

## Original Research Article

# Is depression a concern among medical students: a cross sectional study in different academic years of a private medical college in Bangladesh

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## ABSTRACT

**Background:** Depression is not uncommon among medical students all over the world. Few studies have been conducted so far in Bangladesh to depict its actual prevalence and severity. So, the aim of this study was to assess the severity of depression and the level of difficulty faced by medical students in different academic years.

**Methods:** This cross-sectional study was conducted in North East medical college of Bangladesh from January 2018 to June 2018 involving 443 students from 1st year to 5th year. Students were instructed to fill up the patient health questionnaire (PHQ-9) which incorporates diagnostic and statistical manual of mental disorders (DSM-IV) depression diagnostic criteria categorized as no, mild, moderate, moderately severe, and severe depression and also evaluates their level of function.

**Results:** The prevalence of depression was quite high (79.68%). 196 (44.24%) and 157 (35.44%) students had mild and major depression respectively, while 90 (20.32%) showed no depression. Students with major depression were scored as moderate depression 24.38%, moderately severe depression 8.35%, and severe depression 2.71%. Moderate depression was significantly higher in year 1 and year 2 students in comparison to year 3, 4 and 5. Students from year 1 to year 5 with mild, moderate, moderately severe and severe depression experienced varying degree of difficulty in their daily activities. Almost all the students in all years with severe depression found themselves very difficult or extremely difficult to cope.

**Conclusions:** High prevalence of depression among medical students is really alarming and underlying factors need to be addressed.

**Keywords:** Bangladesh, Depression, Medical college, Medical students, Patient health questionnaire-9

## INTRODUCTION

Depression among medical students is becoming increasingly common and a crucial problem worldwide and has affected their level of function significantly.<sup>1</sup> Various studies have been conducted so far at different parts of the world to report the prevalence, severity and confounding factors responsible for depression. The prevalence of depression among medical students varied from 15% to 65%.<sup>2</sup>

Though academic stress factor is being considered as one of the most important risk factors for depression, there are other factors such as, socio demographic factors, might be responsible for this.<sup>3</sup>

In Bangladesh, we too encounter depression among medical students, but very few studies have been done to delineate the issues. While one study revealed the cumulative depression rate was 39%, another one found 81% only among 1st year students.<sup>4,5</sup> So, more studies

need to be undertaken to determine the prevalence and identify the responsible factors so that students can be quickly screened, assessed and dealt accordingly to avoid short and long term consequences.

So, the objective of this study was to determine the prevalence, assess the severity of depression and the level of difficulty faced by medical students in different academic years.

## METHODS

This cross sectional study was conducted in North East Medical College, Sylhet from January 2018 to June 2018 involving 443 students from 1<sup>st</sup> year to 5<sup>th</sup> year after explaining to them the purpose of the study and taking informed written consent. Anyone unwilling to participate, suffering from any chronic disease, and normal bereavement were excluded from the study. Ethical clearance was taken from the institution's ethical clearance committee before the study.

The study was conducted using the patient health questionnaire-9 (PHQ-9) which incorporates diagnostic and statistical manual of mental disorders-IV (DSM-IV) depression diagnostic criteria, is a multipurpose instrument for screening, diagnosing, monitoring and measuring the severity of depression along with socio demographic factors. PHQ-9 scoring system categorized depression as no (score: 0-4), mild (score: 5-9), moderate (score: 10-14), moderately severe (score: 15-19) and severe (score >20). A follow up non scored question on the PHQ-9 screens assesses the degree to which depressive problems have affected the level of function and endorsed as not difficult at all or somewhat difficult or very difficult or extremely difficult. Data were processed and analyzed by using Statistical Package for the Social Sciences (SPSS) statistical software version 20 employing appropriate statistical tests.

## RESULTS

Among 443 students, 1st year students comprised of 111 (25.06%), 2nd year 126 (28.44%), 3rd year 66 (14.90%), 4<sup>th</sup> year 47 (10.61%), and 5th year 93 (20.99%). Mean age of students was 22±3.12 years. Male students (68.62%) were more than twice than that of female (31.37%). Native students outnumbered (70.20%) compared to their foreign counterpart (29.80%). Majority of students lived in college dormitory and were unmarried. Very little percentage of students smoked and consumed alcohol (Table 1).

