Research Article

A cross sectional study on depression, anxiety and their associated factors among medical students in Jhansi, Uttar Pradesh, India

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ABSTRACT

Background: Medical College is recognized as a stressful environment that often exerts a negative effect on the academic performance, physical health and psychological wellbeing of the student. Depression and anxiety among medical students is an area of increasing concern worldwide. This study aimed to assess the prevalence of depression, anxiety and its associated factors among medical students in Jhansi, India.

Methods: : A cross-sectional study was conducted on medical students from the first to fourth year of medical college, Jhansi by using random sampling method. A pre-tested questionnaire consisting of socio-demographic variables, factors inducing depression and anxiety was administered on the sampled population. Depression Anxiety Stress Scale (DASS) was used to assess the level of depression and anxiety. Data obtained were collected and analyzed statistically by simple proportions and chi-square test.

Results: The overall prevalence of depression and anxiety was found to be 64%. Among those with anxiety and depression, a majority (73%) had mild and moderate degree of depression. The study showed that females (63%) were more depressed in comparison to male (54%). The prevalence of depression was comparatively more among first year medical students (61%). The prevalence was significantly more among those with family problems, using substance abuse, staying in hostel and having family history of depression and anxiety.

Conclusions: The prevalence of depression and anxiety is high among medical students. This study suggests that there are certain risk factors other than academic stressors which predispose a medical student to psychological morbidity such as anxiety and depression. Hence there is a need for early screening and psychiatric counselling of this vulnerable population.

Keywords: Depression, Anxiety, DASS, Medical students

INTRODUCTION

The goal of medical education is to train knowledgeable, competent and professional physicians to care for the nation's sick, advance the science of medicine and promote public health.[1] Medical colleges are recognized as a stressful environment that often exert a negative effect on the academic performance, physical health and psychological well-being with a high frequency of depression, anxiety, stress and even attrition from medical course. Yet it's often hard for all to see the sad faces behind the white coats. Depression is highly common and according to WHO by 2020, it would be the second-most prevalent condition worldwide.[2] Failure to detect these disorders unfortunately leads to increase psychological morbidity with unwanted effects throughout their careers and lives.[3,4] A depressive disorder is an illness that involves the body, mood, and thoughts. It affects the way a person eats and sleeps, the way one feels about oneself, and the way one thinks about things.[5]

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.[6,7] It is very important to prevent the ill effects of depression on one's educational attainment and career through early detection and proper interventional measures. However, depression among medical students is a neglected public health problem in India. High rates of psychological morbidity among medical students, such as anxiety and depressive symptoms, have been reported in several studies from different western countries as well as from other parts of the world.[8-11] But studies on Indian medical students are lacking even though India has one of the largest number of medical colleges and medical students.

Prevalence of depression among medical students varies depending on age, gender, year of training and the scale used to measure depression.[12-14]

The high rate of depression among medical students is also associated with numerous factors like alcohol use, drug addiction, family problems, family history of depression and staying away from home. Hence, there is a need to quantify the anxiety, depression and its associated factors among medical students for their counseling and rehabilitation. With these perspectives, we conducted the present study with the following objectives (a) to assess the prevalence of depression and anxiety among medical students at different levels of education taking gender differences into account; (b) to find association between depression, anxiety and its inducing factors.

METHODS

A cross sectional study was conducted at M. L. B. Medical College, Jhansi, India during the period of February to May 2014. In Medical College, 100 students per year were enrolled for M.B.B.S and students from all four years were eligible to participate in this study. The minimum sample size was calculated to be 330 by using formula n= 4pq/l2, where prevalence of depression among medical students was taken 71% after getting through literature and 5% absolute precision.[15] Those eligible to participate in the study included all medical students who had spent more than six months in the institution and did not have any physical illness.

A self-administered questionnaire was given out to students who were randomly selected from each class from first to final year. The study was done with the perusal of the head of the institution and then verbal consent was taken from those selected to participate. The objectives of the study were explained to subjects before initiating the study and were assured for confidentiality. The students were asked to complete the questionnaire in a class at the end of a lecture and returned them to the author in the same session. The respondents were asked not to put names or other identifying notation on the questionnaire to conceal their identity. There were no potential risks to the subjects in this study as there were no interventions involved. The questionnaire was not applied shortly before examinations because anxiety was noted to be the highest in pre-exam periods. The questionnaire consisted of demographic variables and questions on a factors related to depression and anxiety. Demographic variables were: age, gender and factors like alcohol use, drug addiction, family problems, family history of depression, and staying away from home. Any subject with an alcohol intake at least once in the past 12 months was considered as alcohol user for the purpose of this study. The family problem was assessed by the question that whether the family members were currently having any problem that worries the subject or not. Drug addiction was defined as repeated use of any psychoactive substance including alcohol, to the extent that the user is periodically or chronically intoxicated, shows a compulsion to take the preferred substance, and has a great difficulty in voluntarily ceasing or modifying substance use. Family history of depression was assessed based on earlier diagnosis among first or second degree relatives.

