## Original article

# Depression, anxiety and stress among first year medical students in Sylhet division

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**Summary**

Young adulthood is an identity-forming period in which individuals experience social and physical changes as well as conflicts in emotional, behavioral, sexual, economic, academic and social areas. High expectation, burden of vast syllabus, high level of competition, lack of recreational activities, lack of peer support, staying away from home, long working and study hours, sleep deprivation, as well as factors interfering in everyday personal life are common during medical life. So it's no surprise that, medical students experience high rates of psychological morbidity when compared with students in other disciplines. Objectives of this study was to assess depression, anxiety and stress among 1st year medical students in Sylhet division and find out other correlates. This was a cross sectional study conducted in July 2022 to December 2022 in all the medical colleges of Sylhet division. Among all the students 563 students were consecutively selected as sample; among which 546 retained as sample. A predesigned semi structured questionnaire and Depression Anxiety Stress Scale 21 (DASS 21) were tools for the study. The results showed that, majority of the students were female 338 (62%). Among the participants, 73.8% of students hailed from an urban area, 67.6% students lived in various hostels and 73.1% lived in own home during 12th grade. Most (54.3%) of the students were from government medical college, 80% came from nuclear family, 26.9% reported over protective family, 8.6% had family history of psychiatric illness and 1.6% had illicit drug use history. 28.9% had depression, 37.5% had anxiety and 12.5% had stress. Significant amount of them had overlapping symptoms and 45 (10.45%) of them had all three psychological domains (anxiety, depression and stress). Majority had moderate level of anxiety 97 (17.8%) whereas mild depression and stress were found in 16.7% and 9.5% respectively. Depression was significantly associated with sex (p=0.040), anxiety was significantly associated with habitant (p=0.019), residential place (p=0.037) and residence in 12th grade (p=0.028). Stress was significantly associated with sex (p=0.008). Overprotective family and positive family history of psychiatric illness were significantly associated with depression, anxiety and stress (p=0.005, 0.000, 0.000 and p=0.004, 0.002, 0.002 respectively). This study highlighted importance to look after mental health of students' from early medical life, which could ensure future productive doctor and patient satisfaction.

## Introduction

Young adulthood is an identity-forming period in which individuals experience social and physical changes, as well as conflicts in emotional, behavioral, sexual, economic, academic, and social areas.[1] So it's not a surprise that a good number of mental health issues surface in adolescent and young adulthood period. Since long, being a doctor has been considered a highly desirable profession in the Bangladeshi society because of its economic security, social status and future establishment. As a result, even before starting the walk to the path of being a future doctor, medical students face stress, uncertainty and often feel a sense of apprehension. On top of it, medical school itself is recognized as a stressful environment that often has a negative effect on students' physical health, and psychosocial well-being.[2] The students experience the burden of vast syllabus, high level of competition, lack of recreational activities, lack of peer support, staying away from home and inability to cope with the high expectations of parents after joining the course. Long

working and study hours, sleep deprivation, as well as factors interfering in everyday personal life are common during this period. So it's no surprise that, it was commonly observed that medical students experienced high rates of psychological morbidity when compared with students in other disciplines.[3,4]

Several studies reported higher prevalence of psychological problems such as stress, anxiety, and depression among medical students than in general population & to their same age peer group.[5,6] In Europe, around 30% of medical students suffered from depression or anxiety[7] a rate similar to that reported by Brazilian studies, in which 20 to 50% of medical students were found to present with mood disorders.[8] It had been reported that 25-75% of medical students suffered various degrees of stress during their medical education.[9] Medical school depression, anxiety and stress could possibly lead to decreased life satisfaction, poorer academic performance, declining empathy and compassion, substance abuse and suicidal ideation.[10,11] Failure to detect the psychological disorders among medical students might leads to increased mental illness morbidity with undesired effects throughout their careers and lives.[11]

Early detection of such problems shortens the duration of the episode and lessens the social impairment in the long term.[12] It was thus important to identify the prevalence of depression, anxiety and stress along with other associated factors among medical students. So the objectives of this study was to assess depression, anxiety and stress among 1st year medical students in Sylhet division and find out other correlates. Study like this would put more emphasis on mental health aspect of future doctors and would hopefully bring about policy changes integrating more student friendly, appropriate measures.

