PREVALENCE OF DEPRESSION AND ANXIETY AMONG UNDERGRADUATE MEDICAL STUDENTS IN A GOVERNMENT MEDICAL COLLEGE OF KARACHI

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Email: devamar88@gmail.com
Date Received:
March 25, 2017
Date Revised:
June 16, 2017
Date Accepted:
June 25, 2017

ABSTRACT

Objective: To determine the prevalence of depression and anxiety (PDA) among undergraduate medical students including both males and females studying in a public university and to see whether an association exists between the academic year of study and the PDA.

Methodology: A cross-sectional study, using a self-administered, structured, validated questionnaire, was conducted on a total of 325 medical students selected through convenience sampling technique at Dow Medical College. An english version of the AGA KHAN UNIVERSITY ANXIETY AND DEPRESSION SCALE (AKUADS) was used for evaluating the prevalence of depression and anxiety with inclusion of basic personal information of the students.

Results: With a 100% response rate and a cutoff score of 20, 36.3% (118 out of 325) of the sampled population was found to be at risk of anxiety and depression. There was no significant association of depression and anxiety with gender and academic year of study but there was a significant association of depression and anxiety with positive family history.

Conclusion: Medical students in university of Karachi are at risk of depression and anxiety with positive family history acting as an add-on factor.

Key Words: Depression, Anxiety, Anxiety and depression scale, Medical students

INTRODUCTION

A person's physical and mental well-being is vital to tackle the hurdles of life and to keep pace with life[1]. Anxiety and depression are very common psychological and behavioral health problems which most people come across in their life span[2]. It is increasing day by day, ranks as the fourth leading cause of disability globally; and if progression at this rate continues, it could become the second leading cause of global disease burden by the year 2020[3]. According to a study conducted in Pakistan in 2004, 6% of the population is reported to have symptoms of depression or anxiety[4]. The study phrases that one out of four family members is depressed, which is worrisome[4].

Depression is a mood disorder characterized by a cluster of symptoms including depressed mood, negative thinking, loss of interest, ideas of guilt and self-harm, disturbed sleep, diminished appetite and slowness[5]. Anxiety disorder is an abnormal state characterized by

having both psychological and physiological symptoms of anxiety like palpitations, chest pain, sweating, tachycardia, apprehension, and over-activation occurring in the absence of an organic brain disease or another psychiatric disorder[5].

Over the past few years, it has been observed that these mental issues are very commonly seen in university students, the major cause of which in both under-graduates and post-graduates is academic stress[2]; but according to research, the percentage of these health problems is escalating amongst medical students at a great pace[1]. Medicine is considered the most challenging and stressful degree program of all[1]. Medical students have to face several emotional, mental and physical stresses during their academic years[1]. It is being reported that medical students are encountering depression and anxiety at a greater rate, as they belong to one of the most challenging professions[6,7]. This could be due to the pressure of studies on them, large amount of information to seek, lack of social life, ex-

tremes of working hours and a responsibility of human welfare and services on them[6,8]. It has also been reported that the incidence of depression is more common in females than in males, as both of the genders differ in their mental health[7,9]. According to one research, women account for 41.9% of patients with depressive disorders, while males account for only 29.3% in the general population[10]. This gender difference of neurotic disorder in medical students is also supported by various other researches done in different medical colleges in which females had a higher percentage of depression as compared to males[11].

The rationale of this study was to pertain the risk of anxiety and depression with various factors like academic years of study, gender and family history in the students as no knowledge in the current literature was found on this topic in Karachi. The objectives of this study were to determine the prevalence of depression and anxiety in medical students in Karachi and to find association of depression and anxiety with gender, year of study and family history.

METHODOLOGY

The survey was conducted on a total of 325 undergraduate medical students studying at Dow Medical College, selected through convenience sampling technique. The study was conducted from May-July 2016. The survey included students from semester 2 of first year till semester 10 of the fifth year, both males and females. Inclusion of students in the study was based on the criterion that each participant has spent at least 6 months in the medical school to get familiar with the environment and that is why, students of 1st semester were excluded using the rationale that they haven't spent six months and were new to the medical school's environment and its associated stressors.

A questionnaire based survey was conducted on the students using the AKU anxiety and depression scale (AKUADS) and a socio-demographic performa, both designed in english language. The AKUADS used in the study is basically a screening tool, and was not used for diagnostic purposes. Rather the participants selected in the study were diagnosed through ICD-10 classification of anxiety and depression. The scale categorized the students as either being at a low risk or at a high risk of depression and anxiety. The scale was used with full acknowledgement of AKUH. The questionnaire was divided into 2 parts; the first consisted of the socio-demographic information of the student such as name, age, gender, year of study and health problems while the second part was comprised of a set of 25 basic and simple questions regarding the emotional state of the candidates in the past two weeks, scoring based on frequency of presence or absence of symptoms in the candidates, with a cutoff score of 20, which was found to

have a sensitivity of 83.33% and a specificity of 70.8%. The positive predictive value was calculated at 41.6% and negative predictive value as 94.44% with an accuracy of 73.33%.

