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Original Article:

Prevalence of Depression Among Medical Students of a Private Medical College in India

Ajit Singh, Department of Orthopaedics , Rohilkhand Medical College, Bareilly,
Amar Lal, Department of Psychiatry , Rohilkhand Medical College, Bareilly,
Shekhar, Department of Physiotherapy, Jaipur College of Physiotherapy, Jaipur.

Address For Correspondence:
Dr. Ajit Singh,
Department of Orthopaedics,
Rohilkhand Medical College,
Pilibhit by pass road , Bareilly, U.P. 243006.
E-mail: ajitsingh2409@gmail.com

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Abstract:
Background: Medical education can contribute to the development of depression in medical students which may have possible negative academic and professional consequences. The aims of this study were to explore the prevalence of depressive symptoms and their relationships to socio-demographic variables among a cross section of medical students of a private medical college in India. **Methods:** A cross-sectional anonymous questionnaire-based survey was conducted including all students from first to fourth year of a medical college in India. Beck depression inventory was used to assess the level of depression with a score of 12 or higher considered depressive. Additional questions regarding demographic variables were also included in the survey. Data analysis was done on Epi info version 6. **Results:** A total of 336 students participated giving a response rate of 88%. A total of 49.1% students reported depressive symptoms. It was significantly higher in 1st year (59.3%) and 2nd year (65.6%), as compared to 3rd (34.4%) and 4th year (37.2%) students [p<0. 05]. Substance abuse(p<0.0001), first and second year of study, female sex and language of instruction other than English at 10+2 level were associated factors for the development of depressive symptoms [p<0.05]. A significant negative association was also found between regular exercise and depression (p<0.05). **Conclusion:** Depression may be a significant hidden problem in Indian medical students and mechanisms to identify and help students with mental health problems should be seriously considered.
Key Words: Depression; India; Medical students

Introduction:

Depression is highly common and according to WHO by 2020, it would be the second-most prevalent condition worldwide.(1) There is considerable evidence that rates of depression and suicide are higher in medical students and that these rates continue to remain elevated when these students become physicians.(2) Medical students are a valuable human resource for our future and depression in them leads to less productivity, reduced quality of life, learning difficulties and may negatively affect patient care.(3,4) Studies from other parts of world have shown a high prevalence of depression in medical students (5-7) but studies on Indian medical students are lacking. India has one of the largest numbers of medical colleges and medical students with majority of the students in private medical schools. The present study was undertaken to determine the prevalence of depression as part of larger project examining the health of a cross section of medical students of a private medical college in India and to look for related demographic characteristics and contributing factors.

Methods:

The study was carried in a private medical college in northern India with an annual intake of 100 MBBS students per year. The study design was reviewed and approved by the Institutional Ethical Committee. Students from all four years of the Rohilkhand Medical College, Bareilly were eligible to participate in this study. A total of 381 medical students participated. Data was gathered by an anonymous self-reporting questionnaire, which were distributed separately to each of the four student grades during an appropriate lecture period, and collected at the end of each session. Participation in the study was on a voluntary basis and informed consent was obtained from the students after the aims and objectives of the study were explained to them. Students identified with clinically significant depression were offered counseling or appropriate help. The questionnaire was in the English language, which is the medium of instruction in all medical colleges in India. Students were instructed to exclude names and identifying information and questionnaires were filled using code number. Students were assured that results of survey will not have any negative repercussions for them. The first section of the questionnaire focused on demographic items such as age, weight, height, marital status, year of study, substance use (tobacco; alcohol consumption; gutkha; sedative-hypnotics and illicit drugs used in last six months), years to get into medical school after 10+2, medium of instruction in school prior to medical college, whether they undertook any regular exercise every week. The degree of depressive symptoms was measured by Beck Depression Inventory (BDI) which has been used in previous such studies as a screening tool.(8) It is a 21-item self-administered instrument, rated on 4-point scale ranging from 0 to 3 and the total score being 63. A score of 0-16 is considered as normal, 17-20-border line clinical depression, 21-30 moderate depression, 31-40 severe depression and over 40 is extreme depression. Score of 12 and above is taken as depression. Predictive value of the selected cut-off point, 100% sensitivity, 99% specificity, 0.72 PPV, 1 NPV, and

98% overall diagnostic value [Laasa *et al.* 2000].(9) BDI was chosen over BDI-II as it is available free and it can be completed in about ten minutes. Data entry and analysis was done on Epi info version 6.0. Descriptive analyses were performed to investigate the distribution of our data.

