Original Article

Prevalence and correlates of depression among male medical students and interns in Albaha University, Saudi Arabia

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Abstract

Background: Depression in medical students and interns appear higher than the general population, with evidence of mental health deterioration over a period of medical training. **Objectives:** To estimate the prevalence and evaluate the predictors of depression among male medical students and interns, Albaha University, Saudi Arabia. **Subjects and Methods:** A cross-sectional analytic study was conducted which includes a representative stratified random sample with the proportional allocation of male medical students and interns, College of Medicine, Albaha University (2017–2018). A questionnaire included sociodemographic characteristics of the participants as well as a medical and family history of depression, medical or psychiatric illness, abuse or violence, and the major traumatic event was utilized. In addition, the validated reliable Arabic version of Becks Depression Inventory (BDI) questionnaire was used to screen for depression. **Results:** The study included 161 medical students and 21 interns. Their age ranged between 19 and 26 years with a mean of 22.03 ± 1.94 years. Majority of the participants (98.9%) were Saudis and singles (84.6%). The prevalence of depression, based on the BDI scale, was 53.8%; it was mild in 25.8% and severe or extreme in 4.4% of the participants. No factor was significantly associated with depression. However, severe or extreme depression was more reported among students/interns with a history of domestic abuse or violence and those who had a history of major trauma or psychiatric event, $P < 0.001$. **Conclusion:** Depression is a common problem among male medical students and interns in AlBaha University, with no difference according to demographics, smoking history, family history of depression, history of chronic medical or psychiatric illness, history of domestic/violence abuse, and history of major trauma or psychiatric event.

Keywords: Correlates, depression, male, medical students, prevalence

Introduction

Depression is a serious mental disorder, characterized by specific symptom like anhedonia (loss of interest), sad mood, loss of pleasure, guilt feeling or low self-esteem, sleep disturbance or change in appetite, and "decrease in concentration and tired feeling" according to World Health Organization (WHO).[1]

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Depression can be chronic, distorting the ability of an individual to perform daily activity and social life. It can lead to suicide in its most severe form. In a mild form, patients can be managed without medication but when a patient in a moderate or severe form of depression, they may need treatments.[1]

Depression in medical student and intern appear higher than the general population, with evidence of mental health deterioration over a period of medical training.[2,3]

The lifetime risk of depression documented by WHO appear high in rate ranged between 7% and 12% for males.[4]

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Medical students are all the time under extreme stress.[5] This is because of a desire to fulfill academic demands, frequent examinations, inability to cope with stressful situations, helplessness, increased psychological tension, work overload, and mental pressure.[6] In addition, multiple psychological changes occur to them because of transfer from preclinical to clinical training.[7] They need to make personal and social sacrifices to put the student under severe stress to get a good academic status.[8]

It has been reported that medical students have high levels of distress.[9,10] Depression has been considered as major morbidity in medical college depression is detected to be one of the comorbidities among multiple factors that affect the performance in studying.[11] There are not enough studies about depression done in the medical college of Saudi Arabia. The depression not only affects the academic performance but can also lead to suicide so it is important to detect depression early.[12,13] Around 9.5% of suicidal ideation been reported in 2000 by the national college health assessment survey (NCHAS).[14]

This study aimed to investigate the magnitude and predictors of depression among medical students and intern, Albaha University

Subjects and Methods

This is a cross-sectional study design included a representative sample of male undergraduate students (n = 306) and interns (n = 41) of the College of Medicine of Albaha University in Albaha city (2017–2018).

Assuming that, from the literature review of the same subject, the prevalence of depression among medical students is 44% according to the previous study conducted out to estimate depression among medical students in Qassim, Saudi Arabia.[7] Setting the sample error 5% and a confidence interval of 95%, using the sample size calculator program Raosoft, the sample size calculation was 182 students.[15] A stratified random sampling technique with proportional allocation was adopted to select students representing all of the 6 undergraduate levels and interns. Within each stratum, a simple random technique was adopted to select the required sample size.

The questionnaire included sociodemographic characteristics of the participants (age, nationality, marital status, and smoking history) as well as a medical and family history of depression, medical or psychiatric illness, abuse or violence, and major traumatic event. Validated reliable Arabic version of Becks Depression Inventory (BDI) questionnaire was used to screen for depression.[16] It is a multiple-choice self-report inventory about (sadness, guilt, sleep, suicide., etc) consist of 21 questions with scoring as follows: from 1 to 10 the level was normal, from 11 to 16 the level was mild depression, from 17 to 20 the level was borderline depression, from 21 to 30 the level was normal moderate depression, from 31 to 40 the level was severe depression, and >40 the level was extreme depression.