An approval from the ethics review committee was taken for conducting the research, after which students were approached by the researchers. Students were assured of the confidentiality of their information. Informed consent was taken at the time of data collection along with full explanation of the questionnaire to every participant before handing over the questionnaire. The students were evaluated on being at a low risk or at a high risk of depression and anxiety by the score obtained from the summation of responses on the scale.

The data obtained was entered and analyzed through SPSS version 16.0. Descriptive statistics, frequencies and percentages were calculated for all categorical variables included in the research such as gender, PDA per academic year and family history of depression. The results were obtained by conducting Pearson chi-square test on statistical package for the social sciences (SPSS) version 16.0, as all expected frequencies were greater than 1 and at most 20% were less than 5. This test was run to see whether an association existed between the risk of depression and anxiety with the gender, academic years of study and family history of depression.

RESULTS

A total of 325 students participated in the study with a response rate of 100%. 94(28.9%) responders were male and 231(71.1%) were female. There were 65 students (20%) from each year of study from 1st to 5th year. Out of the 325 students, 52(16%) of them reported that they are already suffering from depression and 53(16.3%) had a family history of depressive disorders. At the end of the study it was seen that of a total of 325 students, 207(63.7%) scored below 21 on the AKUADS of which 61(29.5%) were male and 146(70.5%) were female, while 118(36.3%) students scored above 20 on the AKUADS of which 33(28%) were male and 85(72%) were female. According to the year of study, scores below 21 were made up of 38(18.4%) first years, 37(17.9%) second years, 47(22.7%) third years, 43(20.8%) fourth years and 42(20.3%) fifth years, while scores above 20 were made up of 27(22.9%) first years, 28(23.7%) second years, 18(15.3%) third years, 22(18.6%) fourth years and 23(19.5%) fifth years.

At significance level 95%, the p value for PDA and year of study was 0.362 which is statistically not significant and the p value for PDA and gender was 0.774 which was also not significant. Of those who had a positive family history, 24 (11.6%) scored below 21 while 29(24.6%) scored above 20. And those who had no family history of depression, 183(88.4%) scored be-

Figure 1: Histogram showing the frequency of score obtained according to AKUADS
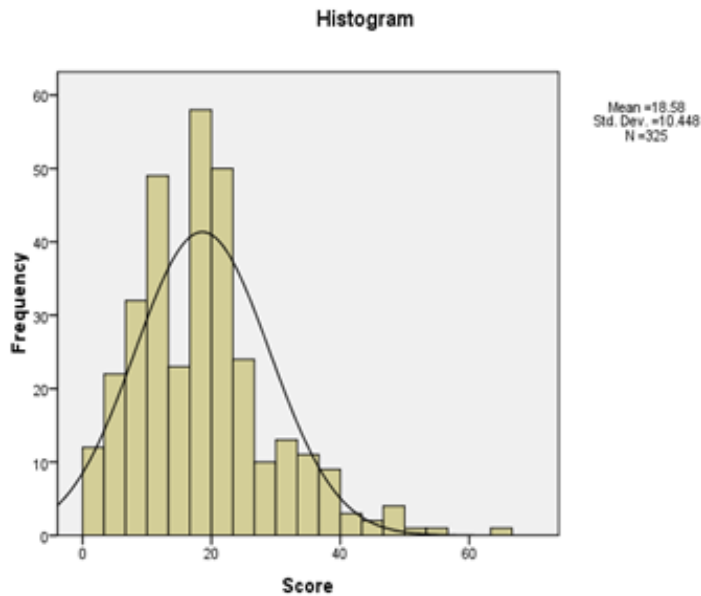
low 21 while 89(75.4%) scored above 20. The p value for PDA and positive family history for depression was 0.002 which was significant. Among 53 students with a family history of depression, 17(32.7%) were those who reported themselves to be suffering from depression. That association gave a significant p value of 0.0004. This showed that participants having a positive family history were more at risk of getting depression and anxiety than those who didn't.

