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Depression Among First Generation Medical Students and Non-First-Generation Medical Students in the West of Saudi Arabia

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ABSTRACT

Depression is a major human blight. Globally, it is responsible for more disability than any other condition. Based on previous studies, medical students are at high risk for depression because of their stressful lifestyle. In the current study, we suspected a high prevalence of depression in FG medical students rather than their colleagues who are not FG. First-generation students are those whose parents did not attend college or obtained a college degree. Unfortunately, they struggle with difficulties in their academic life, such as financial wellness, psychological family stressors, and a lack of professional social networks. The mean well-being score was significantly higher among males (55.5 ± 21.6) compared to females (44.36 ± 23.14), p<0.001. The students from the Taif region showed significantly poor lower well-being scores (44.9 ± 21.95), whereas those from Makkah (54.53 ± 23.95) and Medina (54.08 ± 20.71) had higher scores (p<0.001). The well-being scores were significantly lower among those who visited a psychiatrist (42.79 ± 23.74) and those who were diagnosed with any psychiatric disorders (41.46 ± 22.22), p<0.001. Similarly, we observed that the students who had family members diagnosed with psychiatric disorders had significantly lower well-being scores (46.67 ± 23.88) compared to those who didn't have (50.69 ± 22.73), p=0.026). In this study, there were no significant differences in well-being between FG and non-FG medical student mean while there were statistically significant differences between the other different characteristic students.

Keywords: *Depression, First-generation, Medical student, Western region, Saudi Arabia*

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INTRODUCTION

Depression is a common and serious mood disorder that adversely affects how a person feels, thinks, and acts (Raeisi *et al*., 2020; Mehrzad *et al*., 2022). It leads to a feeling of sadness and/or a loss of interest in what was previously perceived as pleasurable activities. Unlike the usual brief mood fluctuations people experience in their daily life, depression episodes can recur with moderate to severe intensity that greatly affects a person's well-being resulting in poor quality of life. Moreover, depression can lead to suicide. It is estimated that suicide causes the death of more than 700000 people annually, and it is the fourth cause of death in the age group from 15–29 years old. Depression is a global problem. According to the world health organization (who), 3.8% (280 million) of the world's population suffer from depression, and females are more affected than males. Furthermore, depression is the leading cause of disability worldwide. The clinical presentation of depression includes excessive feelings of guilt, concentration problems, energy loss, and sleep disturbances. All of these symptoms impair a person's ability to function appropriately at their work, social life, and studies (2021). However, because of stigma, a lack of efficient treatment, and insufficient mental health resources, depression is frequently misdiagnosed and left untreated.

Depression can also affect physicians. Globally, a systematic review conducted in 2015 reported that 28% of 17,560 physicians from North America, Asia, Europe, and South America have depression (Sun, *et al*., 2022). Locally, a study done in Jeddah, western Saudi Arabia identified depression in 75.8% of the 149 residents (Alshardi & Farahat, 2020).

During their six years of medical school, medical students are known to face the stress that lowers academic progress and life quality. Stress was found to be linked to depressive symptoms in medical students, and depressive symptoms were reported by 30% of students. There was an approximately 17% increase in the number of students experiencing depressive symptoms

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from the first to the third year, indicating that depression in a medical student is cumulative and the disease or symptoms worsen over time if not diagnosed and treated effectively. Medical students are at a high risk of developing depression or depressive symptoms. In comparison to those in other disciplines, medical students reported a depression rate that was 25% greater. Stress was prevalent among 57% of Saudi medical students. Another study conducted at king Faisal university in Saudi Arabia revealed that 16% of Saudi medical students had depression (Alharbi *et al*., 2018).

additionally, first-generation college students are the first in their own families to attend college and may be more susceptible to developing mental diseases, although the research is little, many first-generation students have additional difficulties during their post-secondary education, that students whose parents have college degrees are less likely to experience (Alharbi *et al*., 2018). According to a survey done among 58 thousand students, first-generation students were more likely to have competing home and work obligations, poorer mathematics, and English skills, and worse study skills, although there are differences in health status in depression and anxiety symptoms across several population groups, there is a lack of information in the literature about the symptoms of mental illness in first-generation college students (Alharbi *et al*., 2018). Until now there is no single study conducted to determine the association between stress and fg medical students in Saudi Arabia in general and the western region in specific. The current study tried to determine whether there was a relationship between first-gen student status, and depressed and anxious symptoms to fill this knowledge gap.