Every student received the questionnaire from the researcher's hand to hand during their break or free time, and then was collected again in the same way either immediately or after a period of time with follow up through phone or e-mail to those who did not respond immediately. Missed subjects were followed in the next days and if still missed or refused, they were replaced by the ones next in the list.

Data were entered into a computer and analyzed using (SPSS) program version 25. The crude measure of association between single risk factors and depression was assessed by the χ^2 test. The significance level of P value was set at 0.05. Student's t-test was used to compare the mean of the continuous variable between 2 groups. One-way analysis of variance (ANOVA) test was used to compare the mean of the continuous variable between >2 groups.

Results

The study included 161 medical students and 21 interns. Their demographic characteristics are summarized in Table 1. Their age ranged between 19 and 26 years with a mean of 22.03 ± 1.94 years. Majority of the participants (98.9%) were Saudis and singles (84.6%). They were distributed proportionally according to their total number in the entire population with 18.7% of them were recruited from first academic level, 18.1 from second academic level, 14.8 from each of third and fourth academic level, 11% from each of fifth and sixth academic level, and 11.5% from interns. The prevalence of current smoking among the participants was 16.5%, whereas that of ex-smoking was 5.5%. History of a first-degree relative diagnosed with depression was reported by 15.4% of the participants, whereas the history of domestic abuse or violence was mentioned by 9.9% of them. Major trauma or psychiatric event in the last few months was reported by 9.3% of the medical students and interns. History of chronic medical or psychiatric disease was reported by 12.6% of them.

Table 1: Demographic characteristics of the participants (n=182)

	Frequency	Percentage
Age (years)		
Range	19-26	
Mean	22.03	
SD	1.94	
Marital status		
Married	28	15.4
Single	154	84.6
Academic level		
1st	34	18.7
2nd	33	18.1
3rd	27	14.8
4th	27	14.8
5th	20	11.0
6th	20	11.0
Intern	21	11.5

It is clear from Figure 1 that depression was present in 53.8% of the medical students and interns; it was mild among 25.8%, whereas it was severe or extreme among 4.4% of them.

None of the studied factors was significantly associated with depression as seen in Table 2. Severe or extreme depression was more reported among students/interns with a history of domestic abuse or violence compared to students without such history (27.8% vs 1.8%). The association between severity of depression and a history of domestic abuse or violence was statistically significant, $P < 0.001$. Also, severe or extreme depression was more reported among students/interns with a history of major trauma or psychiatric event compared with students without such history (35.3% vs 1.2%). The association between severity of depression and a history of major trauma or psychiatric event was statistically significant, $P < 0.001$ [Table 3].

Discussion

Medical students are vulnerable to stressful experiences during their education and training in clinical years and internship.[17]

In this study, the prevalence of depression was 53.8%, based on a cut off level of 10 of BDI scale among medical students and interns; it was mild among 25.8%, whereas it was severe or extreme among 4.4% of them. This figure is comparable with the prevalence of depression reported in the USA (49%)[18,19] and India (48.4% and 53.7%).[20,21] However, it was higher than prevalence rates reported in Sweden (12.9%),[9] Nepal (29.8%),[22] Brazil (40.2%),[23] Iran (44%),[24] Seoul, Korea (40%),[25] Turkey (27.1%),[26] and Pakistan (43.9%),[27] whereas it is lower than those reported in other studies carried out in South India (58%),[28] Beirut, Lebanon (69%),[29] Bosnia (66.5%),[30] and USA (60%).[31] In Saudi Arabia, a previous study reported a rate of 44.4% among male medical students at Qassim University.[32] In Umm Al-Qura University (Makkah), the prevalence of depression among junior medical students (first and third years) was 30.95%.[33] Very low prevalence has been reported among medical students in Malaysia (1.9%),[18] South Korea (2.9%),[34] and UK (2.7%–8.2%).[35] In 2 recently published systematic reviews, the prevalence of depression among medical students was 28%[36] and 27.2%.[37]

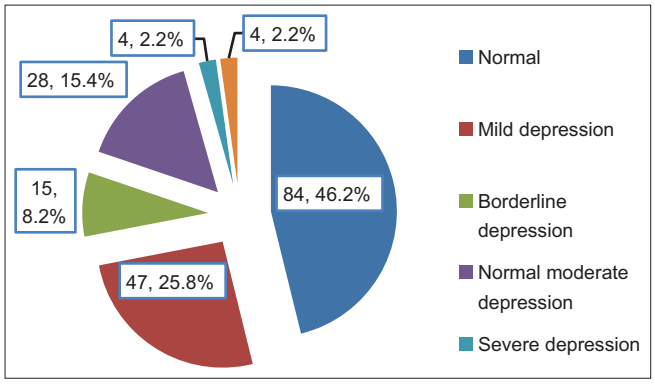

Figure 1: Prevalence of depression and its levels among medical students and interns, College of Medicine, Albaha University

