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Original Research Article

Evaluation of undergraduate medical students at a government medical college in Patna (Bihar), for depression and related factors - a cross-sectional study

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ABSTRACT

Background: Medical curriculum can be both mentally and physically taxing. While depression can strike anyone at any time, research has shown that medical students experience depression at a higher rate than their age-matched peers. The lack of mental health screening regimes for students significantly contribute to the paucity of information regarding their mental wellness and necessitates conduction of studies for their mental health evaluation.
Methods: A cross-sectional study was conducted in a government medical college and undergraduate students were screened using the 9-item patient health questionnaire (PHQ-9) and a structured questionnaire, for depression and its associated factors respectively. A cut-off score of 10 was used to define depression in this study at which respondents were most likely to meet diagnostic and statistical manual of mental disorders, 4th edition (DSM IV) criteria for major depressive disorder (likelihood ratio ≥7.1).
Results: A total of 368 students responded to the survey questionnaire. 49.4% (124/251) male and 44.4% (52/117) female students had a score ≥10. There was a 47.8% (176/368) prevalence of depression indicating additional clinical evaluation. As the year of MBBS study increased, the number of depressed students increased; with a significant association between them. Risk factors such as stress due to impending PG entrance exams, body image dissatisfaction (BID) and insufficient time for leisure activities had significant association with depression. An alarming 70.1% (258/368) of the students screened expressed reluctance to seek mental health care services.
Conclusions: Regular evaluations, awareness campaigns and student counsellors could be of great assistance to students in addressing their concerns, hesitation and stigma.

Keywords: Screening, Depression, PHQ-9, Medical students, Bihar

INTRODUCTION

Human mental health is considered to be of utmost importance since it governs our capacity for thought, emotion, social interaction, and enjoyment of life. Depression is a prevalent mental health disorder and a global crisis.[1] It arises from an intricate interplay of biological, environmental, cultural and social variables.[2] The World Health Organization (WHO) estimates that 5% of adults' worldwide experience depression.[3] According to data from the 2015 India national mental health survey (NMHS), around 150 million Indians who are 13 years of age and older are probably dealing with one or more mental health problems.[4] Depression is a serious public health issue and one of the main causes of disability in the world. It could cause restless nights, changes in appetite, low self-esteem, helplessness, and hopelessness for the future.[5]

The rigorous, demanding, and arduous curriculum that medical students must complete could potentially have a negative impact on their mental health.[6,7] Research has shown that compared to the general population medical

students experience depression at a higher rate.[1,8,9] Depression could also lead to suicides.[2,10] Suicide ranks as the fourth most common cause of death among those aged 15 to 29 years, according to the WHO.[3] There has been a recent rise in the number of medical student suicide cases and it's possible that these incidents are merely the tip of the iceberg.

As a result, more research must be done to determine the mental health state of medical students which led to the conduction of the present study with the following objectives: estimation of prevalence of depression among the students, and assessment of the associated factors.

METHODS

An anonymous questionnaire based self-reported study was carried out among the medical undergraduate students to screen them for the prevalence of depression and assessment of the associated risk factors.

Study design

It was a descriptive cross-sectional study.

Study location

The study was conducted at Patna Medical College and Hospital, Patna, Bihar.

Study duration

The duration of the study was from May (2023) to June (2023).

Sample size

Sample size included 368 medical students.

Sampling and selection method

Complete enumeration technique was applied to include all the students. But due to ongoing examinations; 4th year students were unavailable. And personal bunks further decreased the number of participants procured for the study.

Data collection was done in the 3rd week of May 2023 and therefore all the students who were present in their lecture classes during that week were included in the study. A total of 368 students participated in the study who belonged to 1st, 2nd (3rd and 5th semester) and 3rd MBBS professional year.

Inclusion criteria

Medical undergraduate students of Patna Medical College and Hospital, of either sex, and aged ≥18 years were included.

Exclusion criteria

Students below 18 years of age, and students who did not give informed consent were excluded.

Procedure methodology

The students received a thorough description of the nature and goals of the study, as well as information that their participation was entirely voluntary and confidential. Following the acquisition of their signed informed consent, a carefully crafted questionnaire was employed to gather participant data. Over the course of one week, three visits were made in an effort to reach out to the students.

Since it was impossible to get in touch with the students who missed their lecture classes that week, they were left out of the study. 368 students in all gave their permission, returned the questionnaire fully completed, and were taken into consideration for analysis.

Questionnaire

A self-administered questionnaire had two parts.