**Materials and methods**

This was a cross sectional study conducted from July 2022 to December 2022 among the 1st year medical students of 7 medical colleges (3 government and 4 private) in Sylhet division just at the beginning of their curriculum. In consecutive sampling technique, students were selected as sample. Among all the students 563 students were consecutively selected as sample; among which 546 retained as sample. Students filled up pre designed, pretested semi structured questionnaire including socio demographic and other related variables. They were informed about the anonymous and voluntary nature of participation in the study without any undue fear, stigma or adverse documentation prior hand. A previously validated and standardized survey instrument, Depression Anxiety Stress Scale (DASS 21) Bangla version, was used to collect information on depression, anxiety and stress. The tool was easy to apply in both clinical and nonclinical settings and suitable for use in different age groups including medical students. DASS (21 item) is a short scale that allows simultaneous assessment of the three emotional states of depression, anxiety, and stress and

each domain contains 7 items, divided into subscales with similar content. The depression scale assesses dysphoria, hopelessness, devaluation of life, self deprecation, lack of interest/involvement, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic nonspecific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over reactive, and impatient. Respondents were asked to document on a 4 point severity/frequency scales to rate the extent to which they have experienced each state over the past week. The scale is as follows: did not apply to me at all=0; applied to me to some degree or some of the time=1; applied to me to a considerable degree or a good part of time=2; and applied to me very much or most of the time=3. Scores for depression, anxiety and stress were calculated by summing the scores for the relevant items and analyzed as per guidelines. The data were analyzed using statistical package for the social sciences 25 (SPSS 25). Descriptive statistics were expressed as frequency and percentages whereas chi-square test were carried out to find association between qualitative variables while student t test was used to compare means.

**Results**

Total 563 students participated in our study. The results showed that, 546 were retained for analysis and rest discarded due to improperly or faulty filling up of questionnaire. Those who participated, majority were female 338 (62%) (Figure 1). Mean age of the participants was 19.07±.68 (range 18-21 years). Majority of them were Muslim 443 (81.1%), came from urban area 403 (73.8%), currently living in government Hostel 249 (45.6%) although during their 12th grade study, majority of them were studying from their own home 399 (73.1%). Among the participants, 54.3% were from government medical colleges, 80% of participant came from nuclear family and 47 of them had positive family history of a psychiatric disorder (Table 2).
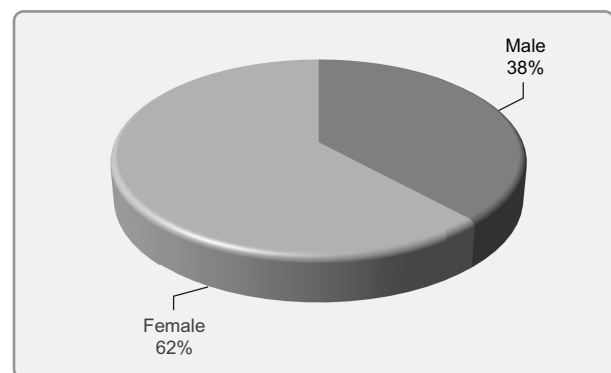


