A Descriptive Study of Depressive Disorders among Medical Students in Jalalabad City

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ABSTRACT

Depression is one of the most common and significant mental health problems, affecting approximately 280 million people globally. Medical students, who live in the stressful environment of the medical field, frequently exhibit depressive symptoms. This study aimed to determine the prevalence and severity of depressive disorders among medical students in the medical faculties of Jalalabad city. A cross-sectional study was conducted from November 1, 2023, to November 30, 2023, among students of the curative medicine faculties in Jalalabad, Nangarhar, Afghanistan. The sample size was 460, with an equal number of students randomly selected from each medical faculty and each academic year, from the 1st to the 5th year. The Patient Health Questionnaire-9 (PHQ-9) was utilized to screen for depressive symptoms. Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 28. All of the 460 medical students selected through a stratified random sampling method responded to the questionnaire. A total of 335 (72.8%) medical students had at least one type of depressive disorder. Among them, 140 (30.4%) had mild depression, 135 (29.3%) had moderate depression, 40 (8.6%) had moderately severe depression, and 20 (4.3%) reported severe depression. Notably, fourth-year students had the highest prevalence among all classes, with a rate of 74.2%. The study found a high prevalence of depressive disorders among medical students, highlighting the need for further studies to investigate the causes and associated factors of depression among medical students in Jalalabad City.

Keywords: Depressive disorder, Mental health, Medical students, Patient Health

INTRODUCTION

Among all health problems and challenges, depression is one of the most prevalent and costly health issues (Wells et al., 2010). Depression is a prevalent mental condition that affects approximately 280 million people worldwide and is the leading cause of disability. According to World Health Organization's (WHO) prediction, by 2030 major depression will be the leading cause of non-fatal burden worldwide (Juanico-Morales et al., 2023). Depression is a mood disorder characterized by reduced interest and pleasure (anhedonia), loss of energy (anergy), feelings of guilt, lower self-esteem, sleep disturbances, changes in appetite, and difficulty concentrating (Ngasa et al., 2017). Depression has complex causes, including genetic vulnerability, severe life stresses and pressures, substance abuse such as narcotics, drug abuse, alcohol, and clinical predisposition (Ehsan et al.). Students at university age are in a unique period of their lives, transitioning from adolescence to adulthood and making significant life decisions. During this time, they experience extreme pressure from various sources, including economic stress, educational demands, and interpersonal relationships. Studies

indicate that students often have poorer mental health compared to others of the same age, with a high prevalence of mental disorders such as depression. Depression not only causes painful feelings such as fear, inadequacy, and anger but is also associated with psychosocial and physical disorders (Lei et al., 2016). Among all educational fields, the medical field is highly competitive, leading to significant stress among medical students. This stress can impair the memorization process and negatively impact mental and physical health, often resulting in absenteeism and, tragically, suicide (Shah et al., 2021). Medical students often encounter numerous challenging and stressful situations during their studies, including academic, psychosocial, and existential stress, all of which they must navigate (Shrestha et al., 2019). Multiple studies have been conducted, revealing varying rates and characteristics of depression among students, ranging from as low as 2.1% to an alarmingly high 88.8%, with a median prevalence of 34.8%. For instance, 45.4% of medical students in North America, 34.2% of medical students in the city of Alberta, Canada, 66.86% of medical students in Saudi Arabia, and 88.8% of medical students in Egypt experienced depressive symptoms during their university years (Agyapong-Opoku et al., 2023). These symptoms varied among academic years, showing an increasing pattern. For instance, overall, 30% of medical students reported symptoms of depression, with an approximately 17% increase observed from the first year to the third year. If these symptoms are left undiagnosed and untreated, they tend to worsen over time, indicating that depression accumulates in medical students (Alharbi et al., 2018). In Lahore, 75% of undergraduate medical students from a private university experienced depression during their university years (Zafar et al., 2020).