Part I included the patient health questionnaire (PHQ-9) and questions on age, gender, and year of study. This section served as a data collection tool for the screening and estimation of depression prevalence. The validated PHQ-9 questionnaire is a tool used to check for depression. Over the course of the previous two weeks; the participants were asked how frequently they were troubled by depressive symptoms. The questionnaire has three possible scores for each item: 0 for not at all, 1 for several days, 2 for more than half the days, and 3 for almost every day. Based on their PHQ-9 scores, their level of depression was classified as minimal depression (0–4), mild depression (5–9), moderate depression (10–14), moderately severe depression (15–19), and severe depression (20–27). A cut-off score of ≥10 was used to define depression in this study at which respondents were most likely to meet DSM IV criteria for major depressive disorder (likelihood ratio ≥7.1) and it had shown good sensitivity (82%) and specificity (93%) in a structured diagnostic review.[10,11]

In the current study, two groups were formed during the analysis process based on score: less than 10 for non-depressed students and more than or equal to 10 for depressed ones.

Part II included a comprehensive literature study was conducted to identify potential stressors, which were then quantified using a binary scale (present/absent). The importance of maintaining a prominent social media presence, body image dissatisfaction (BID), involvement in mentally straining relationships or breakups within the last six months, and a lack of time for hobbies were among the potential stressors that were identified and investigated in part II of the questionnaire.

Statistical analysis

Epi Info 7.2.6.0 was used for analysis after data entry using Microsoft excel 2010. Descriptive statistics were utilized to express the results as mean±standard deviation or frequency and percentage for quantitative data. The Pearson Chi square test was used to evaluate the categorical variables. A history of involvement in mentally straining relationship or break-up within the last six months (present/absent), the need to maintain a prominent social media presence (present/ absent), BID (present/ absent), sufficient time for hobbies (present/ absent), stress regarding upcoming PG entrance exams and rank (present/ absent) and reluctance to seek mental healthcare services (present/ absent) were the risk factors associated with lifestyle variables. Odds ratios (OR) and 95% confidence intervals (CI) were determined.

RESULTS

Table 1 shows that a total of 368 students [male – 251 (68.2%); female – 117 (31.8%)] were included for analysis. There were 105, 111 and 152 students from 1st, 2nd (3rd and 5th semesters) and 3rd year respectively. 4th year students were not available due to their ongoing exams. The male and female students had a mean age±SD of 21.28±1.01 and 20.45±1.11 years respectively. The male students were more than twice the number of female students with a comparable mean age (±SD) of 21.28±1.01 and 20.45±1.11 years respectively. Highest proportion of students were from 3rd year.

Table 1: Characteristics of the study participants (n=368).

Factors	N	%
Gender		
Male	251	68.2
Female	117	31.8
Age (mean±SD)		
Male	21.28±1.01	
Female	20.45±1.11	
Year of study		
1	105	28.5
2	111	30.2
3	152	41.3
4	NA	NA

Table 2 shows that a total of 176 students had a score ≥10 on the PHQ-9 questionnaire and were provisionally found to be depressed with a need for further clinical evaluation; as scores ≥10 suggest underlying major depressive disorder. The 2-week prevalence of depression based on PHQ-9 was found to be 47.8% (176/368) among the students. Highest number of students [34.2% (126/368)] were found to have moderate level of depression while 4.9% (18/368) seemed to be suffering from severe depression.

Table 2: Grades of depression among the participants (n=368).

Grades of depression present among the students based on their PHQ-9 score	N	%
Minimal (0-4)	80	21.8
Mild (5-9)	112	30.4
Moderate (10-14)	126	34.2
Moderately severe (15-19)	32	8.7
Severe (20-27)	18	4.9

Year-wise assessment showed that 32.4% (34/105) of the 1st year students were found to be depressed and an increasing trend was seen as the year of medical study progressed; with 56.6% (86/152) 3rd year students provisionally diagnosed to be depressed as shown in Figure 1. The year of study and depression was found to have a statistically significant association with a p value <0.001.

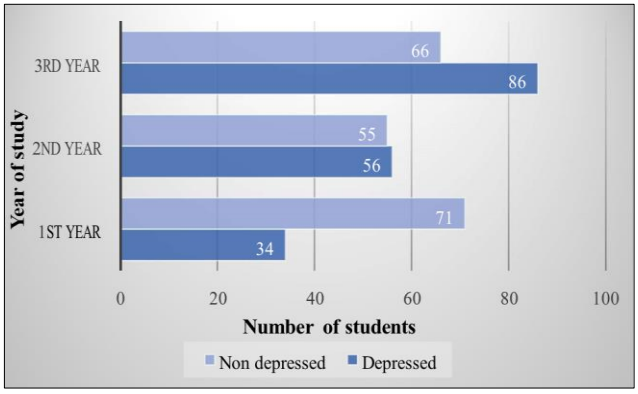

Figure 1: Year-wise representation of the frequency of depressed and non-depressed medical students.

Although higher percentage of male students (49.4%) had depressive symptoms as compared to females (44.4%) but bivariate analysis (Table 3) shows that depression and gender are not substantially correlated (p value=0.375).

Almost 81% (142/176) students with depression were stressed about the PG entrance exam and their rank and a significant association was found between them (p value <0.001). There were 24.7% (91/368) students who reported having experienced a difficult relationship or breakup within the previous six months.

While 38.3% (141/368) students were anxious about keeping up a noticeable social media presence with 46.1% (65/141) of them with depression.