MATERIALS AND METHODS

From October to December 2022, a cross-sectional study was conducted among medical students in the western part of Saudi Arabia. Residents in the western area, who were willing to participate in the study, and who were medical students at the time of data collection were included. The EPI info tool was used to determine the sample size based on the population size, a 95% confidence range, and a 5% margin of error. Considering that there will be 10% fewer responses than expected, the original predicted sample size of 384 was increased to 422. Google Forms was used to deliver an online self-administered survey for the participants. The interface gave a clear explanation of the study's purpose. Based on previous studies, a validated questionnaire was utilized. The questionnaire asked about the participants' sociodemographic information, including their gender and academic year, as well as questions about their own and their families' psychiatric history. It also included the WHO-5, a five-item depression screening tool from the World Health Organization.

In a pilot study with a sample of 20 participants, the questionnaire was pretested; however, the findings were excluded from the study. To guarantee that the questions were understandable and clear, several adjustments were made accordingly. The information from the participants was gathered using a convenient non-probability sampling technique. The 23rd edition of the Statistical Package for Social Science was used to code, input, and analyze the data. Quantitative information was presented as a number and a percentage (No. &%). The qualitative data between the two groups were examined using the Chi-square ($\chi 2$) test.

RESULTS AND DISCUSSION

Our analysis included 853 undergraduate medical students from the Western province of Saudi Arabia. The socio-demographic analysis showed that 447 (52.4%) were females, 244 (28.6%) were from the Taif region, 202 (23.7%) were in the fifth year of study, 624 (73.2%) were first-generation medical students, 625 (73.3%) of the parents had a college-level education, and 447 (52.4%) had a monthly income of >15,000 SAR. It was reported by 159 (18.6%) of the students that they had visited a psychiatrist, and about 137 (16.1%) were diagnosed with psychiatric disorders **(Table 1)**.

Table 1. sociodemographic details

		Frequency	Percent
Gender	Female	447	52.4
	Male	406	47.6
Residence	Taif	244	28.6
	Jeddah	231	27.1
	Makkah	193	22.6
	Medina	185	21.7
Year of Study	1.0	102	12.0
	2.0	137	16.1
	3.0	102	12.0
	4.0	112	13.1
	5.0	202	23.7
	6.0	198	23.2
First-generation medical student	No	229	26.8
	Yes	624	73.2
Parents education level	Illiterate	26	3.0
	Elementary school	58	6.8
	High school	144	16.9
	College	625	73.3
Monthly family income	<5000	50	5.9
	5000-10000	147	17.2
	10000-15000	209	24.5
	>15000	447	52.4
Visited a psychiatrist	No	694	81.4
	Yes	159	18.6
Diagnosed with any psychiatric disorders	No	716	83.9
	Yes	137	16.1

The WHO-5 well-being assessment of the participating students is given in **Table 2**. The assessment showed that only 4.7% of the students didn't know they feel cheerful and in good spirits "at no time," whereas about 8.3% reported that they have 'all the time. 'About 7.3% and 17.5% of the students reported that they felt calm and relaxed 'at no time' and 'some

of the time' respectively. About 6.4% and 6.3% of the students felt active and vigorous 'at no time' and 'all of the time' respectively. Only 6.8% of the students woke up feeling fresh and rested 'all of the time,' whereas about 15.2% reported they had this "at no time." About 22.5% of the students reported that their daily life had been filled with things that interested them, whereas 10.6% felt so "at no time." The mean total scores were converted to 100, and the mean score was found to be 49.66 ±23.08, which shows that the overall quality of life in these students was below average.

