Research Article

The Prevalence and Risk Factors of Depression and Anxiety Disorders among Medical Students in King Saud Bin Abdulaziz University for Health Sciences, Jeddah 2019

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Abstract

Background: Anxiety and depression are the most common mental health disorders worldwide. It is estimated that 4.4% of the global population suffers from a depressive disorder and 3.6% from an anxiety disorder. Depression and anxiety symptoms can manifest as a result of certain external factors. People in stressful environments and challenging workplaces tend to be vulnerable to anxiety and depression. Educational institutions are an excellent example of a highly stressful environment. **Methods:** A cross-sectional study was carried out in 2019. A non-probability convenient sampling technique was used to select 258 medical students at King Saud bin Abdulaziz University for Health Sciences, Jeddah. A confidential, anonymous, validated & self-administered questionnaire included the 9-item depression scale of the Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7) Scale was used. **Results:** 74.5% out of 258 students had mild to severe depression, while 69% had mild to severe anxiety. There was a significant association between depression and sleep disturbances (P=0.001), Grade Point Average (P=0.017), sedentary lifestyle (P=0.004), and dietary habits (P=0.001). The risk factors associated with anxiety are stressful medical school (P=0.019), GPA (P=0.014), sleep disturbance (P=0.001), sedentary lifestyle (P=0.001), and dietary habits (P=0.022). **Conclusion:** Depression and anxiety are prevalent among medical students at King Saud bin Abdulaziz University for Health Sciences in Jeddah, compared to the general population and other regional colleges. The study revealed a considerable variety of influencing factors, including sleep disturbances, GPA, sedentary lifestyle, dietary habits, and stressful medical school. The most significant risk factor associated with depression and anxiety was the stressfulness of medical school.

Keywords: Depression; Anxiety; Undergraduate medical student; Prevalence; Jeddah; Saudi Arabia.

Introduction

Anxiety and depression are the most common mental health disorders worldwide.

Internationally, it is estimated that 4.4%of the global population suffers from a depressive disorder and 3.6% from an anxiety disorder. [1] Depression is also the primary cause of suicidal deaths, about 800,000 per year.

Between 1990 and 2013, there was a shocking increase in the number of individuals suffering from depression and anxiety. [2]

The elevation increased by nearly 50%, from 416 million to 615 million, which means around 10% of the world's

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population is affected. Mental disorders represent 30% of the worldwide non-fatal sickness load. World Health Organization (WHO) estimated that the number of affected people by depression and anxiety reaches up to one of every five individuals throughout emergencies.

Anxiety and depressive disorders have high prevalent co-occurrence frequencies. Utilitarian impairment decreased personal satisfaction of life, and lower medication results were associated more with individuals affected by both disorders. While it is less with individuals with only one disorder. [3]

Depression and anxiety can manifest as a result of certain external factors. People in stressful environments and challenging workplaces tend to be vulnerable to anxiety and depression. [4]

One such stressful situation is a school institution. Students experience a lot of stress during their education. Medical students have to endure a lot to perform and succeed.

That puts them at risk of developing anxiety and depression due to the coursework ups and downs. They are required to be committed and responsible.

Other factors play a role in anxiety and depression, including intermittent sleep, financial problems, lectures, grade pressure, student abuse, and dealing with patients during the internship year.

Previous studies have shown that there is a notable percentage of people facing depression and anxiety disorders. The worldwide figures stand at 1.8% to 6.9% among adults and from 0.3% to 5.8% among youth. [5]

A study conducted on first-year students found that the prevalence of depression and anxiety disorders was higher than in the general population. [6]

Students between 13-26 years old often exhibit and experience different forms of anxiety. [7]

A study done at Foundation University Medical College in Islamabad found that 37% of the medical students experience mild depression, while moderate to severe depression was observed in 14%. [8]

Another study conducted in Brazil among 22 Brazilian medical schools with 1,350 participating students completed the survey found 41% had depressive symptoms, where state-anxiety was 82%. [9]

In the Arab region, a cross-sectional study with 700 students done in Egypt during 2017 found a high frequency of depression (65%) and anxiety (73%). [10]

In the Arab Gulf region, research was conducted during 2017 in Bahrain showed the prevalence of depression and anxiety symptoms among medical students.