In addition, anxiety and depression symptoms were assessed with Depression Anxiety and Stress Scale (DASS) in the same questionnaire. This self-report scale consists of 42 items, 14 for depression, 14 for anxiety and 14 for stress. Each item is rated on a scale from 0 to 3 and the total score being 126. A score of 0-9 is considered as normal, 10-13 mild depression, 14-20 moderate depression, 21-27 severe depression and 28+ is extreme depression. For anxiety 0-7 is considered as normal, 8-9 mild, 10-14 moderate, 15-19 severe and 20+ is extreme anxiety. Data were entered into Microsoft excel and analyzed using SPSS 16.0 (trial version) statistical software. Chi-square test was used to test for the association between depression, anxiety and variables. Data was expressed in terms of proportion or percentages.

RESULTS

Subject studied for prevalence of depression and anxiety is given in Table 1. In the study prevalence of depression was 57% while anxiety was found more prevalent (71%) among medical students. Among those with depression, a majority (73%) had mild and moderate degree of depression. Only 3% respondents had extremely severe depression. 67% of anxious respondents had mild and moderate degree and 29% had severe degree of anxiety. The present study showed that 63% females were depressed which is more in comparison to males (54%). 50% of females had mild to moderate degree of depression while among males it was 37%. But severe depression was more in males (17%) in comparison to females (13%). Among respondents males (72%) were more anxious than females (68%). But severe anxiety was found equal (23%) in both genders (Table 2).

Table 1: Prevalence of depression and anxiety among study population.

		Participants (N= 330)	%
Depression	Normal	142	43
	Mild	72	22
	Moderate	65	20
	Severe	46	14
	Extremely severe	5	1
Anxiety	Normal	96	29
	Mild	74	23
	Moderate	83	25
	Severe	69	21
	Extremely severe	8	2

Table 2: Prevalence of depression and anxiety according to gender.

		Male N (%)	Female N (%)	Total
Depression	Normal	103(46)	39(37)	142
	Mild	48(21)	24(22)	72
	Moderate	35(16)	30(28)	65
	Severe	33(15)	13(12)	46
	Extremely severe	4(2)	1(1)	5
	Total	223	107	330
Anxiety	Normal	62(28)	34(32)	96
	Mild	51(23)	23(21)	74
	Moderate	57(26)	26(24)	83
	Severe	48(21)	21(20)	69
	Extremely severe	5(2)	3(3)	8
	Total	223	107	330

Table 3: Prevalence of depression and anxiety according to year of study.

		Ist year N (%)	IInd year N (%)	IIIrd year N (%)	IVth year N(%)	Total
Depression	Normal	35 (39)	39 (45)	38 (47)	30 (40)	142
	Mild	14 (16)	19 (22)	23 (28)	16 (22)	72
	Moderate	21 (24)	16 (19)	12 (15)	16 (22)	65
	Severe	16 (18)	12 (14)	7 (9)	11 (15)	46
	Extremely severe	3 (3)	0(0)	1 (1)	1 (1)	5
	Total	89	86	81	74	330
Anxiety	Normal	24 (27)	33 (38)	25 (31)	14 (19)	96
	Mild	16 (18)	23 (27)	17 (21)	18 (24)	74
	Moderate	27 (30)	19 (22)	20 (25)	17 (23)	83
	Severe	20 (2)	10 (12)	17 (21)	22 (30)	69
	Extremely severe	2 (2)	1 (1)	2 (2)	3 (4)	8
	Total	89	86	81	74	330

Table 4: Association between depression and its inducing factors.

Variables		Depression		Chi square value	df	P-value
		Present N=188	Not Present N=142			
Age (years)	<20	99	87	2.43	1	0.11
	>20	89	55			
Gender	Male	120	103	2.79	1	0.09
	Female	68	39			
Year of study	Ist	54	35	1.37	3	0.71
	IInd	47	39			
	IIIrd	43	38			
	IVth	44	30			
Substance use	Yes	92	34	21.40	1	0.00*
	No	96	108			
Family problems	Yes	102	49	12.71	1	0.00*
	No	86	93			
Staying in hostel	Yes	163	111	4.18	1	0.04*
	No	25	31			
Family history of depression	Yes	62	27	8.01	1	0.00*
	No	126	115			

* P value <0.05 i.e. statistical significant

Table 5: Association between anxiety and its inducing factors.