Afghanistan has been suffering from disasters, poverty, political instability, war and conflicts, destruction of property, insecurity, and mass displacement for around forty years. All these conditions have profoundly impacted various aspects of life in Afghanistan, disrupting educational facilities and curricula, leading to inconsistent and often inadequate schooling, and deteriorating mental health as individuals face ongoing stress and trauma from living in an unstable environment. Consequently, the prevalence of mental disorders such as depression and anxiety has significantly increased, particularly among students and health workers who are under immense pressure (Panter‐Brick et al., 2008). Additionally, the COVID-19 pandemic has been associated with the neglect and postponement of attention to mental health, particularly depressive disorders, leading to an increased prevalence of depression among students (Neyazi et al., 2023). Along with this, the unavailability of high-quality data on mental health and the lack of professional human resources have severely hindered the development of cost-effective and efficient plans, strategies, and interventions for reducing and eliminating the growing challenges of mental health, particularly depression (Sayed, 2011). Due to various reasons, Afghanistan's healthcare system does not cover the entire population. As a result, people often obtain healthcare from the costly private sector, which predisposes them, especially students, to mental illnesses, particularly depression (Hamrah et al., 2018). Within the Basic Package of Health Services (BPHS) framework, disability and mental health were incorporated in 2005 to become significant components of healthcare services, in response to their escalating negative impacts on health and quality of life (Frost et al., 2016). Depression not only affects medical students but also influences healthcare practitioners. For example, in Herat province, 73.6% of health workers reported symptoms of depression (Mohammadi et al., 2023)， while at Kabul University of Medical Sciences, 66.9% of students experienced symptoms of depression during their first year, with many attributing these symptoms to the curriculum, educational system, and teaching methods (Ehsan et al.). These data indicate that depression among university students is a significant issue that requires thorough description

and the provision of evidence-based interventions to address these challenges effectively. In the eastern region of Afghanistan, especially in Nangarhar, no research has been conducted on depression among students, particularly medical students. Therefore, this study was designed to elucidate the prevalence and severity of depressive disorders among students enrolled in medical faculties in Nangarhar Province.

MATERIALS AND METHODS

The study was conducted from November 1, 2023, to November 30, 2023, among students enrolled in curative medicine faculties in Jalalabad, Nangarhar, Afghanistan. There are four curative medicine faculties in Jalalabad City, one of which is governmental and the remaining three are private. Samples from all four medical faculties were included in the study. The design employed in this study is descriptive cross-sectional. The sample size were calculated by $n = \frac{Z^2 P(1-p)}{d^2}$ = 384.16 formula (Pourhoseingholi et al., 2013); where n is sample size, Z = 1.96 is statistic corresponding to 95% of level of confidence, P = 0.5 is expected prevalence, and d = 0.05 is precision. Twenty percent of non-respondent rate was added to the sample size and a total of 460 students were included in the study (Pourhoseingholi et al., 2013). Nearly the same number of students from all curative medicine faculties were selected. Using a stratified random sampling method, 460 students were included in the study, with an equal number (115, constituting 25%) selected from each university. During the research period, only students of 1st to 5th year were present. Equal number (23) 20% of students were selected randomly from 1st, 2nd, 3rd, 4th and 5th year's students.

Data was collected through a nine-item Patient Health Questionnaire-9 (PHQ-9), which also included sociodemographic and academic information. The PHQ-9 is a highly reliable, valid, and rapid screening tool used for identifying depressive symptoms and assessing their severity, suitable for both clinical and research purposes (Rahman et al., 2022). The reliability coefficient Cronbach's α for PHQ-9 is 0.824, indicates high reliability of the questionnaire (Rahman et al., 2022). Before collecting data, a pilot study involving 50 students was conducted at Nangarhar Medical Faculty, and the Cronbach's α reliability coefficient was calculated to be 0.807. Questions were organized using Likert items and graded from 0 to 3, representing the frequency of occurrence: "Not at all", "Several days", "More than half the days", and "Nearly every day" (Williams, 2014). At the end, all items were calculated to generate a total score out of 27. This total score was then used in a diagnostic algorithm, where scores ranging from 0 to 4 were considered as indicative of none/minimal depression, scores from 5 to 9 were classified as mild depression, scores from 10 to 14 were categorized as moderate depression, scores from 15 to 19 were considered moderately severe depression, and scores of 20 and above were classified as severe depression (Sun et al., 2020).