The difference between our figures and figures reported in various studies could be attributed primarily to using of different tools in assessing of depression, the difference in teaching and assessment methodologies implemented in different medical colleges, and variation in the sociodemographic characteristics of the students as well as the cultural norms of different studies. In this study, BDI was utilized for the diagnosis of depression. It tends to overestimate the prevalence of depression.[38] Although BDI is not designed for diagnostic purposes, it has been proved to be a reliable and valid instrument for detecting depressive disorders in adolescents and adult populations.[39,40] It is clear, simple to administer, and easily understood.[41]

The high prevalence of depression observed in this study could be explained by the fact that medical students have to cope with

Table 2: Factors associated with depression

Study group	Depression		*P*
	No, *n* (%)	Yes, *n* (%)	
	84 (46.2)	98 (53.8)	
Age (years)			
Mean	21.9	22.1	
SD	2.0	1.9	0.387*
Marital status			
Married (*n*=28)	13 (46.4)	15 (53.6)	
Single (*n*=154)	71 (46.1)	83 (53.9)	0.975**
Academic level			
1st (*n*=34)	20 (58.8)	14 (41.2)	
2nd (*n*=33)	13 (39.4)	20 (60.6)	
3rd (*n*=27)	13 (48.1)	14 (51.9)	
4th (*n*=27)	12 (44.4)	15 (55.5)	
5th (*n*=20)	9 (45.0)	11 (55.0)	
6th (*n*=20)	8 (40.0)	12 (60.0)	
Intern (*n*=21)	9 (42.9)	12 (57.1)	0.772**
Smoking status			
Current smoker (*n*=30)	15 (50.0)	15 (50.0)	
Ex-smoker (*n*=10)	7 (70.0)	3 (30.0)	
Non-smoker (*n*=142)	62 (43.7)	80 (56.3)	0.244**
1st degree relative with depression			
Yes (*n*=28)	12 (42.9)	16 (57.1)	
No (*n*=154)	72 (46.8)	82 (53.2)	0.704**
Domestic abuse or violence			
Yes (*n*=18)	5 (27.8)	13 (72.2)	
No (*n*=164)	79 (48.2)	85 (51.8)	0.099**
Major trauma or psychiatric event			
Yes (*n*=17)	7 (41.2)	10 (58.8)	
No (*n*=165)	77 (46.7)	88 (53.3)	0.665**
Chronic medical or psychiatric disease			
Yes (*n*=23)	10 (43.5)	13 (56.5)	
No (*n*=159)	74 (46.5)	85 (53.5)	0.783**

*Student's *t*-test **χ^2 test SD: Standard deviation

Table 3: Factors associated with severity of depression

	Degree of depression					*P*
	Normal (*n*=84)	Mild (*n*=47)	Borderline (*n*=15)	Moderate (*n*=28)	Severe/Extreme (*n*=8)	
Age						
Mean	21.9	22.2	22.3	22.2	21.3	
SD	2.0	1.9	1.8	1.9	1.9	0.619*
Marital status						
Married (*n*=28)	13 (46.4)	8 (28.6)	2 (7.1)	4 (14.3)	1 (3.6)	
Single (*n*=154)	71 (46.1)	39 (25.3)	13 (8.4)	24 (15.6)	7 (4.5)	0.994**
Academic level						
1st (*n*=34)	20 (58.8)	6 (17.6)	3 (8.8)	4 (11.8)	1 (2.9)	
2nd (*n*=33)	13 (39.4)	10 (30.3)	1 (3.0)	6 (18.2)	3 (9.1)	
3rd (*n*=27)	13 (48.1)	6 (22.2)	3 (11.1)	3 (11.1)	2 (7.4)	
4th (*n*=27)	12 (44.4)	9 (33.3)	2 (7.4)	3 (11.1)	1 (3.7)	
5th (*n*=20)	9 (45.0)	4 (20.0)	2 (10.0)	5 (25.0)	0 (0.0)	
6th (*n*=20)	8 (40.0)	5 (25.0)	4 (20.0)	3 (15.0)	0 (0.0)	
Intern (*n*=21)	9 (42.9)	7 (33.3)	0 (0.0)	4 (19.0)	1 (4.8)	0.823**
Smoking status						
Current smoker (*n*=30)	15 (50.0)	4 (13.3)	3 (10.0)	7 (23.3)	1 (3.3)	
Ex-smoker (*n*=10)	7 (70.0)	2 (20.0)	0 (0.0)	1 (10.0)	0 (0.0)	
Non-smoker (*n*=142)	62 (43.7)	41 (28.9)	12 (8.5)	20 (14.1)	7 (4.9)	0.525**
1st degree relative with depression						
Yes (*n*=28)	12 (42.9)	6 (21.4)	1 (3.6)	6 (21.4)	3 (10.7)	
No (*n*=154)	72 (46.8)	41 (26.6)	14 (9.1)	22 (14.3)	5 (3.2)	0.288**
Domestic abuse or violence						
Yes (*n*=18)	5 (27.8)	2 (11.1)	2 (11.1)	4 (22.2)	5 (27.8)	
No (*n*=164)	79 (48.2)	45 (27.4)	13 (7.9)	24 (14.6)	3 (1.8)	<0.001**
Major trauma or psychiatric event						
Yes (*n*=17)	7 (41.2)	1 (5.9)	2 (11.8)	1 (5.9)	6 (35.3)	
No (*n*=165)	77 (46.7)	46 (27.9)	13 (7.9)	27 (16.4)	2 (1.2)	<0.001**
Chronic medical or psychiatric disease						
Yes (*n*=23)	10 (43.5)	8 (34.8)	2 (8.7)	3 (13.0)	0 (0.0)	
No (*n*=159)	74 (46.5)	39 (24.5)	13 (8.2)	25 (15.7)	8 (5.0)	0.714**