DISCUSSION

The mental health of undergraduate medical students has been a subject of interest to many researchers, going as far back as the 1950s[12]. Our research study also focused on the same matter. Medical schools are considered to be anxiety inducing, have stressful environments and consequently frequency of depression is higher in medical students as compared to the general population[9,11,13]. Knowing that, the purpose of our study was to determine the prevalence of anxiety and depression in medical students and to evaluate any association of it with year of study, gender of medical students and family history of depression. Students were asked to report their emotional state in the past 2 weeks. Some of the known factors mentioned in the previous studies in medical students who have positive association with depression are year of study, hours of study, family history of depression, personal history of depression and failure in medical school annual examinations[9].

In our study the highest number of students scoring above 20 in the AKUADS was found to be in the second year of study (28, 23.7%) followed by first year (27, 22.9%) and lowest in the third year (18, 15.3%) which

is in correlation to Sidana et al[14] in which highest RDA was found in first and second year students. One of the reasons behind this might be that newly admitted students face a change in environment and study load that is radically different from their previous academics and the first 2 years' ventures are the adjustment period for most students. As the students become more familiar with their new environment and comfortable with the coursework the risk of depression decreases, hence the presence of lowest risk of depression in third year. Sidana et al[14] also reported a significant association between year of study and risk of depression. However, our study found no significant association between the risk of depression and anxiety among medical students and their year of study (p=0.362). We had assumed that the RDA would increase with increasing year of study but in light of the results of our study we believe the lack of significant association could be because of the introduction of modular and semester system of examination.

In such a system, the load of coursework remains almost equal throughout the five years of study without any sudden burden on students before examinations. Unlike in the past when professional exams were conducted annually or after 2 years resulting in a sudden increase in study load at the end of the year and increased chances of failing thus increasing the psychiatric effect on students exponentially. Association of a positive family history with depression has been reported by Khan et al[15] which is also supported by our study (p=0.002). This means that students who have one or more family members with diagnosed depression are more likely to be at a higher RDA. There has

Table 1: Association of depression and anxiety with gender, academic year and family history of depression according to AKUADS score.

S/No.	Variable		Risk of Depression and Anxiety (RDA) below 21 above 20				P value
			N	%age	N	%age	
1	Gender	Male	61	18.8	33	10.1	0.774
		Female	146	44.9	85	26.1	
2	Academic year	1st year	38	11.6	27	8.3	0.362
		Male	15	4.6	05	1.5	
		Female	23	7.0	22	6.7	
		2nd year	37	11.3	28	8.6	
		Male	12	3.6	10	3.0	
		Female	25	7.6	18	5.5	
		3rd year	47	14.4	18	5.5	
		Male	12	3.6	05	1.5	
		Female	35	10.8	13	4.0	
		4th year	43	13.2	22	6.7	
		Male	18	5.5	10	3.0	
		Female	25	7.6	12	3.6	
		5th year	42	12.9	23	7.0	
		Male	04	1.2	03	0.9	
		Female	38	11.6	20	6.1	
3	Family history of Depression	Positive	24	7.3	29	8.9	0.002
		Male	05	1.5	07	2.1	
		Female	19	5.8	22	6.7	
		Negative	183	56.3	89	27.3	
		Male	56	17.2	26	8.0	
		Female	127	39.0	63	19.3	

been a long-held belief that depression has a genetic association that could be hereditary and such a belief is being validated by recent discovery of genetic links to depression[16]. These genes do not directly result in inheritance of depression from a parent to a child, rather the presence of a combination of genes inherited from both parents together result in a higher predisposition to developing depression in the next generation[17].

Medical schools tend to have a more gender-neutral environment along with a significant proportion of female students resulting in less cases of gender bias. Both male and female students study and practice at a similar level of ease without any stressors directed towards a gender. This gender friendly environment is supported by the findings of our study which revealed no significant association between gender and RDA in undergraduate medical students (p=0.774). This result of our study is similar to the results reported by Sidana et al[14] and Hashmi et al[18] while females were found to have a higher RDA as compared to their male counterparts by Khan et al[15].

LIMITATIONS

This study was a single center study which did not include other medical colleges in the city. Convenience sampling and the small sample size as compared to the total number of students enrolled in the college are other limitations. The participation of male and female

students was also not equal as majority being female students enrolled in the college. Cause-effect associations could also not be determined as the study was cross-sectional.

CONCLUSION

The study concluded that 36.3% students were at a risk of developing depression and anxiety during their undergraduate student life in a government medical college in Karachi. There was no significant association between RDA and gender, and RDA and increasing academic year. However, there was a significant association between RDA and family history of depression amongst medical students.

RECOMMENDATIONS

Multi center studies should be carried out in other government and private medical colleges in all provinces of Pakistan with random sampling with a larger sample size, as a larger sample size may reveal significant associations with year of study or with other factors. Additionally, equal number of male and female candidates should be included to have a more accurate output of gender association. Temporal relationship and cause and effect with year of study also need to be established.

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