**Figure 1: Sex of the participants (n=546)**

**Table 1: Socio-demographic variables of the students (n=546)**

| Variables | Frequency | Percentage |
|---|---|---|
| **Religion** | | |
| Muslim | 443 | 81.0 |
| Hindu | 98 | 18.0 |
| Christian | 2 | 0.4 |
| Buddhist | 2 | 0.4 |
| others | 1 | 0.2 |
| **Habitant** | | |
| Urban | 403 | 73.8 |
| Rural | 143 | 26.2 |
| **Residential place** | | |
| Government hostel | 249 | 45.6 |
| Private hostel | 120 | 22.0 |
| Own home | 147 | 26.9 |
| others | 30 | 5.5 |
| **Residence during 12th grade** | | |
| Government hostel | 25 | 4.6 |
| Private hostel | 89 | 16.3 |
| Own home | 399 | 73.1 |
| others | 33 | 6.0 |
| **Occupation of father** | | |
| Service | 215 | 39.4 |
| Business | 178 | 32.6 |
| Farmer | 4 | 0.7 |
| Doctor | 85 | 15.6 |
| Teacher | 38 | 6.9 |
| others | 26 | 4.8 |
| **Family income (in Bangladeshi taka)** | | |
| <10000 | 48 | 8.8 |
| 10000-30000 | 136 | 24.9 |
| 30000-50000 | 184 | 33.7 |
| >50000 | 178 | 32.6 |

**Table 2: Other related factors associated with first year medical students (n=546)**

| Variables | Frequency | percentage |
|---|---|---|
| **Family type** | | |
| Nuclear | 437 | 80.0 |
| Joint | 109 | 20.0 |
| **Overprotected family** | | |
| Yes | 146 | 26.9 |
| No | 400 | 73.1 |
| **Family history of psychiatric illness** | | |
| Yes | 47 | 8.6 |
| No | 499 | 91.4 |
| **Illicit drug intake** | | |
| Yes | 9 | 1.6 |
| No | 537 | 98.4 |
| **Faculty** | | |
| Government | 297 | 54.4 |
| Private | 249 | 45.6 |
| **Mean merit score** | 69.17 (10.48) | |

With regard to the prevalence of depression, anxiety and stress, as assessed by the DASS-21; 28.9% had depression, 37.5% had anxiety and 12.5% had stress. Significant amount of them had overlapping symptoms and 45 (10.45%) of them had all three psychological domains (anxiety, depression and stress) (Figure 2).
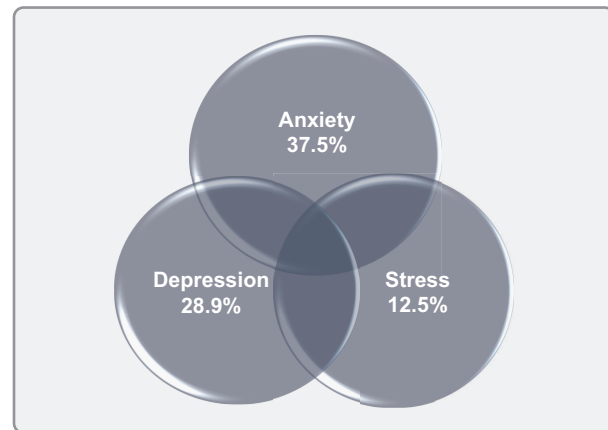


**Figure 2: Proportion of anxiety, stress and depression (n=546)**

Mild, moderate, severe and extremely severe level of anxiety was noted in 64 (11.7%), 97 (17.8%), 40 (7.3%) and 3 (0.5%) students respectively. In depression and stress subscale, majority of the students were mildly depressed 91 (16.7%) and stressed 52 (9.5%) although number of students suffering from moderate symptoms were also notable as depression 11.4%; stress 2.4% (Table 3).

**Table 3: Distribution of study subjects according to subcategories under psychological traits (n=546)**

| Symptom severity | Frequency | Percentage |
|---|---|---|
| **Anxiety** | | |
| Mild | 64 | 11.7 |
| Moderate | 97 | 17.8 |
| Severe | 40 | 7.3 |
| Extremely severe | 3 | 0.5 |
| **Depression** | | |
| Mild | 91 | 16.7 |
| Moderate | 62 | 11.4 |
| Severe | 6 | 1.1 |
| Extremely severe | 0 | 0.0 |
| **Stress** | | |
| Mild | 52 | 9.5 |
| Moderate | 13 | 2.4 |
| Severe | 2 | 0.4 |
| Extremely severe | 0 | 0.0 |

Depression was significantly associated with sex (p=0.040), anxiety with habitant (p=0.019), residential place (p=0.037), residence in 12th grade (p=0.028) whereas stress was significantly associated with sex (p=0.008) (Table 4). Other factors that were associated with depression, anxiety and stress were overprotective family (p=0.005, 0.000 and 0.000) and positive family history of psychiatric illness (p=0.004, 0.002 and 0.002) (Table 5).