Table 2. Distribution of well-being scores

	Responses (n, %)						Mean (SD)
	At no time	Some of the time	Less than half of the time	More than half of the time	Most of the time	All of the time	
I have felt cheerful and in good spirits.	40(4.7%)	126(14.8%)	189(22.2%)	227(26.6%)	200(23.4%)	71(8.3%)	2.74 (1.31)
I have felt calm and relaxed	62(7.3%)	149(17.5%)	215(25.2%)	198(23.2%)	173(20.3%)	56(6.6%)	2.51 (1.35)
I have felt active and vigorous	55(6.4%)	153(17.9%)	236(27.7%)	222 (26.0%)	133(15.6%)	54(6.3%)	2.45 (1.29)
I woke up feeling fresh and rested.	130(15.2%)	155(18.2%)	236(27.7%)	159(18.6%)	115(13.5%)	58(6.8%)	2.17 (1.45)
My daily life has been filled with things that interest me.	90(10.6%)	147(17.2%)	180(21.1%)	192(22.5%)	145(17.0%)	99(11.6%)	2.53 (1.50)
Total Score (100)							49.66 (23.08)

The comparison of well-being scores between different characteristics of the students is given in **Table 3**. The mean well-being score was significantly higher among males (55.5 ± 21.6) compared to females (44.36 ± 23.14), p<0.001. The students from the Taif region showed significantly poor lower well-being scores (44.9 ± 21.95), whereas those from Makkah (54.53 ± 23.95) and medina (54.08 ± 20.71) had higher scores (p<0.001). Students in the second year showed significantly lower scores, whereas those from the first, fifth, and sixth years showed higher scores (p<0.001). However, there were no statistically significant differences observed in well-being scores between first-generation and non-first-generation medical students (p=0.946). Also, parents' educational level didn't show any statistically significant differences in well-being scores (p=0.591). The well-being scores were significantly lower among those who visited a psychiatrist (42.79 ± 23.74) and those who were diagnosed with any psychiatric disorders (41.46 ± 22.22), p<0.001. Similarly, we observed that the students who had family members diagnosed with psychiatric disorders had significantly lower well-being scores (46.67 ± 23.88) compared to those who didn't have (50.69 ± 22.73), p=0.026).

Table 3. Comparison of well-being scores based on different characteristics of students

		N	Mean	Std. Deviation	P value
Gender	Female	447	44.36	23.14	<0.001
	Male	406	55.50	21.60	
Residence	Taif	244	44.90	21.95	<0.001
	Jeddah	231	47.08	24.02	
	Makkah	193	54.53	23.95	
	Medina	185	54.08	20.71	
Monthly income (SAR)	>5000	50	45.12	23.41	0.145
	5000-9999	147	46.80	22.28	
	10000-15000	209	50.56	24.52	
	>15000	447	50.68	22.55	
Year of Study	1.0	102	53.57	22.05	<0.001
	2.0	137	41.90	22.85	
	3.0	102	48.16	24.28	
	4.0	112	48.79	21.50	
	5.0	202	52.53	23.64	
	6.0	198	51.35	22.35	
Parents education	Illiterate	26	44.46	29.81	0.591

	Elementary school	58	48.69	22.44	
	High school	144	48.81	22.14	
	College	625	50.16	23.07	
First generation	No	229	49.57	23.07	0.946
	Yes	624	49.69	23.11	
Visited a psychiatrist	No	694	51.23	22.66	<0.001
	Yes	159	42.79	23.74	
Diagnosed with any psychiatric disorders	No	716	51.23	22.93	<0.001
	Yes	137	41.46	22.22	
Family members diagnosed with psychiatric disorders	No	634	50.69	22.73	0.026
	Yes	219	46.67	23.88	

The findings of this study highlight that medical students in Saudi Arabia experience poor well-being due to depression. First-generation (FG) college students, or students whose parents did not earn a bachelor's degree, make up most of the student body (Romanelli, 2020). About three-fourths of our study participants were FG medical students. However, we didn't find significant differences in depression levels between FG and non-first-generation (NFG) medical students. It is unclear how medical student depression levels compare to those of FG and N-FG undergraduate and graduate students. According to the available evidence, first-generation college students are more likely to have conflicting commitments at work and home, have lower proficiency levels in science and English, and have poorer study abilities (Janke *et al*., 2017; Noel *et al*., 2021). Fg students were likelier to experience negative emotions such as depression, stress, or anxiety and may have a harder time concentrating in class than NFG students (Deng *et al*., 2022). Grade point averages (GPAs) were shown to be considerably lower among FG students, compared to NFG students, independent of gender, ethnicity, or race (Holmes & Slate, 2017). The academic engagement was worse, and graduation rates were lower among FG students at large public research institutions in the united states (Kokou-Kpolou *et al*., 2021). Furthermore, a survey of 948 first-year students in science, technology, engineering, and math (stem) disciplines shows that FG students are more prone to suffer impostor feelings, defined as the fear of being revealed as incompetent or unfit (Canning *et al*., 2020).