Among all students, majority (45.45%) of year 3 and only 8.51% of year 4 students had no depression, while similar percentage of year 1, 2 and 5 students had no depression. Most of the students of year 1, 2, 4 and 5 suffered from mild depression. Moderate depression was highest (31.74%) among year 2 students followed by year 1 (27%). 17.02% and 6.38% of year 4 students experienced moderately severe depression and severe depression

respectively in comparison to 8.60% and 4.30% for year 5 students (Table 2).

**Table 1: Socio demographic characteristics.**

	Number (%)
<b>Age (years)</b>	22 ±3.12 (mean±SD)
<b>Gender</b>	304 (68.62)
Male	111 (100)
Female	139 (31.38)
<b>Nationality</b>	
Bangladeshi	311 (70.20)
Foreigner	132 (29.80)
<b>Academic year</b>	
Year 1	111 (25.06)
Year 2	126 (28.44)
Year 3	66 (14.90)
Year 4	47 (10.61)
Year 5	93 (20.99)
<b>Living condition</b>	
With family	103 (23.25)
College dormitory	340 (76.75)
<b>Marital status</b>	
Single	424 (95.71)
Married	19 (4.29)
<b>Smoking habit</b>	
Smoker	77 (17.38)
Non-smoker	366 (82.62)
<b>Alcohol consumption</b>	
Yes	53 (11.96)
No	390 (88.04)

Among all, students scored as no depression 90 (20.32%), mild depression 196 (44.24%), moderate depression 108 (24.38%), moderately severe depression 37 (8.35%), and severe depression 12 (2.71%) (Figure 1). Most of the year 1 students with no, mild, moderate and moderately severe depression experienced somewhat difficulty in their daily function. All 3 (100%) students with severe depression found it very difficult to cope compared to 45.45% of moderately severe depression (Table 3).

Though most of the students in year 2 with mild and moderate depression showed somewhat difficulty in their activities, very few percentages (3.45%) of mildly depressed and 15% of moderately depressed students felt very difficult to deal with. A significant percentage (28.57%) of moderately severe depressed students found it extremely difficult to cope in comparison to 100% of severely depressed students (Table 4).

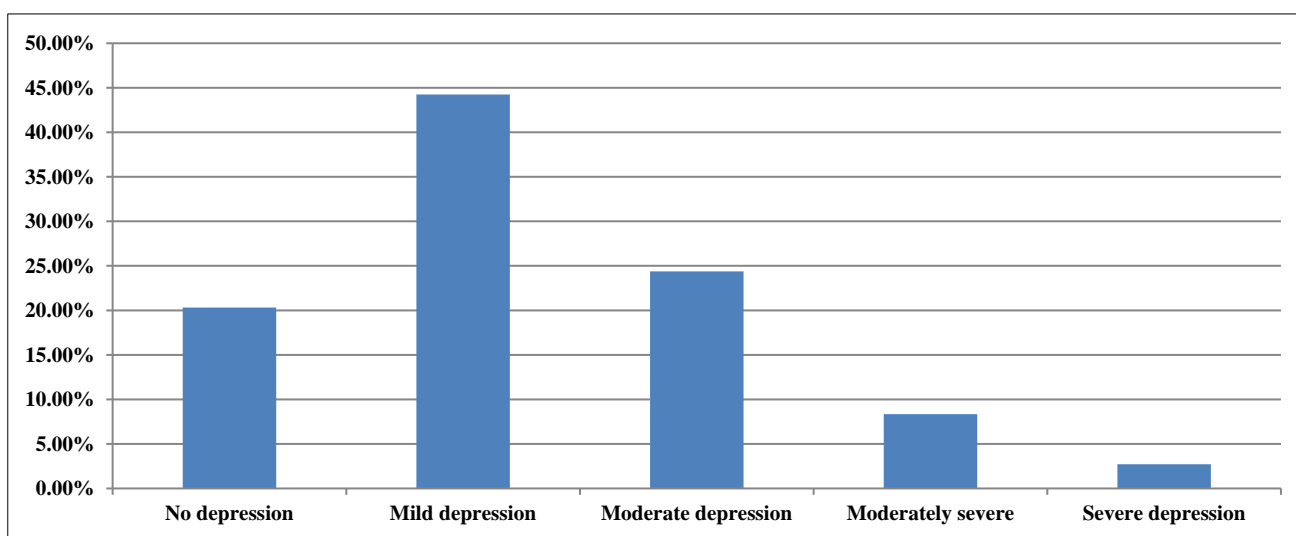
In year 3, most of the students (52.18%) with mild depression experienced somewhat difficulty in daily activities while only 13.04% found it very difficult. All (100%) students with moderate and severe depression faced somewhat difficult and extremely difficult respectively. On the other hand, moderately severe depressed students felt very difficult and extremely

difficult in their daily activities (Table 5). In year 4, 50% of students faced somewhat difficulty in their activities though they suffered no depression. While most of the students with mild, moderate and moderately severe depression faced somewhat difficulty, severely depressed

pupils found it very difficult (Table 6). Maximum percentage of year 5 students experienced somewhat difficult level just like year 4. While 50% of severely depressed students felt very difficult, half of them found extreme difficulty to cope with the activities (Table 7).