Results:

A total of 336 students returned the fully answered questionnaire, representing an overall response rate of 88 % after removing badly answered questionnaires with roughly one-fourth from each year of MBBS class, 63% were males and 37% female students. Mean age of students was 20.2 years (SD-4.6). About half (49.1%) of the students had symptoms of depression with 60% of total females and 42% of total males reported symptoms suggestive of depression (Table 1). Mild symptoms of depression were found in 64.8% students, moderate in 27.8% and severe in 7.4% students. It was seen that age, weight, height, number of years after 10+2 to gain entry in medical school and dietary habits did not affect the prevalence of depression. Table 2 shows the OR and 95% CI of factors associated with depression among medical students. Depression was significantly higher in 1st year and 2nd year students, as compared to 4th year and 3rd years students ($p<0.05$). Students with substance abuse were more likely to report symptoms suggestive of depression (OR=4.34; 95%CI 2.62-7.29). Female students were more likely to reported symptoms suggestive of depression as compared to their male counterparts (OR=2.07; 95%CI 1.32-3.27). Similarly, students facing language problem in their MBBS course because English not being medium of teaching in 10+2 were more likely to report symptoms suggestive of depression. On the other hand students who undertook regular physical exercise were only 0.5 times likely to suffer from depression.

Table 1: Cases of depression according to year of study and gender

Year of study	Number of students			Depression		
	Male	Female	Total	Male (%)	Female (%)	Total (%)
1st year	58	28	86	30 (58.8)	21 (41.2)	51 (59.3)
2nd year	50	32	82	31 (57.4)	23 (42.6)	54 (65.6)
3rd year	59	31	90	16 (51.6)	15 (48.4)	31 (34.4)
4th year	45	33	78	13 (44.8)	16 (55.2)	29 (37.2)
Total	212	124	336	90 (54.5)	75 (45.5)	165 (49.1)

Table 2: OR and 95% CI of risk factors associated with depression among medical students.

Risk factor	*n*	*Odds Ratio*	*95% Confidence Interval*	p-value
Female sex	75	2.07	1.32 - 3.27	0.001
1st year	51	1.74	1.05 - 2.87	0.029
2nd year	55	2.66	1.58 - 4.53	<0.001
Substance abuse	76	4.34	2.62 - 7.29	<0.001
Language problem*	93	1.61	1.05 - 2.49	0.029
Regular physical exercise†	39	0.54	0.34 - 0.88	0.012

* Language of teaching other than English at 10+2 level before entry in medical school

† Minimum 30 minutes of exercise on at least three days per week in preceding six months was considered as having regular exercise.

OR = Odds Ratio, CI= Confidence Interval

Discussion:

Symptoms suggestive of depression were found in 49.1% of our medical students which corresponds with prevalence rates found in other developing countries. A study on undergraduate Chinese medical students found nearly half of them were depressed with 2% having severe depression.(10) This percentage is low as compared to the findings of 60%-70% prevalence of anxiety and depression in medical students of Pakistan.(5,11) Studies from western world report prevalence rates of depression in the range of 14–24%.(6,12) Depression was present in 39.9% of students of a public sector medical college in Mumbai (13), India, which is lower than our findings. The reason might be the difference of instrument used to assess depression and also possibly because of the fact that students of private medical colleges are at increased risk of developing depression.(14) This may also be due to the different characteristics of each medical school and its students and teachers. Previous studies had probably lower rates as students tend to give dishonest responses during such surveys because of concerns on animosity and potential negative repercussions.(15) We assured students about anonymosity and encouraged them to give honest responses which may explain differences in results.

The prevalence of depressive symptoms was high among newly entered students (1st and 2nd year) as compared to the senior students. This finding correlates with results of previous studies.(5,6,12) This could be due to stress of new study environment and greater degree of work load with obligations to succeed , homesickness as most of them might live far from home for the first time, change in their sleeping and eating habits, financial indebtedness, lack of leisure time. A decrease in symptoms of 3rd and 4th year medical students can be explained by a gradual adaptation to the environment and the study course.