consistent with prior research, the results of the current study imply that female college students report higher cognitive-emotional symptoms of depression. For young women, anxiety problems are the most prevalent mental health issue they face (Black & Roffey, 2018). Greater depression symptoms may be the result of heightened anxiety sensitivity, which is a dread of anxiety-related circumstances or anxiety's repercussions. Similar gender differences are expected to have their origins in infancy and persist through adolescence and adulthood (Aliverdi *et al*., 2022, Amamou *et al*., 2022) since other researchers have found that female college students had considerably higher depression than their male counterparts (Saleh *et al*., 2017). The depression levels were higher among students whose monthly income was less, even though it didn't show statistical significance.

there is evidence to suggest that those from poorer socioeconomic backgrounds and college students with heavier financial loads are more prone to experience depression and anxiety symptoms (Mcnamara *et al*., 2017; Lai *et al*., 2022). Moreover, subjective measures of SES may moderate the connection between objective measures of social class and depressed symptoms (Hoebel *et al*., 2017). A comprehensive study also found that parental conflict, parental depression, parenting methods, and teenage resilience moderate the association between economic stress and mental health problems (Devenish *et al*., 2017). Furthermore, there is evidence to show that lower socioeconomic status is related to less successful outcomes from psychological therapy (Finegan *et al*., 2018), thereby extending the association between SES and mental illness to treatment outcomes.

The depression levels were found to be significantly higher among second-year students and lesser among first-year and final-year students. The prevalence of depressive symptoms and the variables that contribute to their depression were studied by Dahlin *et al*. (2005) among students at varying stages of their medical education. It was shown that medical students, compared to the general population, had a greater frequency of depressive symptoms. Evidence from meta-analysis shows that the incidence of depression varies across the academic years in medical school (Puthran *et al*., 2016). In contrast to our findings, it was reported that first-year medical students had the highest prevalence compared to final-year students (Puthran *et al*., 2016). Our findings are consistent with another study, which also reported a higher prevalence among second-year students (Almigbal *et al*., 2022). According to a study by khan *et al*., the prevalence of depression was much higher among freshman medical students than it was among older students (Ibbad *et al*., 2022). In contrast, different research found that the risk of depression was considerably greater in third-year students compared to freshmen (Haykal *et al*., 2022). This study also found that third-year students experienced a higher degree of perceived stress than first-year students. Another study found that the rates of depression, anxiety, and stress disorders among medical students were equivalent to the public at the beginning of medical school but deteriorated during their depression (Feussner *et al*., 2022). Our study findings have implications for research as well as for programmatic efforts. First and foremost, there is a pressing need for more research to be conducted on the relationship between being an FG medical student and exhibiting signs and symptoms of mental illness. As mentioned earlier, the literature on this issue is rather limited. In the beginning, there

is a need for cross-sectional research that uses representative samples to validate the current findings and build upon them. It is interesting to note that there are already a few studies that are of very good quality and might include a question to categorize students depending on their generation status.

Some limitations should be highlighted before interpreting our study findings. First, it is crucial to keep in mind that practically all the data pooled in this study came from self-report assessments of depression symptoms, which ranged widely in their sensitivity and specificity for diagnosing the major depressive disorder while attempting to make sense of the results. Despite their flaws, self-report measures of depressed symptoms are crucial for getting a reliable read on depression among medical students because they provide a level of anonymity that is not available in clinical settings.

CONCLUSION

In the current study, there were no significant differences in well-being between FG and non-FG medical student mean while there were statistically significant differences between the other different characteristic students.

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