**Table 2: Severity of depression using PHQ-9 score among students.**

Depression severity with PHQ-9 score	Year 1 (111) No. (%)	Year 2 (126) No. (%)	Year 3 (66) No. (%)	Year 4 (47) No. (%)	Year 5 (93) No. (%)
<b>No depression score 0-4</b>	17 (15.32)	20 (15.87)	30 (45.45)	4 (8.51)	19 (20.43)
<b>Mild depression score 5-9</b>	50 (45.04)	58 (46.03)	23 (34.85)	22 (46.81)	43 (46.24)
<b>Moderate depression score 10-14</b>	30 (27.03)	40 (31.75)	9 (13.64)	10 (21.28)	19 (20.43)
<b>Moderately severe depression score 15-19</b>	11 (9.91)	7 (5.56)	3 (4.55)	8 (17.02)	8 (8.60)
<b>Severe depression score &gt;20</b>	3 (2.70)	1 (0.79)	1 (1.51)	3 (6.38)	4 (4.30)



**Figure 1: Overall severity of depression among students.**

**Table 3: Level of difficulty faced by year 1.**

Depression severity (n=111)	Not difficult at all (%)	Somewhat difficult (%)	Very difficult (%)	Extremely difficult (%)
<b>No depression (n=17)</b>	6 (35.29)	11 (64.70)	-	-
<b>Mild depression (n=50)</b>	8 (16)	39 (78)	3 (6)	-
<b>Moderate depression (n=30)</b>	2 (6.66)	21 (70)	6 (20)	3 (3.33)
<b>Moderately severe depression (n=11)</b>	-	6 (54.54)	5 (45.45)	-
<b>Severe depression (n=3)</b>	-	-	3 (100)	-

**Table 4: Level of difficulty faced by year 2.**

Depression severity (n=126)	Not difficult at all (%)	Somewhat difficult (%)	Very difficult (%)	Extremely difficult (%)
<b>No depression (n=20)</b>	15 (75)	5 (25)	-	-
<b>Mild depression (n=58)</b>	11 (18.97)	45 (77.58)	2 (3.45)	-
<b>Moderate depression (n=40)</b>	3 (7.5)	31 (77.5)	6 (15)	-
<b>Moderately severe depression (n=7)</b>	-	3 (42.86)	2 (28.57)	2 (28.57)
<b>Severe depression (n=1)</b>	-	-	-	1 (100)

**Table 5: Level of difficulty faced by year 3.**

Depression severity (n=66)	Not difficult at all (%)	Somewhat difficult (%)	Very difficult (%)	Extremely difficult (%)
No depression (n=30)	18 (60)	12 (40)	-	-
Mild depression (n=23)	8 (34.78)	12 (52.18)	3 (13.04)	-
Moderate depression (n=9)	-	9 (100)	-	-
Moderately severe depression (n=3)	-	-	2 (66.67)	1 (33.33)
Severe depression (n=1)	-	-	-	1 (100)

**Table 6: Level of difficulty faced by year 4.**

Depression severity (n=47)	Not difficult at all (%)	Somewhat difficult (%)	Very difficult (%)	Extremely difficult (%)
No depression (n=4)	2 (50)	2 (50)	-	-
Mild depression (n=22)	4 (18.18)	15 (68.18)	3 (13.64)	-
Moderate depression (n=10)	-	8 (80)	2 (20)	-
Moderately severe depression (n=8)	-	6 (75)	1 (12.50)	1 (12.50)
Severe depression (n=3)	-	1 (33.33)	2 (66.67)	-

**Table 7: Level of difficulty faced by year 5.**

Depression severity (n=93)	Not difficult at all (%)	Somewhat difficult (%)	Very difficult (%)	Extremely difficult (%)
No depression (n=19)	11 (57.89)	6 (31.58)	2 (10.53)	-
Mild depression (n=43)	19 (44.19)	23 (53.49)	1 (2.32)	-
Moderate depression (n=19)	3 (15.79)	12 (63.16)	4 (21.05)	-
Moderately severe depression (n=8)	-	5 (62.50)	3 (37.50)	-
Severe depression (n=4)	-	1 (25)	2 (50)	1 (25)