Variables		Anxiety		Chi square value	df	P value
		Present N=234	Not Present N=96			
Age(years)	<20	132	54	0.00	1	0.97
	>20	102	42			
Gender	Male	161	62	0.55	1	0.45
	Female	73	34			
Year of study	I[st]	65	24	7.62	3	0.05
	IInd	53	33			
	IIIrd	56	25			
	IVth	60	14			
Substance use	Yes	99	27	5.80	1	0.01*
	No	135	69			
Family problems	Yes	116	35	4.71	1	0.02*
	No	118	61			
Staying in hostel	Yes	203	71	7.90	1	0.00*
	No	31	25			
Family history of anxiety	Yes	70	19	3.54	1	0.05
	No	164	77			

* P value <0.05 i.e. statistical significant

The prevalence of depression and anxiety was more among 1st year medical student (61%, 73%) and final year (60%, 81%) (Table 3). Association between depression and related factors were seen in table 4. The prevalence of depression was high among those medical students with family problems, staying in hostel, having substances abuse and family history of depression. It was found to be statistically significant. In this study it was observed that the prevalence of anxiety was high among those medical students with family problems, staying in hostel, having substances abuse and it was found to be statistically significant (Table 5).

DISCUSSION

Psychological well-being is important for medical students, for the patients they met and for their future medical practice. Current education process in medical training exposes their students several types of stressors, some are exogenous such as adaptation to medical curriculum, vastness etc. and some are endogenous like gender, personality traits etc. We have used the reliable and valid depression and anxiety screening tool, DASS. Prevalence rates of depression are estimated to range from 15% to 70% in various studies.[17-19] The overall depression reported by our respondents was 41.1% of which 15.0% had mild and 26.1% had moderate-severe depression. As compared to other findings of the study done by Singh A and others (49.1%).[12] In a Medical College in Northern India and another study in India by Kumar GS and others (71.25%) in Mangalore, Karnataka, India found higher proportion of depressive symptoms among medical undergraduates.[16] Chan among Chinese medical students in Hong Kong found that around half of the medical students are depressed.[19] In contrast, a study done in Pakistan found that the prevalence rate varied from 49% to 66% among medical students.[20]

Another study has shown that 39.4% of the medical students are depressed by using the instrument DASS.[21] This difference may be due to different study area, different sample sizes with varied demographic characteristics, scales used to assess depression and cutoffs used were also different and different medical curriculum in these countries. In our study we found that as the depression level increases social relations of the respondents with their parents and friends also worsens which emphasizes that during medical training, medical educators should also pay attention to develop some strategies for reduction of stress of their students. This study showed more proportion of males had anxiety than females, but the depression score was found more among females. This difference in proportion of depression and anxiety among respondent according to gender in our study was not statistically significant. Our findings was similar to the findings of other studies where they found rates of depression among women was higher as shown by Deborah Goebert and others in Multischool study in Hawaii.[11] Stewart SM showed that male and female medical students did not differ in the degree of depressed mood.[9]

This study showed that hostelites had more depressive symptoms, reason of which might be due to the quality of

food in the hostels, lack of entertainment, and feeling of loneliness. This study showed that proportion of depressed students was less in the 3rd semester batch than senior batches, consistent to the findings of other studies.[2,13] Similar to our study findings the study by Ajit Singh and others in Northern India found students of 1st year of study had more proportion of depressive symptoms.[12] More depressive symptoms among higher semester batches in our study might be due to the information overload, increasing examination load, increasing future planning pressure to become a successful doctor with less time to spend in recreational activities. As the class of studying increases, the prevalence increased significantly. In contrast to this, another study showed that prevalence is significantly higher among 2nd year medical students.[20]

Our study also found nearly one-fourth respondents adopted substance abuse as one of the method to cope with depression, which even increased to nearly half of the students for severely depressed category. This findings were in accordance with different studies a meta analyses of 248 articles by Dyrbye.[1] The mental health status of the students we assessed showed a worrying picture. After this study, those whom we found to have probable depression were counseled and encouraged to meet counselor & psychologist. The scale we screened for depression was a self-reporting subjective scale; therefore the scores can be easily exaggerated or minimized by the person completing them. Therefore, it can be evaluated by further studies in depth by quantitative & qualitative methods. Another finding of our study is that a gender difference regarding the association with depression was noted where female students reported a marginally higher prevalence of depression than in males. But this association was not found to be statistically significant (p=0.651).

CONCLUSION

The prevalence of depression and anxiety is high among medical students. This study suggests that there are certain risk factors other than academic stressors which predispose a medical student to psychological morbidity such as anxiety and depression. Hence there is a need for early screening and psychiatric counselling of this vulnerable population.

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