Students' Corner
Original Article

Anxiety and depression among medical students: A cross-sectional study

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Abstract

Objective: To determine the prevalence of anxiety and depression among medical students at Nishtar Medical College, Multan.

Methods: A cross-sectional study was carried out at Nishtar Medical College, Multan in 2008. The questionnaire was administered to 815 medical students who had spent more than 6 months in college and had no self reported physical illness. They were present at the time of distribution of the questionnaires and consented. Prevalence of anxiety and depression was assessed using a structured validated questionnaire, the Aga Khan University Anxiety and Depression Scale with a cut-off score of 19. Data Analysis was done using SPSS v. 14.

Results: Out of 815 students, 482 completed the questionnaire with a response rate of 59.14%. The mean age of students was 20.66 ± 1.8 years. A high prevalence of anxiety and depression (43.89%) was found amongst medical students. Prevalence of anxiety and depression among students of first, second, third, fourth and final years was 45.86%, 52.58%, 47.14%, 28.75% and 45.10% respectively. Female students were found to be more depressed than male students (OR=2.05, 95%CI=1.42-2.95, p=0.0001). There was a significant association between the prevalence of anxiety and depression and the respective year of medical college (p=0.0276). It was seen that age, marital status, locality and total family income did not significantly affect the prevalence of anxiety and depression.

Conclusions: The results showed that medical students constitute a vulnerable group that has a high prevalence of psychiatric morbidity comprising of anxiety and depression (JPMA 60:699; 2010).

Introduction

Medical education is perceived as stressful. High levels of stress have been documented in medical students in various studies.[1-5] Amongst medical students, stress has been reported to be due to academic demands, exams, inability to cope, helplessness, increased psychological pressure, mental tension and too much work load.[6] The transition from pre-clinical to clinical training has been identified as a crucial stage of medical school regarding student stress.[7] All this can result in decreased life satisfaction among students.[8] Stress during medical school can lead to problems later in professional life compromising patient care.[9]

Several studies have reported high rates of psychological morbidity amongst medical students using various instruments.[10,11] Such findings are most likely related to academic, financial and social demands that college environments place on students at a time when they are also involved in issues related to life style and careers. Retrieving knowledge about psychiatric morbidity is important as it can help in implementing preventive mental health programmes.

Previous studies in Pakistan have shown a higher prevalence of anxiety and depression in medical students.[12,13] According to our knowledge, however, no such study has so far been done in Punjab. Secondly, both the studies conducted earlier are from Karachi with no study from any other part of the country. There is also no study available which assesses the prevalence of anxiety and depression after the change in examination methodology such as the introduction of problem based learning, objective structured performance evaluation and greater integration of disciplines in recent years. We were also unable to find any study assessing psychiatric morbidity in southern Punjab. The study was, therefore, carried out to determine the prevalence of anxiety and depression among medical students of Nishtar Medical College, Multan. The study is expected to serve two purposes.

First, it will yield information about prevalence of psychiatric morbidity in dental students at a premier medical institution with enrolment from all the areas of Punjab being representative of the medical student population of the province.

Secondly, it will give an idea of the psychological health of the people in southern Punjab at large as more than half of the students are from this area which due to its specific socioeconomic and geopolitical situation is different from the rest of the province. The study also explores the effects of socio-demographic factors on prevalence of anxiety and depression.

Subjects and Methods

This cross-sectional study was carried out on students of Nishtar Medical College, Multan. Data collection spanned over the month of August 2008. The approval was obtained from the head of the institution before administering questionnaires. Verbal consent was taken from students before distributing questionnaires and confidentiality was ensured.

Students who had spent more than six months in college were included in this study. Students who reported presence of a physical illness at the time of survey were excluded. Data was collected via a self-administered questionnaire which was distributed among students after explaining the purpose of study and taking verbal consent. The questionnaire was handed out to students who were present at the time of distribution. The students were instructed to return the completed questionnaire. Out of 1200 students, 815 were present during the survey. We distributed the forms which were returned later on. A total of 482 out of 815 distributed forms were received with a response rate of 59.14%.

The instrument used to asses the presence of anxiety and depression was Aga Khan University Anxiety and Depression Scale (AKUADS).[14] This has been validated on a statistically appropriate sample size, in urban squatter settlement of Karachi.[15] At a cut off score of 19 points AKUADS has specificity of 81%, sensitivity of 74%, a positive predictive value of 63%, and negative predictive value of 88%,[14] which is higher than other available scales like the self-reporting questionnaire (SRQ).[16,17] It also has a high internal consistency as all its stems are significantly related to the total score.[15] These desirable attributes of the questionnaire make it both reliable and valid.

The Statistical Package for Social Sciences Software (SPSS; version 14) was used to analyze the data. Descriptive analyses were performed. Univariate logistic regression model was used to estimate the odds ratio and their 95% confidence intervals. Chi-square test was used for determining the association between various sociodemographic variables and presence of anxiety and depression. A p value of <0.05 was considered statistically significant.

Results

With a response rate of 59.14%, 482 medical students participated in the study. The mean age of students was 20.66 ± 1.8 years. Demographic characteristics of the study group are presented in Table-1. Table-2 gives the frequency of students in different groups with respect to age, gender, marital status, locality, year of education and total family income who had psychiatric morbidity along with related odds ratio, confidence intervals and p values. The groups were compared with reference to the prevalence of anxiety and depression which was defined as having a score above the cut-off value of 19 on AKUADS.

Using AKUADS, it was found that 43.89% of

Table-1: Demographic characteristics of study group.