In the sociodemographic section, students were asked to provide comprehensive details regarding various aspects of their personal background. This included age, gender, weight, height, marital status, residence (whether they lived on or off-campus), household monthly income, part-time job status (whether they were employed alongside their studies), and smoking habits. Gathering this information aimed to capture a holistic understanding of the students' demographic profile, lifestyle factors, and socioeconomic circumstances, all of which could potentially influence their mental health status and susceptibility to depression. Information about major life events in the past 3 months was also requested. This included chronic illnesses, the loss of a family member or friend, involvement in a road traffic accident, and hospitalization for major illnesses. Body mass index (BMI) was calculated by dividing the weight in kilograms by the square of height in meters (kg/m2)

(Nihiser et al., 2007) and classified according to the World Health Organization's (WHO) criteria into underweight, normal weight, overweight, and obesity grades I, II, and III (Weisell, 2002). In the academic information section, students were asked to provide details about their educational background. This included the name of the university or higher education institute they were attending and their current academic year. Additionally, students were invited to share their total average marks, providing valuable insight into their academic performance and accomplishments. This comprehensive array of information aimed to offer a holistic view of the students' educational path, assisting in the evaluation of their academic standing and potential associations with depressive symptoms. The total grade point average (GPA) was then calculated from the total average marks (Westrick, 2017).

The data was analyzed using Statistical Package for the Social Sciences (SPSS) version 27.0, and distributions of all required variables are provided in well-crafted written statements and tables.

The ethical approval for conducting this study was obtained from the Research and Ethics Board of Nangarhar Medical Faculty, ensuring adherence to ethical guidelines and standards. Prior to participating in the study, students were provided with detailed information about the research objectives, procedures, and potential risks. Informed consent was obtained from each student before they responded to the questionnaire, emphasizing their voluntary participation and the confidentiality of their responses.

RESULTS

Sociodemographic Data

A total number of 460 medical students from one governmental university and three private higher educational institutes were included in this study. The mean age was 22.89 ± 3.174 standard deviation (SD), with the majority of students residing in urban areas and being single (70.2% and 73.5%, respectively). 90.7% of medical students reported never smoking, while 95.2% were free from chronic diseases. Additionally, 90.2% of students had never been hospitalized for any major illness in the past 3 months. Most medical students reported having a middle or lower household economic status, with 38.5% indicating a middle economic state and 36.3% reporting a lower economic state. Conversely, only 25.2% of students reported good household economic status. Most students did not have a part-time job, with 80.9% and 86.7% of medical students reporting no involvement in road traffic accidents in the past 3 months. Furthermore, more than half (60.60%) of medical students had a normal body weight (Table 1).

Table 1. Sociodemographic data of the medical students

Sociodemographic Characteristics	n (%)
Age, years (±SD)	22.89 ± 3.174
Marital status	
Single	338 (73.5%)
Married	122 (26.5%)
Residence	
Urban	323 (70.2%)
Rural	137 (29.8%)
Monthly income (Af)	
Low (<15000)	167 (36.3%)
Middle (15000 – 30000)	177 (38.5%)
Good (>30000)	116 (25.2%)
Part time job	
Yes	88 (19.1%)
No	372 (80.9%)