Factors that were found to have a statistically significant association with depression were BID (p value <0.001), lack of time for leisure activities (p value=0.026), and hesitation to seek mental healthcare services (p value <0.001).

Table 3: Bivariate analysis of depression and associated risk factors.

Characteristics	Depressed N (%)	Non-depressed N (%)	Chi square value	P value	Odds ratio (95% CI)
Gender					
Male	124 (49.4)	127 (50.6)	0.786	0.375	1.22 (0.79-1.90)
Female	52 (44.4)	65 (55.6)			
Stress regarding PG entrance exams					
Present	142 (63.7)	81 (36.3)	56.988	<0.001*	5.72 (3.57-9.17)
Absent	34 (23.4)	111 (76.6)			
H/O stressful relationship or break-up within 6 months					
Present	50 (55)	41 (45)	2.455	0.117	1.46 (0.91-2.35)
Absent	126 (45.5)	151 (54.5)			
Dissatisfaction regarding their physical appearance					
Present	95 (40.8)	138 (59.2)	12.664	<0.001*	0.46 (0.30-0.71)
Absent	81 (60)	54 (40)			
Concern about maintaining a prominent social media presence					
Present	65 (46.1)	76 (53.9)	0.273	0.601	0.89 (0.59-1.36)
Absent	111 (48.9)	116 (51.1)			
Sufficient time for hobbies					
Present	37 (38.1)	60 (61.9)	4.948	0.026*	0.59 (0.36-0.94)
Absent	139 (51.3)	132 (48.7)			
Reluctance regarding seeking mental healthcare services					
Present	105 (40.7)	153 (59.3)	17.577	<0.001*	0.38 (0.24-0.60)
Absent	71 (64.6)	39 (35.4)			

*P value is statistically significant

DISCUSSION

Despite improvements in the diagnosis, treatment, and promotion of mental health, there is a deficiency in students' awareness of their own mental wellness. The absence of systematic screening and preventive measures in academic establishments worsens their indifference towards mental health concerns. After undergoing screening, nearly half of the medical students (47.8%) had been diagnosed with provisional depression and required additional evaluation by a clinician. Based on standard screening tools, the pooled prevalence of depression among Indian medical students was found to be 40% with CI (32–47%) in a meta-analysis by Dwivedi et al.[5] According to earlier researches, the percentage of medical students with PHQ-9 scores ≥10 provisionally diagnosed with depression was found to be 26.6%, 24.17%, and 27.7%, respectively, according to Vankar et al, Hakim et al and Pattnaik et al.[1,10,12]

Similar to the current study, Garg et al and Pattnaik et al reported that the medical students included in their study had mean ages of 21.26±1.99 and [male: 20.81±1.81; female: 20.98±1.73] years, respectively.[1,13] It was found that 60.6% (223/368) of the students were stressed about the impending PG entrance exams and 63.7% (142/223) of them had depression. In a study comparable to this one, Pattnaik et al also reported a significant association between depression and stress regarding PG entrance exams (p value <0.001).[1]

The constant pressure of updating and maintaining visibility on social media platforms can take a toll on mental health. In contrast to the current study, studies by Lin et al, Woods and Scott and Perlis et al have reported significant association of social media use and increase in depressive symptoms.[14-16]

Depression was found to be present in nearly 41% (95/233) of the total students who did not feel satisfied with their physical appearance; this relationship was statistically significant (p value <0.001). A study by Soares et al reported that BID caused by being overweight was significantly associated with depressive disorder symptoms in the study participants between the ages of 18 and 19 years.[17] According to the results of the current study, 73.6% of students (271/368) did not have enough time for recreational activities. Numerous studies, including those by Iwasaki et al and Lawton et al have demonstrated that it is likely that leisure activities can lessen the detrimental effects of stressful events that endanger one's physical and mental well-being.[18,19]

A total of 70.1% (258/368) of the students screened were hesitant to seek mental healthcare services and 40.7% (105/258) of them had depression; this association was statistically significant (p value <0.001). According to Pattnaik et al, 56.4% of medical students felt they needed professional assistance but were hesitant to ask for it, which raised their risk of depression by almost three times, as indicated by their adjusted odds ratio (AOR=3.2 [95% CI: 2.34- 4.374]).

Limitations

It was a cross-sectional survey and PHQ-9 is a screening tool. Therefore, further in-depth clinical evaluation is required for the diagnosis of depression.

A high prevalence rate in this study could be due to reporting bias as this was a cross-sectional, self-reported anonymous survey.

CONCLUSION

The 2-week depression prevalence of 47.8% suggests that medical students are in a precarious situation that could have a number of negative consequences. Academic, social, personal, and lifestyle aspects can be overwhelming for them to handle and the stigma and fear associated with mental disorders further dissuades them from seeking mental healthcare services. Regular mental health promotion and evaluation programs must be carried out at the institution level. Student counsellors can benefit medical college students with grievance resolution, career counselling, and reducing stigma and reluctance surrounding mental health.

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