Variable		n	%
Total participants	482	100%	
Age	≤ 19 Years	144	29.9%
	20-22 Years	221	45.9%
	> 22 Years	117	24.2%
Gender	Male	257	53.3%
	Female	225	46.7%
Marital Status	Married	37	7.7%
	Unmarried	445	92.3%
Locality	Urban	392	81.3%
	Rural	90	18.7%
Year of Study	1st Year MBBS	133	27.6%
	2nd Year MBBS	97	20.1%
	3rd Year MBBS	70	14.5%
	4th Year MBBS	80	16.6%
	5th Year MBBS	102	21.2%
Total Family Income	≤ Rs. 15,000	64	13.3%
	Rs.15,000-Rs.30,000	208	43.2%
	Rs.30,000-Rs.50,000	158	32.8%
	> Rs.50,000	52	10.8%

Table-2: Association of anxiety & depression with demographic and social factors.

Variables		Anxiety & Depression		OR	p value	AOR
		Present	Absent	(95% CI)		(95% CI)
Age	≤ 19 Years	72	72	1	0.10	-
	20-22 Years	99	122	0.81 (0.53-1.23)		
	> 22 Years	43	74	0.58 (0.33-0.96)		
Gender	Male	93	164	1	0.001	
	Female	121	104	2.05 (1.42-2.95)		2.01 (1.40-2.92)
Marital Status	Married	20	17	1	0.219	-
	Unmarried	194	251	0.66 (0.34-1.29)		
Locality	Urban	170	222	1	0.342	-
	Rural	44	46	1.25 (0.44-3.54)		
Year of Study	1st Year MBBS	61	72	1	0.028	
	2nd Year MBBS	51	46	1.30 (0.77-2.20)		1.29 (0.88-1.88)
	3rd Year MBBS	33	37	1.05 (0.59-1.88)		1.08 (0.72-1.63)
	4th Year MBBS	23	57	0.48 (0.27-0.87)		0.49 (0.34-0.70)
	5th Year MBBS	46	56	0.97 (0.58-1.63)		1.01 (0.71-1.44)
Total Family Income	≤ Rs. 15,000	32	32	1	0.737	-
	Rs.15,000-Rs.30,000	93	115	0.81 (0.46-1.42)		
	Rs.30,000-Rs.50,000	66	92	0.72 (0.40-1.29)		
	> Rs.50,000	23	29	0.79 (0.38-1.64)		
Total		214	268			

students suffered from anxiety and depression. Prevalence of anxiety and depression was significantly higher in 1st year MBBS students and lower in 4th year MBBS. It was also higher in female students as compared to male students. It was seen that marital status, monthly household income, locality and nationality did not have any effect on prevalence of anxiety and depression.

Discussion

In this study, 46.07% of the students had anxiety and depression. It is comparable to the prevalence of depression reported in US (49%),[18] Beirut (27.63% and 69%),[19] Turkey (27.1%),[1] Sweden (12.9%),[2] Bosnia (66.5%),[20] Brazil (40.2%),[21] Iran (44%),[22] and Zimbabwe (64.5%).[23] Medical students have to deal with stressors specific to medical school in addition to normal stressors of everyday life which explains this high prevalence of anxiety and depression.

The results of our study differ significantly from those conducted earlier in Karachi which reported prevalence rates of 60% and 70% respectively.[12,13] This may be due to the difference in teaching and assessment methodologies including introduction of problem based learning and objective structured performance evaluation in the recent years. Another reason may be the sample size difference (482 vs. 142 and 189). Different sociopolitical situation of the cities and sociodemographic background of participants can also be a contributor in this regard.

In our study depression decreased with increasing age. This may be due to better coping strategies adopted by senior students. High prevalence of depression in females is consistent with other studies. It may be because females are more likely to report concern, stress due to self expectation, feeling of lack of competence and tendency to over report symptoms.[1,13,24] Lower levels of depression in 4th Year MBBS shows that students adapt to stress of clinical training after spending a year in it. However, depression again increases in last year of study (5th year MBBS) because of increased workload. Anxiety and depression can lead to negative outcomes including medical school dropout, impaired ability to work efficiently, deterioration in relationships, burnout, increased suicidal tendency and compound existing problems of health care provision. There

is need for greater attention to the psychological well being of medical students.

It has been reported that medical students are reluctant to seek appropriate help for mental health problems and view it as a weakness. This issue needs to be addressed and students should be encouraged to seek help along with provision of adequate facilities.

Information about effective coping strategies i.e. active coping efforts and ineffective means i.e. avoidant coping efforts of dealing with stress might be helpful in preventing distress. Medical schools should encourage students to spend adequate time on their social and personal lives and emphasize the importance of health promoting coping strategies. Recreational facilities should be provided at the campus.

Preventive programming efforts should begin early in medical education and address a wide variety of concerns from academic to interpersonal relationships and financial worries. Early signs of depressive symptoms among medical students should be addressed. We need interventions that help students to cope with stress to make a smooth transition from school to medical college and also to adjust to different learning environments during different phases of medical education

Limitations of the study include lack of baseline information concerning mental status of medical students at the time of entrance in the medical school and lack of population based data to support our results and compare our findings with the general population. It is recommended that baseline data should be established at the time of entrance and further evaluation of positive cases should be done by a psychiatrist to improve mental health of students. Follow up studies for monitoring prevalence of anxiety and depression will help in instituting interventional strategies.

It is concluded that a substantial proportion of medical students had an ongoing psychiatric condition. Actions should be taken to encourage medical students to seek help for psychological problems and to provide adequate facilities. Interventions addressing the mental health of medical students might be directed towards those revealing depressive symptoms already present during first year of medical school. Individual as well as organizational interventions should be targeted to prevent excessive stress and burnout among medical students.

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