Sociodemographic Characteristics	n (%)
Chronic disease	
Yes	22 (4.8%)
No	438 (95.2%)
Smoking	
Yes	43 (9.3%)
No	417 (90.7%)
Major Life Event (Past 3 months)	
Loss of family member or friend	113 (24.6%)
Road Traffic Accident	61 (13.3%)
Hospitalization for major illnesses	45 (9.8%)
Body Mass Index (BMI))	
Underweight	30 (6.5%)
Normal Weight	279 (60.6%)
Overweight	124 (26.9%)
Obesity Grade I	23 (5.0%)
Obesity Grade II	3 (0.6%)
Obesity Grade III	1 (0.2%)

Academic data of medical students

A sample of 460 medical students was selected from one governmental University (Nangarhar Medical Faculty) and three private medical institutions (Spinghar, Rokhan, and Aryana), with an equal number of students, 115 (25%) from each medical faculty and an equal number of students, 23 (20%) from each grade year. Most of the students had a GPA between 2 and 3 (Table 2).

Table 2. Academic data of medical students

Variable	n (%)
No of Students from each medical Faculty	
Nangarhar	115 (25%)
Spinghar	115 (25%)
Rokhan	115 (25%)
Aryana	115 (25%)
No of students from Each Academic Year	
First	23 (20%)
Second	23 (20%)
Third	23 (20%)
Fourth	23 (20%)
Fifth	23 (20%)
Grade Point Average (GPA)	
<2	80 (17.4%)
2-3	231 (50.2%)
>3	149 (32.4%)

Depressive disorders among students

A total of 335 (72.8%) medical students experienced various levels of depressive disorders, ranging from mild to severe stages of depression (total score, >4). Among them, 140 (30.4%) reported mild depression, 135 (29.3%) showed moderate depression, 40 (8.6%) exhibited moderately severe depression, and 20 (4.3%) reported severe depression (Table 3).

Table 3. severity of depressive disorders in medical students

Severity				
None-minimal	Mild	Moderate	Moderate severe	Severe
0-4	5-9	10-14	15-19	20-27
125 (27.2)	140(30.4%)	135 (29.3%)	40 (8.6%)	20 (4.3%)

The prevalence of depressive disorders was consistent across students of Nangarhar, Spinghar, and Rokhan medical faculties, all at 75.6%. However, it was lower among students of Aryana medical faculty, standing at 64.3%, as shown in table 4.

Table 4. Prevalence of overall depressive disorders among students of medical faculties

Prevalence of depression among students of medical faculties			
Nangarhar	Spinghar	Rokhan	Aryana
75.6%	75.6%	75.6%	64.3%

Among all medical faculties' students, the prevalence of severe and moderate depression was higher in Nangarhar medical faculty students. In private institutions, the prevalence of severe and mild depression was higher in Spinghar medical faculty students. Approximately one third of Rokhan medical faculty students experienced moderate and mild depression, respectively. Moreover, more than one third of students from Aryana medical faculty had mild depression (Table 5).

Table 5. Prevalence of mild, moderate, moderate severe and severe depressive disorders among medical faculties

Medical faculty	Depressive disorder	n (%)
Nangarhar medical faculty	Mild	25 (21.7%)
	Moderate	42 (36.5%)
	Moderate severe	12 (10.4%)
	Severe	8 (7.0%)
Spinghar medical faculty	Mild	45 (39.1%)
	Moderate	30 (26.1%)
	Moderate severe	6 (5.2%)
	Severe	6 (5.2%)
Rokhan medical faculty	Mild	31 (27.0%)
	Moderate	35 (30.4%)
	Moderate severe	16 (13.9%)
	Severe	5 (4.3%)
Aryana medical faculty	Mild	39 (33.9%)
	Moderate	28 (24.3%)
	Moderate severe	6 (5.2%)
	Severe	1 (0.9%)

The overall prevalence of depressive disorder was notably higher among students in higher-grade levels, reaching 74.2%, compared to 69.4% observed among those in lower-grade levels. Among all academic years, the overall higher prevalence of depressive disorder was observed in the fourth year, which was 78.2%, with a lower rate of severe depression. The prevalence of severe depressive disorder was not significantly different among students in the second, third, and fifth academic years, staying consistent at a rate of 5.4% as shown in Table 6.