*ANOVA **χ^2 test ANOVA, analysis of variance, SD: Standard deviation

various stressors specific to a medical college in addition to usual everyday life stressors.[42]

In this study, the level of depression was mild among 25.8%, whereas it was severe or extreme among 4.4% of the students. About 14% of medical students had symptoms of moderate to severe depression, according to a study published in *JAMA* in 2010.[42] A study carried out in Makkah, depression was mild in18.4%, moderate in 9.6%, and severe in 2.9% of the junior medical students.[33] In India, depression was mild in 33.6%, 13.5% moderate in 13.5%, and severe in only 0.7% severe.[20] In Cameron, mild, moderate, moderately severe, and severe depression were observed among 34.6%, 26.4%, 3.4%, and 0.8 of the students, respectively.[43] In South India, mild, moderate, and severe depressions were reported among 43%, 12%, and 3% of students, respectively.[28]

Regarding associated factors, only having a history of recent major trauma or psychiatric event and history of domestic abuse or violence were significantly associated with severity of depression in this study. In a similar study carried out in Makkah (2015), Jarwan revealed that the students in higher academic levels were less likely to have depression compared with a student in the first year. Additionally, in agreement with our findings, students who lost a father, mother, and brother had a higher risk to get depression compared with who is free from this factor.[33] In India (2017), family history of depression or family conflicts leads to an increase in the prevalence of depression.[20] In the USA (2012), social support from faculty and friends, and extracurricular activities were the most commonly reported coping mechanisms to help medical students.[31] In South Korea (2010), younger students, those living alone, and students reported financial problems were at higher significant risk for depression compared with their counterparts.[34] In Nepal 2012, depression was higher significantly among students of the first year than those of the third year.[22] In Karachi, Pakistan (2006), depression was more significantly reported among students who had a positive family history of depression/anxiety, illicit drug abuse, and had a history of recent losing a close relative.[44] In Karachi (2003), the prevalence of depression was significantly higher in students of the first and second years.[32] In Nigeria (2008), regular smoking was significantly associated with depression.[17] Puthran *et al.* (2016) reported in a systematic review that depression was

highly reported among students of the first year, postgraduates, and students of the Middle Eastern region.[36] In Najran (KSA),[45] depression was significantly associated with the academic level and daily studying hours outside the University. In Cameroon, Significant predictors for depression were having a chronic disease, major life events, being female, and being at the clinical level (OR: 4.26, $P < 0.001$).[43] In South India, year of study, family history of depression, having financial problem, substance abuse, participation in extracurricular activities, family conflicts, and health problems were predictors for depression.[28]

It has been reported that medical students did not seek appropriate help for mental health problems. This issue needs to be addressed and students should be encouraged to seek help.[32,42]

Limitations of the study include the cross-sectional design which limits the interpretation of the direction of the associations. In addition to the lack of baseline information concerning mental status of medical students at the time of entrance in the medical school to support our results. Despite those limitations, the study could have public health importance through exploring this issue and identifying its possible correlates.

It is concluded that depression is a common problem among male medical students and interns in AlBaha University, with no difference according to demographics, smoking history, family history of depression, history of chronic medical or psychiatric illness, history of domestic/violence abuse, and history of major trauma or psychiatric event. However, severe or extreme depressions were more reported among students with histories of major trauma or psychiatric event and domestic or violence abuse.

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Conflicts of interest

There are no conflicts of interest.

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