It indicated that 40% of medical students in Bahrain had depressive symptoms. Moreover, about 8.5% had severe depressive symptoms. [11]

Locally, a study was held in the College of Medicine in Al-Qassim University in 2007. It indicated that the prevalence of depression and anxiety among male medical students was 44%, while 67% were female medical students. [12]

There are no studies conducted in the Western region of Saudi Arabia showing the prevalence of depression and Anxiety disorder among medical students.

This study focused on the prevalence and risk factors of depression and anxiety disorders among medical students at King Saud bin Abdulaziz University (KSAU-HS), Jeddah, 2019.

This study aims to identify the prevalence of depression and anxiety disorders and associated risk factors among medical students at KSAU-HS.

Ethical considerations

Ethical approval was obtained from the Institutional Review Board (Ref No. SP18/265/J). Written informed consent and confidentiality of research data were ensured with an explanation of the study's nature and purpose.

Methodology

A cross-sectional study was conducted at the College of Medicine (COM), KSAU-HS in Jeddah, to estimate the prevalence and associated risk factors of depression and anxiety disorder among the medical students in 2019.

A total of 290 students participated in the study, and they were selected using a convenient sampling technique. A self-administered online questionnaire was sent through KSAU-HS email to all students from third to sixth year.

The Patient Health Questionnaire (PHQ-9) was used to screen for depression, and the GAD-7 (Generalized Anxiety Disorder-7 Scale) was used to screen for anxiety.

A semi-structured pro forma was designed to collect demographic information to measure the student's predictable risk factors. It included variables like age, gender, year of study, marital status.

The PHQ-9 score is calculated by assigning 0, 1, 2, 3 to the response categories of 'not at all, "several days,"more than half the days,' and 'nearly every day. Scores of 5, 10, 15, and 20 represent mild, moderate, moderately severe, and severe depression. [13]

For anxiety, the GAD-7 score is calculated by assigning scores of 0, 1, 2, and 3 to the response categories of 'not at all,"several days,"more than half the days,' and 'nearly every day,' respectively, and adding together the scores for the seven questions. Scores of 5, 10, and 15 are considered the cut-off points for mild, moderate, and severe anxiety. [14]

Data analyzed by using SPSS-version 20.0. Mean and Standard Deviation(SD) describe quantitative variables and frequencies and percentages to describe categorical variables.

Chi-Square test was applied to determine *p*-values associated with independent sociodemographic variables to find out the association with anxiety and depression.

Results

Out of the 290 participants, around 56.2% (163) the participants were male students. Moreover, most of the respondents were third-year medical students 115 (39.6%). In contrast, sixth-year medical students were the least interested, with only 44 participants out of the 290 participants, around 15.2% [Table 1].

Table 1: Demographic data.

		n	%
Academic year	Third Year	115	40
	Fourth Year	64	22
	Fifth Year	67	23
	Sixth Year	44	15
Gender	Male	163	56
	Female	127	44
	Total	290	100

In regards to the PHQ questionnaire, 74 out of 290 participants had scores between 0-4, which means only 25.5% of the sample had minimal depressive symptoms or no depressive symptoms.

The rest of the participants are classified into four categories. The first category (mild depression) had 93 participants (32.1%), the second category (moderate depression) had 63 participants (21.7%), the third category (moderately severe depression) had 38 participants (13.1%), and in the last type (severe depression) had 22 participants are classified as severely depressed, with a percentage of 7.6%.

When assessing the anxiety level, through the GAD-7 questionnaire, 90 (31%) of the participants were in the normal range and had no anxiety, while 89 (30.7%) of the participants had mild anxiety, 62 (21.4%) of the participants had moderate anxiety, and 49 (16.9%) of the participants had severe anxiety[Table 2].

Table 2: Results of PHQ9 and GAD7.

		n	%
PHQ9	Normal\ Minimal depression	74	25.5
	Mild depression	93	32.1
	Moderate depression	63	21.7
	Moderately depression	38	13.1
	Severe depression	22	7.6
GAD7	Normal\ minimal Anxiety	90	31
	Mild Anxiety	89	30.7
	Moderate Anxiety	62	21.4
	Severe Anxiety	49	16.9
	Total	290	100

Based on the survey results, the risk factors associated with depression significantly are sleep disturbances with a p-value<0.001, GPA with p-value 0.017, sedentary lifestyle with a p-value of 0.004, and dietary habits with a p-value<0.001 [Table 3].