Table 6. variations of depressive disorders prevalence according to academic year

Academic year	Depressive disorder	n (%)
First year	Mild	29 (31.5%)
	Moderate	25 (27.2%)
	Moderate severe	7 (7.6%)
	Severe	3 (3.3%)
Second year	Mild	26 (28.3%)
	Moderate	30 (32.6%)
	Moderate severe	5 (5.4%)
	Severe	5 (5.4%)
Third year	Mild	22 (23.9%)
	Moderate	31 (33.7%)
	Moderate severe	11 (12.0%)
	Severe	5 (5.4%)
Fourth year	Mild	28 (30.4%)
	Moderate	30 (32.6%)
	Moderate severe	12 (13.0%)
	Severe	2 (2.2%)
Fifth year	Mild	35 (38.0%)
	Moderate	19 (20.7%)
	Moderate severe	5 (5.4%)
	Severe	5 (5.4%)

The prevalence of overall depressive disorders did not differ significantly between urban and rural areas of residence, with rates of 73.1% and 72.3%, respectively. However, the prevalence of severe depression was higher among urban area residents compared to rural area residents, at 5.5% and 2.2%, respectively, as shown in Table 7.

Table 7. differences of depressive disorders prevalence according to residence

Residence	Depressive disorder	n (%)
Urban area	Mild	101 (31.3%)
	Moderate	88 (27.2%)
	Moderate severe	30 (9.3%)
	Severe	17 (5.3%)
Rural Area	Mild	39 (28.5%)
	Moderate	47 (34.3%)
	Moderate severe	10 (7.3%)
	Severe	3 (2.2%)

DISCUSSION

The high occurrence of depression among medical science college students is alarming because it can negatively impact their behavior, academic achievements, learning capabilities, and ultimately the quality of patient care

they provide once they start working. In this study, the Patient Health Questionnaire-9 (PHQ-9) was employed to identify the prevalence of depression among students of curative medicine faculties. This study revealed that the overall prevalence of depressive disorder was 72.8%. The overall results of our study were consistent with the findings in most studies on this topic. In a study conducted by Zafar et al, in Lahore the prevalence of depressive disorder among medical students was 75%, while in a public medical college in Karachi, the prevalence of Anxiety and depressive disorders was 70%, and similarly, in Sri Lanka prevalence of depression, revealing a rate of 70% of depression (Khan et al., 2006; Wickramasinghe et al., 2023; Zafar et al., 2020). These findings align closely with the result of our study. Furthermore, a study from Taif University in Saudi Arabia reports that the overall prevalence rate of depressive symptoms among medical students was 75.7% (Zaini et al., 2017), strikingly similar to our study's prevalence rate. In addition, some studies report quite different from our findings. A report from Mangalore Karnataka India has shown that 79.2% of students had depressive symptoms in Manipal University which is quite higher than the prevalence of our study, this variation may be due to variations in social and religious differences that need to be evaluated (Naushad et al., 2014). A study from Kabul University of Medical Sciences (KUMS) reported an overall prevalence of 65.5% of depression among medical students, the difference may be due to the university's curriculum and teachers' behavior, but in our research curriculum and teachers' behavior were not asked as associated factors for depressive disorders. Additionally, in a study at Ziauuddin Medical University of Karachi, the prevalence of depression was 60% which is lower than our study, this variation in the prevalence rate of this study could be due to the utilization of different questionnaires, analysis methods, as well as variations in geographical, cultural, environmental conditions, and lifestyle factors (Ehsan et al.; Inam et al., 2003).