**Table 4: Socio demographic data and their association with depression, anxiety and stress (n=546)**

| Variables | Anxiety | | Depression | | Stress | | p value |
|---|---|---|---|---|---|---|---|
| | Yes | No | Yes | No | Yes | No | |
| **Sex** | | | | | | | |
| Male | 74 | 134 | 50 | 158 | 16 | 192 | .456, .040,* .008* |
| Female | 131 | 207 | 109 | 229 | 52 | 286 | |
| **Religion** | | | | | | | |
| Muslim | 169 | 274 | 126 | 317 | 57 | 386 | .782, .721, .876 |
| Hindu | 35 | 65 | 32 | 66 | 11 | 87 | |
| Christian | 0 | 2 | 0 | 2 | 0 | 2 | |
| Buddhist | 1 | 1 | 0 | 2 | 0 | 2 | |
| Others | 0 | 1 | 0 | 1 | 0 | 1 | |
| **Habitant** | | | | | | | |
| Urban | 163 | 240 | 123 | 280 | 54 | 349 | .019,* .227, .261 |
| Rural | 42 | 101 | 36 | 107 | 14 | 129 | |
| Residential place | | | | | | | |
| Government hostel | 92 | 157 | 76 | 173 | 37 | 212 | .037,* .579, .163 |
| Private hostel | 34 | 86 | 29 | 91 | 9 | 111 | |
| Own home | 67 | 80 | 44 | 103 | 20 | 127 | |
| Others | 12 | 18 | 10 | 20 | 2 | 28 | |
| **Residence in 12th grade** | | | | | | | |
| Government hostel | 6 | 19 | 5 | 20 | 1 | 24 | .028,* .397, .237 |
| Private hostel | 23 | 66 | 22 | 67 | 9 | 80 | |
| Own home | 162 | 237 | 124 | 275 | 56 | 343 | |
| Others | 14 | 19 | 8 | 25 | 2 | 31 | |
| **Occupation of father** | | | | | | | |
| Service | 76 | 139 | 57 | 158 | 20 | 195 | .330, .272, .219 |
| Business | 71 | 107 | 52 | 126 | 28 | 150 | |
| Farmer | 2 | 2 | 1 | 3 | 0 | 4 | |
| Doctor | 33 | 52 | 29 | 56 | 10 | 75 | |
| Teacher | 8 | 30 | 11 | 27 | 6 | 32 | |
| Others | 8 | 18 | 9 | 17 | 4 | 22 | |

*p<0.05

**Table 5: Other factors and their association with depression, anxiety and stress (n=546)**

| Factors | Anxiety | | Depression | | Stress | | p value |
|---|---|---|---|---|---|---|---|
| | Yes | No | Yes | No | Yes | No | |
| **Household composition** | | | | | | | |
| Nuclear | 170 | 267 | 131 | 306 | 55 | 382 | .190, .378, .852 |
| Joint | 35 | 74 | 28 | 81 | 13 | 96 | |
| **Illicit drug intake** | | | | | | | |
| Yes | 3 | 6 | 0 | 9 | 0 | 9 | .714, .123, .485 |
| No | 0 | 537 | 159 | 378 | 0 | 537 | |
| **Overprotective family** | | | | | | | |
| Yes | 76 | 70 | 62 | 84 | 38 | 108 | .000,* .005,* .000* |
| No | 129 | 271 | 97 | 303 | 30 | 370 | |
| **Family history of psychiatric illness** | | | | | | | |
| Yes | 29 | 18 | 24 | 23 | 14 | 33 | .002,* .004,* .002 |
| No | 176 | 323 | 136 | 363 | 54 | 445 | |

