

Correlation between Academic Performance and Anxiety in Medical Students of Majmaah University - KSA

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Abstract

Objective: To study the prevalence of anxiety and its correlation with the academic performance among medical students.

Method: The analytical cross-sectional study was conducted over six months from March 2018 to August 2018, at the male and female campuses of the College of Medicine, Majmaah University, Majmaah, Saudi Arabia, and comprised medical students of either gender. Data on anxiety was collected using a self-reporting questionnaire that included the Beck Anxiety Inventory. Academic performance was taken as a measurable record from the cumulative grade point average. Data was analysed using SPSS 24.

Results: Of the 247 subjects, 170(68.8%) were males. Anxiety was found in 97(39.3%) of the students. The level of anxiety was significantly higher among females compared to males ($p=0.001$), among those in the final year ($p=0.002$), and in those with low academic grades ($p=0.016$).

Conclusion: Anxiety was found to be common among medical students and it was associated with female gender, low grades and advanced year of studies.

Keywords: Anxiety, Medical students, Beck anxiety inventory, Majmaah University.

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Introduction

Anxiety is one of the most commonly experienced feelings of all human conduct. It is an unpleasant feeling of awkwardness, edginess, alarm or distress. It is also described as the emotional state that emerges from a testing situation which a person is incapable of handling. Anxiety is a normal response to a demanding condition and it might assist one facing a tough scenario by encouraging him/her to manage it, but undue anxiety may have a severe influence on everyday life and hinders the normal working of an individual. Thus, anxiety has an extensive range of perceptions.¹

Association between growing anxiety and academic performance of medical students needs to be comprehensively addressed. The current study was planned to assess the prevalence of anxiety and its correlation with the academic performance among medical students in Saudi Arabia.

Subjects and Methods

The analytical cross-sectional study was conducted over six months from March 2018 to August 2018 at the male and female campuses of the College of Medicine, Majmaah University, Majmaah, Riyadh region, Saudi Arabia. After approval was obtained from the Deanship of Scientific Research, Majmaah University, the sample size was calculated based on published research.² The sample was raised using the 'complete enumeration method'. All medical students of either gender were approached. Informed consent was obtained from all students and those not willing to participate were excluded. Along with those who were absent on the day when the questionnaires were distributed. The participants were contacted directly in their respective classrooms after the completion of their first module during the first semester of the academic year 2017-18. The teachers were requested to spare 15 minutes of their course time for the completion of the questionnaires, and the subjects filled out the questionnaires. A general questionnaire printed both in English and Arabic was developed to gather information like gender, the academic year of study, identification (ID) number and cumulative grade point average (CGPA) along

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with Beck Anxiety Inventory (BAI) (Annexure) which is a self-reporting questionnaire consisting of 21 symptoms measuring the severity of anxiety with four response options ranging from 0 to 3 for each item. The maximum score for all items is 63, with score 0-7 showing "minimal" level of anxiety, 8-15 mild, 16-25 moderate, and 26-63 severe anxiety.³

Data was analysed using SPSS 24. Chi-square test was carried out to evaluate the association between the presence of anxiety and other variables. Analysis of variance (ANOVA) was used to compare the mean values of anxiety among different subgroups. P<0.05 was considered significant.

Results

Of the 275 enrolled with the two campuses, 247(90%) participated. Of them, 170(68.8%) were males and 77(31.2%) were females across the five years of the academic course (Figure 1) Anxiety was found in 97(40%) subjects (Figure 2).Levels of anxiety increased significantly with every passing year of the course (p=0.002) (Table 1).

Anxiety was more prevalent among female students(p=0.032) (Table 2).

The overall mean CGPA was 3.93±0.88 and it was significantly associated with anxiety level (p=0.017) (Table 3).

Annexure: Anxiety Questionnaire

I.D number:

Academic Year:

Previous year CGPA score:

Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by ticking the number in the corresponding space in the column next to each symptom.

S.N.	Symptoms	Not At All	Mildly - but it didn't bother me much	Moderately - it wasn't pleasant at times	Severely -it bothered me a lot
1.	Numbness or tingling				
2.	Feeling hot				
3.	Wobbliness in legs				
4.	Unable to relax				
5.	Fear of worst happening				
6.	Dizzy or lightheaded				
7.	Heart pounding/racing				
8.	Unsteady				
9.	Terrified or afraid				
10.	Nervous				
11.	Feeling of choking				
12.	Hands trembling				
13.	Shaky / unsteady				
14.	Fear of losing control				
15.	Difficulty in breathing				
16.	Fear of dying				
17.	Scared				
18.	Indigestion				
19.	Faint / lightheaded				
20.	Face flushed				
21.	Hot/cold sweats				

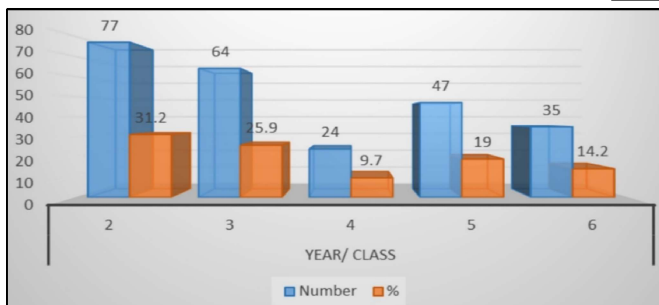


Figure-1: Distribution of study sample according to academic year.