Female students were more likely to report symptoms suggestive of depression as compared to male students which are consistent with western reports.(12) A possible explanation for this finding is due to the fact that women articulate depressive symptoms, even very minor ones, more easily then men, and that the excess could actually be due to this fact as much as to a true expression of greater distress.(16) The number of female students doing any regular exercise was also very less and this may also contribute to higher rates of depression among them as regular physical exercise was negatively correlated with depression (Table 2). Previous research has shown that leisure activities including physical exercise reduce stress and depression in students.(17)Students indulging in substance abuse were four times more likely to report symptoms suggestive of depression compared to students who did not use substance abuse. Whether substance abuse is the cause of higher rates of depression or depressed students self medicate with substance abuse is not clear. Previous studies have found that a significant number of students consider substance abuse as a coping mechanism against stress and stress is positively correlated with development of depression in medical students.(14) Substance abuse in medical students concurrent with depression is a matter of grave concern and preventive education and counseling programs in medical curriculum are needed.

There was an interesting finding in this survey which has not been reported earlier. We found that students facing language problem in their MBBS course because English not being medium of teaching in 10+2 were more likely to report symptoms suggestive of depression.

A limitation of this cross-sectional study is inability to draw cause-effect associations between the studied variables. No data on psychological status of students before entering medical school and population based data in India are available to compare our results with general population. One more limitation with anonymous self reported questionnaires is inaccurate reporting.

Depression may be a significant hidden problem in Indian medical students and mechanisms to identify and help students with mental health problems should be seriously considered. Therefore, an effective system for the prediction of the development of depression in medical students needs to be developed and interventions aimed at reducing the incidence of depression needs further research.

References:

1. World Health Organization. Mental and neurological disorders. Fact sheet No. 265; 2001.
2. Levine RE, Bryant SG. The depressed physician: a different kind of impairment. *Hosp Physician* 2000;36:67-73.
3. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. *Acad Med*. 2006;81:354-373.
4. Rosvold EO, Bjertness E. Physicians who do not take sick leave: hazardous heroes? *Scand J Public Health* 2001;29:71-75.
5. Khan MS, Mahmood S, Badshah A, Ali SU, Jamal Y. Prevalence of Depression, Anxiety and their associated factors among medical students in Karachi, Pakistan. *J Pak Med Assoc* 2006;56:583-586.
6. Goebert D, Thompson D, Takeshita J, Beach C, Bryson P, Ephgrave K et al. Depressive symptoms in medical students and residents: a multischool study. *Acad Med.* 2009;84:236-241.
7. Roh MS, Jeon HJ, Kim H, Han SK, Hahm BJ. The Prevalence and Impact of Depression Among Medical Students: A Nationwide Cross-Sectional Study in South Korea. *Acad Med*. 2010 May 6. [Epub ahead of print]
8. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. *Arch Gen Psych.* 1961;4:53–63.
9. Lasaa L, Ayuso-Mateos JL, Vazquez-Barqueroa JL, Diez-Manriquea EJ, Dowrickb CE. The use of the Beck Depression Inventory to screen for depression in the general population: a preliminary analysis. *Journal of Affective Disorders* 2006;57(1-3):261-265.
10. Chan DW. Depressive symptoms and depressed mood among Chinese medical students in Hong Kong. *Compr Psychiatry* 1991;32:170-180.
11. Inam SNB, Saqib A, Alam E. Prevalence of anxiety and depression among medical students of private university. *J Pak Med Assoc* 2003;53:44-47.
12. Clark DC, Zeldow PB. Vicissitudes of depressed mood during four years of medical school. *JAMA* 1988;260:2521-2528.
13. Supe AN. A study of stress in medical students at Seth GS Medical College. *J Postgrad Med* 1998;44:1-6.
14. Yousafzai WA, Ahmer S, Syed E, Bhutto N, Iqbal S, Siddiqi MN et al. Well-being of medical students and their awareness on substance misuse: a cross-sectional survey in Pakistan. *Annals of General Psychiatry* 2009;8:8
15. Levine RE, Breitkopf CR, Sierles FS, Camp G. Complications Associated With Surveying Medical Student Depression: The Importance of Anonymity. *Academic Psychiatry* 2003;27:12–18
16. Noble RE. Depression in women. *Metabolism*.2005;54:49-52.
17. Shaikh BT, Kahloon A, Kazmi M, Khalid H, Nawaz K, Khan N, et al. Students, stress and coping strategies: a case of Pakistani medical school. *Educ Health (Abingdon)* 2004;17:346-353.