*p<0.05

## Discussion

In our study female student were more than the male student (62% versus 38%). Research in various countries revealed that there were more female medical students than male students.[13,14] Female suffered from more depression, anxiety and stress than male students (32.24% versus 24%, 38.75% versus 35.57%,15.38% versus 7.69%) and sex was significantly associated with presence of depression and stress. Similar

result was replicated by other studies where stress was associated with sex while depression and anxiety was not.[15-20] Some authors didn't find any association between gender and depression, anxiety or stress.[18,21,22] Religion, occupation of father, family type or illicit drug use was not significantly associated with depression anxiety and stress. Findings of some studies replicated similar result where Jose et al. reported significant association between family type and depression, anxiety but not with stress.[20,22-5] Khan et al.,[20] Ameer et al.[23] and Zyl et al.,[26] described significant association between illicit drug usage with anxiety, depression and stress while Alvi et al.[1] did not find any significant association.

Socio-cultural and religious negative attitude towards illicit substance use and not defining substance name individually might have resulted in very low number of reported illicit substance use cases in both our study and that of Pakistan; resulting in no significant association between anxiety, depression and stress with it. Habitant, residential place, residential place during 12th grade were significantly associated with anxiety but not with depression and stress. In a study, 67.58% of students' live in various hostels and Alvi et al.[1] found more anxiety and stress among those who lives in hostel than those living in own home. In our study 73% students used to live in their own home during 12th grade and moving away from home, new social situation and financial stressor might be responsible for anxiety in those living in hostel as reported by Eisenberg et al.[27] Those who had a positive family history had significant risk of developing depression, anxiety and stress as reported by other authors.[18,28,29] Overprotective family, described as parents tendency to shelter, buffer and manipulate their child was significantly associated with depression, anxiety and stress. Hudson et al.[30] described overprotective family as independent predictor for child's future psychopathology; so its no surprise that overprotective family was significantly associated with depression, anxiety and stress.

In our current study depression, anxiety and stress was found in 28.9%, 37.5% and 12.5% respectively. It was an well established fact that medical students' various vulnerabilities and psychological stressors associated with medical education could impact psychological state and quality of life.[31] These students had not yet started their academic activities properly yet a large number of them had various psychological symptoms which indicate various others factor might be at play here. Depression rate was similar to that of, India (25%),[32] Nepal (29.90%),[21] Denmark (30.50%),[7] Estonia (30.60%)[33]; higher than Sweden 12.90%[5] and lower than Pakistan (51%),[34,35] Syria 60.60%,[36] Malayasia 60.20%[37] and Iran 51%[38]. Similar rate of anxiety and stress had been reported by other authors[4,13,15] while some reported significant higher

rates.[18,25,39] Difference in methodology, socio-cultural context and academic environment might have contributed to the difference in result. Majority of students had moderate anxiety (17.8%), mild depression and stress (16.7% and 9.5%). Similar predominance of symptoms were reported by others[2,40,41] while Farhangi et al.[42] and Alim et al.[18] reported predominant moderate symptoms in all three domain and Melaku et al.[39] reported extremely severe symptoms predominance. About 10.45% had all three psychopathologies which restate view of Rana et al.[15] who showed strong correlation between all three symptom score. Although administering a self-rated questionnaire like DASS-21 had possibility of intentionally inaccurate responses from the responders also known as social desirability bias; large number of participants, consecutive sampling and excluding faulty reports largely negate such issue. Moreover this study was consistent with findings round the world which raised the issue of periodic screening of the medical students, availability of proper counselling, support and treatment, provision of recreational activities and more importantly giving emphasis on mental health from the first day of medical life of students.

## Conclusion

Medical students are the future doctors on whom the health care system of a country rests. Carrying such a burden is no easy job specifically if someone is already burdened with depression, anxiety and stress. To ensure future doctors' proper contribution to the society their mental health should be looked after. This was a land mark study exploring all the medical college of a whole division with a large sample size. Findings of this study would hopefully create awareness among students, teachers and all relevant stakeholders alike; putting focus on mental health and create an atmosphere where students could thrive both academically and mentally.

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