college students can be listed as intrinsic stressor.

The years that had most participants suffering from severe depression were 4th year (20.7%), 2nd year (16%) and Internship year (14.8%). The year that suffered least from

severe depression is 3rd year (4.5%) followed by 1st year (4.8%) and 5th year (6.3%). Several other Bangladeshi studies[11,12] had also reported the highest prevalence among 4th year students but it was 1st year who suffered most in some other local study[16]. In an Egyptian study[17] most of the cases (60%) of depression was found among 1st and 4th year students. The prevalence of depression in our study was lowest among the third-year students (68.2%). This finding contradicts to an Indian study[18] that had revealed a opposite phenomenon of spiking of depression among the third-year students. In our study, only 3.7% Interns had no depression and a astounding 96.3% had some level of depression with 14.8% in the severe category. This finding is in congruence with the finding of a Lithuanian study[19] that had reported a prevalence of 100% if the PHQ-9 cut off of >5 for depression was used. Inter year mean score difference was only found to be significant in case of 4th year students against all batches except 2nd year. All of these evidence shows that, first year is understandably a high-risk year for many students as they embark a fresh journey into the unknown which tend to decrease over time, although the peak in 4th year doesn't fit with this model. During the data collection of the current study, 4th year students had to study three subjects in a year, as opposed to only 2 subjects in the same timeline during 3rd year. That can explain partially why we had the significant rise of depressive symptoms in 4th year.

The age group that was found to have the highest mean PHQ-9 score was 24-26 year. They also had the highest (13.2%) in group severe depression rate. This finding is comparable to the findings of several studies done on medical students[17,20] but contradicts to an Indian study[15] that had found that, 17–18-year age group suffered the most.

Our study was weakened by the non-random sampling method. It would be great to probe into the risk factors of such high percentage of depression among students. We hope that our study will lead to investigate the cause and effect of depression among medical students as well as intern doctors to help them out of this grim mental state.

Conclusion & recommendation:

Psychological aspect of health is still neglected in our country. Those who suffer from mental health problems are shy to open up for seeking help because of social stigma, fear of being judged and feeling of inadequacy to cope and overall lack of awareness of the monumental importance of professional aid. Just because they are silent, doesn't mean they are healthy. We sincerely believe that, every medical college should have tools and means to screen and diagnose clinical depression among its students. An open culture of sharing ones struggles without judgement, access to professional help and prioritization of mental health issue will hopefully bring the numbers of affected students down.

Authors Contribution:

Concept, design, data collection and analysis: ASMR, manuscript writing, review and approval: SA Psychologicla aspects of health remain neglected in Bangladesh, and limited awareness inhibit help seeking among those with mental health problems. Medical colleges should consider implementing regular screening for depressive symptoms creating a non-judgmental environmental for showing psychological distress, and ensuring access to professional mental health service for students and interns.

Conflict of interest: None

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