On the other hand, the risk factors that contributed significantly to Anxiety are Stressful medical school with a p-value of 0.019, GPA with a p-value of 0.014, sleep disturbance with P-value<0.001, sedentary lifestyle with a p-value<0.001, and dietary habits with a p-value 0.022 [Table 4].

Table 3: Risk factors associated with depression.

Risk factor		Normal\ Minimal depression	Mild depression	Moderate depression	Moderately depression	Severe depression	χ2	p-value
		N (%)	N (%)	N (%)	N (%)	N (%)		
Sleep disturbances	Yes	29 (39.2)	47 (50.5)	44 (69.8)	29 (76.3)	19 (86.4)	28.99	<0.001
	No	45 (60.8)	46 (49.5)	19 (30.2)	9 (23.7)	3 (13.6)		
GPA	Yes	45 (60.8)	69 (74.2)	53 (84.1)	31 (81.6)	18 (81.8)	12	0.017
	No	29 (39.2)	24 (25.8)	10 (15.9)	7 (18.4)	4 (18.2)		
Sedentary lifestyle	Yes	26 (35.1)	53 (57.0)	41 (65.1)	24 (63.2)	12 (54.5)	15.32	0.004
	No	48 (64.9)	40 (43.0)	22 (34.9)	14 (36.8)	10 (45.5)		
Dietary habits	Yes	24 (32.4)	49 (52.7)	45 (71.4)	25 (65.8)	10 (45.5)	24.14	<0.001
	No	50 (67.6)	44 (47.3)	18 (28.6)	13 (34.2)	12 (54.5)		
Total		74	93	63	38	22		

Analytical analysis

Two hundred ninety medical students responded to the questionnaires. The results show that 216 students (74.5%) developed depression regardless of the type, scaled from mild to severe depression, whereas only 74 students (25.5%) are in Normal\minimal depression. Severe depression was found in 22 students (7.6%) [Table 2]. Moreover, third-year medical students are in 9 out of 22 who scored severe depression (40.9%), which makes this group the highest among other levels of medical school students. A P-value of 0.013 is considered statistically significant. From moderate to severe depression, females were higher than males with a P-value of 0.003 is considered statistically significant [Table 5]. Regarding risk factors that significantly contribute in severe depression, sleep disturbance (86.4%) with P-value<0.001, GPA (81.8%) with a p-value 0.017, sedentary lifestyle with P-value 0.004, dietary habits with a p-value<0.001 [Table 3]. On the Anxiety part, the prevalence from mild to severe anxiety was also occupying a major percentage. Of 290 students, 200 students (69%) have generalized anxiety disorder from mild to severe anxiety. Severe anxiety was discovered in 49 students (16.9%) [Table 2]. In respect of risk factors that participate in severe anxiety, Stressful medical school (89.8%), with a p-value 0.019, GPA (81.6%), with a p-value 0.014, sleep disturbance (73.5%) with P-value<0.001, sedentary lifestyle with a p-value<0.001, and dietary habits were (53.1%) with a p-value 0.022 [Table 4].

Table 4: Risk factors associated significantly with anxiety.

Risk factor		Normal\ minimal anxiety	Mild anxiety	Moderate anxiety	Severe anxiety	χ2	p-value
		N (%)	N (%)	N (%)	N (%)		
Stressful medical schools or medical training	Yes	66 (73.3)	77 (86.5)	55 (88.7)	44 (89.8)	9.95	0.019
	No	24 (26.7)	12 (13.5)	7 (11.3)	5 (10.2)		
GPA	Yes	56 (62.2)	72 (80.9)	48 (77.4)	40 (81.6)	10.7	0.014
	No	34 (37.8)	17 (19.1)	14 (22.6)	9 (18.4)		
Sleep disturbances	Yes	38 (42.2)	50 (56.2)	44 (71.0)	36 (73.5)	18.4	<0.001
	No	52 (57.8)	39 (43.8)	18 (29.0)	13 (26.5)		
Sedentary lifestyle	Yes	35 (38.9)	49 (55.1)	46 (74.2)	26 (53.1)	18.5	<0.001
	No	55 (61.1)	40 (44.9)	16 (25.8)	23 (46.9)		
Dietary habits	Yes	36 (40.0)	52 (58.4)	39 (62.9)	26 (53.1)	9.59	0.022
	No	54 (60.0)	37 (41.6)	23 (37.1)	23 (46.9)		
Total		90	89	62	49		

Table 5: Demographic data were associated significantly with depression.