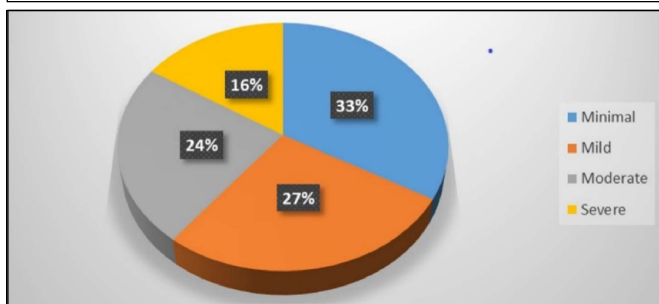


Figure-2: Distribution of study sample according to scores of Beck Anxiety Inventory (BAI).

Table-1: Significance of BAI Score and CGPA.

	BAI score Mean±SD	p-value
Gender		0.001*
Male	12.7±9.8	
Female	17.4±11.7	
Academic Year/ class		0.002*
2	10.8±9.56	
3	16.2±11.27	
4	15.9±10.09	
5	17.4±12.2	
6	12.1±7.54	
Total	14.1±10.67	
CGPA		0.014*
4.51- 5.00	11.1±9.16	
3.51-4.50	15.6±11.19	
2.51-3.50	17.0±11.34	
≤2.50	18.8±12.03	

BAI: Beck Anxiety Inventory; CGPA: Cumulative grade point average; SD: Standard Deviation.

Table-2: Association between Anxiety and CGPA.

	Cases of Anxiety (Moderate to Severe) n (%)	p-value
Gender		0.032*
Male	59 (34.9)	
Female	38 (49.4)	
Academic Year/ class		0.071
2	21 (27.3)	
3	30 (46.9)	
4	13 (54.2)	
5	20 (42.6)	
6	13 (38.2)	
CGPA		0.016*
4.51- 5.00	15 (26.8)	
3.51-4.50	38 (45.8)	
2.51-3.50	29 (52.7)	
≤2.50	7 (63.6)	

CGPA: Cumulative grade point average.

Table-3: Association between CGPA and gender, presence of anxiety, and its degree.

	CGPA Mean±SD	p-value
Gender		0.063
Male	3.84±0.95	
Female	4.08±0.72	
Presence of Anxiety		0.002*
Yes	3.72±1.00	
No	4.10±0.73	
Degree of Anxiety		0.017*
minimal	4.1514±0.70	
mild	4.0278±0.77	
moderate	3.7442±0.89	
severe	3.6838±1.14	

CGPA: Cumulative grade point average; SD: Standard Deviation.

Discussion

The prevalence of anxiety among medical students was found to be 40%, which was lower than majority of earlier findings^{4,5} but higher than what has been reported by a few.⁵

The reasons behind this relatively low level in the current study are unclear but could be justified by the small number of female subjects in the sample compared to the studies reported above.^{4,5}

The present study exhibited a significant relationship between gender and anxiety, where more females than males experienced anxiety. This result is consistent with those reported for students in some universities⁶ but it is in contrast with other findings.^{7,8} Some researchers justify such findings by the suggestion that female medical students are more competitive, may be more concerned

about achieving higher marks in exams, are more concerned about their performance, and may have a tendency to over-report medical and psychological symptoms.⁸ These statements are not conclusive and lack strong evidence.

One of the findings of the current study was the significant difference between levels of anxiety among academic years; the minimum was seen in the second year (which is the first year after passing the preparatory year), and the maximum was in the fifth year, which is in line with literature.⁹

In the current study, anxiety levels in all years were more than the first year. On the contrary, other studies showed higher levels of anxiety in among 1st year medical students in the United Kingdom, Turkey² and in Karachi, Pakistan.⁸ The significant increase in anxiety level in the fifth year is reported by some other studies.¹⁰

The current study found increased anxiety to be associated with low academic performance ($p < 0.05$) and it was displayed in different ways, including BAI and CGPA scores. These findings are consistent with other studies^{11,12} since anxiety as a disorder has its negative impacts on life. Some studies have shown a direct correlation of high degree of test-anxiety in students with poor performance in exams, whether they had satisfactory preparation or not. Later on, researchers strengthened this theory and ascertained its relationship with steadily decreasing educational achievement.¹³

Studies have reported that appropriate levels of anxiety, especially that concerning fear of failure, would self-reinforce the motivation system; and students who had this apprehension had better performance in tough tasks.¹⁴ On the other hand, severe anxiety interferes with attention,¹⁵ leads to hyper-vigilance and negatively affects the accuracy of one's judgment.¹⁶ Studies have also reported that severe anxiety related to examinations could impair children's cognitive function and further impair performance.¹⁷ Research has shown that poor mental health may serve to predict chances of distress later in the professional life of these budding physicians which reflects in the shape of deteriorating patient-management.¹⁸ Some studies considered anxiety a negative predictor of success in the medical career.^{19,20} However, it is difficult to prove and could not be answered in the current study if anxiety does lead to low academic performance or if it happens the other way round.

One of the limitations of current study is its single-centre orientation, which gives it limited generalisability. Also, the cause-effect relationship between anxiety and academic performance could not be explored since it was a cross-sectional study and had no baseline information regarding mental status of medical students at the time of admission to the medical college.

Despite the limitations, the study has emphasised the importance of availing mental health services for medical students, including assessments, treatment and counselling. Careful academic guidance to help students to make smooth transition between different learning environments and phases is also of critical value. There is a need to increase mental health awareness among medical students, especially in the area of anxiety and its early symptoms.

Conclusion

The levels of anxiety among medical students was relatively high and had a negative association with their academic performance. Anxiety was common among the subjects and was associated with female gender, low grades and advanced year of studies.

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