Based on the study findings, the prevalence of severe depression was 4.3% which is consistent with the findings of other studies. In a study of depression among medical students in Cameroon, the prevalence rate was found to be 5.0%, which is comparable to the results of our study. (Ngasa et al., 2017). In a study of depression among medical students at Taif University, the mean prevalence rate of severe depression was 3.65 %. This rate is quite close to the results obtained in our study, indicating a similar trend in the prevalence of severe depression among medical students in different institutions. The proximity of these findings suggests that there may be common factors influencing depression rates across these educational environments (Zaini et al., 2017). As well as, in a study of depression among medical students at Lahore Medical and Dental College, the prevalence of severe depression was 1.5%. This lower rate might be attributed to good learning facilities and social factors, which should be further, assessed in future studies. (Zafar et al., 2020).

In our study, Prevalence of mild and moderate depressive disorder was 30.4 and 29.3%, respectively. This prevalence is consistent with the findings of other studies. For instance, a study conducted at a Saudi medical college found that 30.4% of medical students experienced mild depression, while 24.5% experienced moderate depression. (Alharbi et al., 2018). This suggests that mild to moderate depression is a widespread issue among medical students across various regions, likely due to similar educational environments. Several studies have investigated the prevalence of mild and moderate depression among medical students in different regions. Similarly, the prevalence rate of mild and moderate depression, in Nepal Medical College, was 39% and 14.0 %, in Alexandria medical university, 22.6 %, and 24.4%, In Taif, 35.7% and 21.6%, in Cameron, 34.6% and 26.4%, respectively (Adhikari et al., 2021; Ibrahim & Abdelreheem, 2015; Ngasa et al., 2017; Zaini et al., 2017). The results of all the mentioned research align closely with the findings of our study. Probable similar

results of moderate and mild depression among medical university students can encompass various factors associated with academic pressure, competitive environment, financial concerns, personal stresses, and lifestyle challenges.

In this study, the overall prevalence of depression was high at the clinical level at 74.2%, particularly in fourth-year students was 78.3% which was similar to the prevalence of depression among clinical-level students in another study (Ngasa et al., 2017). According to the results of our investigation, the prevalence of severe depression was 5.4% among fifth-year students, compared to 3.3% among first-year students. These rates are considerably lower than those reported in other studies. Likewise, a study conducted in America found that the prevalence of severe depression was 14.8% among first-year students and 7.2% among fifth-year (resident) students (Goebert et al., 2009) This discrepancy may be attributed to differences in measurement methods and scales. Based on our findings, the overall and moderate-to-severe prevalence of depression among students of public and private medical faculties was 75.6%, 71.8%, and 53.9%, 38.5%, respectively, while the overall and moderate-to-severe prevalence of depression in public and private medical faculties in Brazilian medical schools was 39.5%, 14.1%, and 40.9%, 10.3%, respectively (Brenneisen Mayer et al., 2016). The observed differences in prevalence rates may be attributed to several factors, including variations in research methodologies, the scales used to measure depression, and the overall prevalence of depression in the respective populations.

There are several limitations worth noting about this study. Firstly, participants may underreport or over-report symptoms of depression due to social desirability bias or inaccurate self-awareness. Secondly, the descriptive design and lack of diagnostic assessment may contribute to this bias. Third, the study may not adequately account for cultural differences, as the prevalence of depression may vary across different cultural and ethnic groups. Fourth, in this study, the prevalence of depression was restricted to male students because only male universities were selected (currently female's students are not allowed in higher education in Afghanistan). Consequently, the distribution of depression according to gender was not calculated.

CONCLUSION

The primary focus of this study was to explain the occurrence of depressive disorders and how they are distributed based on sociodemographic and academic factors. We found that a high level of depressive disorders was present among students of medical faculties in Jalalabad city, indicating the need for screening and evaluation for depression among students at the clinical level.

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CONFLICT OF INTEREST

All authors made a promising and significant contribution to the reported research work. Whether it was in selecting the research topic and title, designing the study and methods, conducting the research, collecting data, analyzing and interpreting the results, or contributing across all these areas, each author played a crucial role. They took part in drafting, critically reviewing, and revising the article; gave final approval of the version to be

published; agreed on the journal to which the article has been submitted; and accepted accountability for all aspects of the work.

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