		Normal\ Minimal depression N (%)	Mild depression N (%)	Moderate depression N (%)	Moderately depression N (%)	Severe depression N (%)	χ2	p-value
Academic year	Third Year	20 (27.0)	35 (37.6)	34 (54)	17 (44.7)	9 (40.9)	25.34	0.013
	Fourth Year	13 (17.6)	29 (31.2)	10 (15.9)	7 (18.4)	5 (22.7)		
	Fifth Year	23 (31.1)	16 (17.2)	15 (23.8)	10 (26.3)	3 (13.6)		
	Sixth Year	18 (24.3)	13 (14.0)	4 (6.3)	4 (10.5)	5 (22.7)		
Gender	Male	53 (71.6)	56 (60.2)	29 (46.0)	15 (39.5)	10 (45.5)	15.75	0.003
	Female	21 (28.4)	37 (39.8)	34 (54.0)	23 (60.5)	12 (54.5)		
Total		74	93	63	38	22		

Discussion

This study has shown a relatively higher prevalence of depression among medical students than other local studies, including Imam Mohammad Ibn Saud Islamic University, Umm Al-Qura University, Taibah University, Al Baha, Alfaisal University, and King Khalid University [Table 2]. [15-21] Compared with other studies from abroad, the results seem similar to our results in Karachi, Beirut, Bosnia, and the USA. [18,22-24] However, studies conducted in Malaysia and South Korea showed an extremely low prevalence of depression. [25,26] This variation of results could be due to different tools for assessing depression.

Regarding the associated factors with depression, this study showed that sleep disturbances, GPA or academic performance, sedentary lifestyle, and dietary habits were significant [Table 3]. In comparison, a study conducted in Malaysia and another one conducted in New Delhi showed a significant association between academic performance and developing depression among medical students. [25,27] Moreover, a study conducted in Qassim, Saudi Arabia, showed a significant association between sleep quality and developing depression. [28]

On the other hand, multiple studies conducted in Najran and New Delhi showed that academic level was an associated factor.[29,27] Furthermore, studies done in Al Baha, Umm Al-Qura, and Karachi University showed a significant association between major trauma such as losing a close relative and depression. [16,18-19] In the USA and South Korea, studies demonstrated that isolation and living alone are significant associated factors. [26,30]

This study showed that 69% of the participants had mild to severe anxiety regarding anxiety prevalence.Some studies that were conducted in Al Faisal, King Khalid University, and SulaimanAlRajhi Colleges showed similar results to this study. [20,21,25] On the other hand, a study from King Faisal University in Al Hasa resulted in a very different and dissimilar outcome. [31] On a global scale, research that was conducted in Karachi demonstrated a similar outcome to this study. However, a study conducted in Egypt displayed a lower result than our study. [18,31]

This study manifested that stressful medical school, GPA or academic performance, sleep disturbance, sedentary lifestyle, and dietary habits were significant factors regarding the associated factors with anxiety. Research conducted in Sulaiman Al Rajhi Colleges had a similar factor to this study: sleep quality. [28]
On the other hand, King Khalid University, King Saud bin Abdulaziz for health sciences in Riyadh, and Najran University had different factors such as the type of the house, non-constructive supervision of physicians, living status. [21,29]

Internationally, Karachi's study indicated that positive family history of anxiety, illicit drug abuse, and history of losing a close relative were associated factors. [18] Furthermore, a study in Egypt showed that overcrowded classrooms, troubles with instructors, fear of the future, and limited time for recreational activities were associated factors. [31]

Limitations of the study

This study has two limitations, which are small sample size and misunderstanding of the risk factors from participants' perspective,

Conclusion

Depression and anxiety among medical students at KSAU-HS are higher than national and international colleges. The highest risk factor associated with depression and anxiety was the stressfulness of medical school. It is recommended to activate student well-being centers in medical schools to prevent and detect depression and overcome future studies' limitations.

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