## DISCUSSION

In our study, male students (68.62%) were more than twice than that of female (31.37%). However, while Dahlin reported significant association with the female gender, other studies showed marginal increase in depression in female students.<sup>6,7</sup> Majority of students in this study were single, living in dormitory, non-smoker and non-alcoholic. A Saudi Arabian study found no difference in frequency of reporting depressive symptoms and the state of the marital status of the student (single or married).<sup>7</sup> In our study, 196 (44.24%) and 157 (35.44%) students had mild and major depression respectively, while 90 (20.32%) showed no depression. The prevalence of depression was quite high (79.68%), which is comparable to a Saudi Arabian study reporting depressive symptoms in 83.4% students.<sup>7</sup> In contrast, a study conducted in Bangladesh in 2013 by Hasan et al reported that the prevalence of depression was 39%.<sup>4</sup> Another study conducted in Poland showed that medical students with depression did not reach 60%.<sup>8</sup> In a study, conducted in Cameroon, the prevalence of depression was 30.6%, while in Nigeria, it was 23.3%.<sup>9,10</sup> A systematic review conducted outside North America showed variable prevalence between 6 and 66.5%.<sup>11</sup> This study found no depression in 20.32% of students. Students were categorized as mild depression 44.24%, moderate

depression 24.38%, moderately severe depression 8.35%, and severe depression 2.71%. In contrast, a study done in Cameroon revealed 34.8% as no depression, 34.6% as mild, 26.4% as moderate, 3.4% as moderately severe and 0.8% as severe depression.<sup>9</sup> Another study by Kumar reported 29.8% of students as no depression, 27.8% as mild, 29.3% as moderate, 7.5% as moderately severe, and 6.7% as severe depression.<sup>12</sup> Our study findings regarding moderately severe (8.35%) and severe (2.71%) contradict with a Saudi Arabian study which showed 15.9% and 11.6% as moderately severe and severe depression respectively.<sup>7</sup> We found mild depression prevailing at around 45% in students of all years. Moderate depression was significantly higher in year 1 and year 2 students in comparison to year 3, 4 and 5 which had similarity with two Indian studies.<sup>13,14</sup> Similarly, Alim et al found high prevalence of depression among 1st year students in a public medical college in Bangladesh.<sup>5</sup> On the contrary, highest percentage of students of year 4 (17.02%) and year 5 (6.38%) suffered from moderately severe and severe depression respectively in our study which was partially consistent with the result of Kumar.<sup>12</sup> Another Indian study found decreasing depression from year 1 to year 5 with the exception of a rise in year 3 which does not correlate with our study.<sup>15</sup> Two United Kingdom (UK) studies revealed that 37%, 31%, and 22% suffered from various degree of depression in year 1, year 4 and year 5 respectively.<sup>16,17</sup>

Another study involving year 1 students from UK reported doubling of depression from 25% to 52% over from the beginning of year 1 to the beginning of year 2.<sup>18</sup> A similar finding was observed in a study from Turkey in relation to year 1 students.<sup>19</sup> There are other studies with same findings. A Pakistani study found higher depression rates among students of earlier years.<sup>20</sup> Likewise, Puthran et al reported decreasing rate of depression in later years of medical course.<sup>21</sup> In this study, students from year 1 to year 5 with mild, moderate, moderately severe and severe depression experienced varying degree of difficulty in their daily activities. Almost all the students in all years with severe depression found themselves very difficult or extremely difficult to cope. A study from Norway found high prevalence of suicidal thoughts among senior students.<sup>22</sup>

Limitation of this study were the authors did not work on various etiological factors responsible for depression. They used PHQ-9 DSM IV depression criteria which might be a reason for getting high prevalence rate, because different study involves different diagnostic tools. Though the study did not address suicidal ideation, they assessed the students' overall difficulty of activity level.

## CONCLUSION

Overall prevalence of depression is quite high in our study. 1<sup>st</sup> and 2<sup>nd</sup> year students' experienced moderate depression much more than those of senior years. 4<sup>th</sup> year students suffered from severe depression most followed by 5<sup>th</sup> year. More studies need to be undertaken in both public and private medical colleges to compare the prevalence and to find out the underlying factors which will definitely benefit the students and medical education legislators in pursuing effective medical education. This study highlights the importance of psychiatric evaluation of students who had increased depression severity.

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