

## ORIGINAL ARTICLE

# Depression, Anxiety and Stress using Depression, Anxiety, and Stress Scoring System (DASS-21) Among the Students of Women Medical and Dental College Abbottabad, Pakistan

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## ABSTRACT

**Objective:** To determine the frequency of stress, anxiety, and depression among medical students using DASS-21 scoring system.

**Study Design:** Cross sectional survey.

**Place and Duration of Study:** Women Medical and Dental College Abbottabad from 1<sup>st</sup> February 2023 to 31<sup>st</sup> July 2023.

**Materials and Methods:** A sample, containing 140 students, was included in the study after receiving ethical approval from the medical college. Twenty-eight medical students each from the first year to the fifth year were contacted by using simple random sampling technique and were each given a Depression, Anxiety and Stress Scale (DASS-21). The questionnaire used in this study had two parts: a sociodemographic one that asked students about their age, year of study, relationship with family, health status, time they spent on social media, personalities, socioeconomic class, academic performance, and DASS scale, the second part of the questionnaire. The data was analyzed using the IBM SPSS (version 26.0, Armonk, NY, USA).

**Results:** Anxiety was found in 85% of students (17% mild, 31% moderate, 15% severe, and 22% extremely severe). A total of 52% of students reported having depression (15% mild, 19% moderate, 11% severe, and 7% extremely severe). Forty-two percent of the medical students were stressed (15% mild, 12% moderate, 13% severe, and 2% extremely severe).

**Conclusion:** A high occurrence of anxiety, followed by depression and stress, was found among medical students, affecting their academic performance and social well-being.

**Key Words:** Anxiety, Depression, Medical Education, Student's Mental Health, Stress.

## Introduction

The World Health Organization (WHO) has laid out a compelling case for the importance of mental health, quoting it as a "state of well-being in which the

individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community".<sup>1</sup>

In today's frenetic world where everything is a competition, a race, where everyone is striving to be the best and working hard mental health is often neglected, making people vulnerable to mental illnesses with depression, anxiety, and stress being more prevalent. Healthcare workers, more specifically medical students the aspiring doctors, are more at risk of experiencing depression, anxiety, and stress as medical education is immanently stressful and demanding. Students are expected to acquire a broad range of expertise and skills in a limited time period making them undergo regular pressures and overwhelming burdens. In addition to the academic obligations, students face extremely competitive surroundings that requires social and personal sacrifices, along with disrupted sleep, high expectations from family and the institute, gender

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inequality, and discrimination aiding in considerable mental distress.<sup>2</sup>

Numerous studies have shown that compared to the general population, medical students experience higher levels of stress, anxiety, and depression, with overall psychological discomfort levels that are continuously higher.<sup>3</sup> A recent comprehensive study and meta-analysis estimated that 28% of medical students worldwide experienced depression or one of its symptoms.<sup>4</sup> A meta-analysis of 41 research including medical students from multiple countries reported a high pooled prevalence of depression among the students, at 37.9%, in the study by Jia Q *et al.*,<sup>5</sup> The prevalence of depression among medical students, however, has been estimated to be 39.4% in UK<sup>6</sup>, 29% in Malaysia<sup>7</sup>, 40% in India<sup>8</sup>, and 39.1% in Pakistan<sup>9</sup>. Among medical students worldwide, the incidence rate of anxiety was 33.8%. Middle Eastern and Asian medical students reported anxiety the most frequently.<sup>10</sup> Furthermore, a study conducted in Pakistan concluded that the frequency of stress among Pakistani medical students had been 51.6%.<sup>11</sup> Despite the growing body of research on this topic, there remains a significant literature gap in our region, where the mental health of medical students has been understudied. The aim of this study was to assess the level of stress, anxiety, and depression among medical students and investigate whether they are more susceptible to mental illnesses than the general population. If this could provide a more representative picture of the mental health of medical students in this region, enabling the development of targeted interventions to address the identified issues. Moreover, this study explored the underlying causes of mental illness among medical students, including academic pressure, social factors, and personal characteristics.

## Materials and Methods

A cross-sectional study was conducted on medical students of Women Medical and Dental College for a duration of 6 months from 1<sup>st</sup> February to 31<sup>st</sup> July 2023, after the receiving of ethical approval (Reference No: 2023-2 CIMID-ERC-23) from Institutional Review Board to get an estimate of frequency of stress, anxiety and depression. A total of hundred and forty students were selected through random probability sampling. The WHO sample size calculator was used to determine the sample size,

with a prevalence of 18.4%<sup>26</sup>, a confidence range of 95%, and an absolute precision of 0.08. Participants included were medical students, whereas the general public was excluded from the study.

A self-administered, self-constructed questionnaire with two components was used in the study. This was validated by a pilot study, whose data was not used in the findings. The first part of questionnaire was sociodemographic questionnaire, where in each student was asked to provide their age, year of study, relationship with family, health status, time spend on social media, hobbies/interests, personality type, socioeconomic class, academic performance and the second part was Depression, Anxiety and Stress Scale (DASS-21).<sup>12, 13</sup> The data was entered in an Excel spreadsheet and IBM SPSS (version 26.0, Armonk, NY, USA) was used to for statistical analysis.

DASS-21, which has three self-report scale, was used to measure the emotional states of stress, anxiety, and depression.<sup>12</sup> The range for the depression cutoff score was 9; 10–13 indicated mild depression, 14–20 was categorized moderate depression, 21–27 was labelled severe depression, and 28+ indicated extremely severe depression. The range for anxiety cut off score was 7; 8-9 was considered mild anxiety, 10-14 indicated moderate anxiety, 15-19 indicated severe anxiety and 20+ indicated extremely severe anxiety. The range for stress cut off score was 14; 15-18 indicated mild stress, 19-25 indicated moderate stress, 26-33 indicated severe stress and 34+ indicated extremely severe stress.<sup>12</sup>

The data was entered in Excel spread sheet and for the statistical analysis, IBM SPSS (version 26.0, Armonk, NY, USA) was used. Descriptive statistics were calculated for numerical data, i.e., age, and time spent on social media and categorical data i.e., year of study, relationship with family, health status, personalities, socioeconomic class and academic performance.

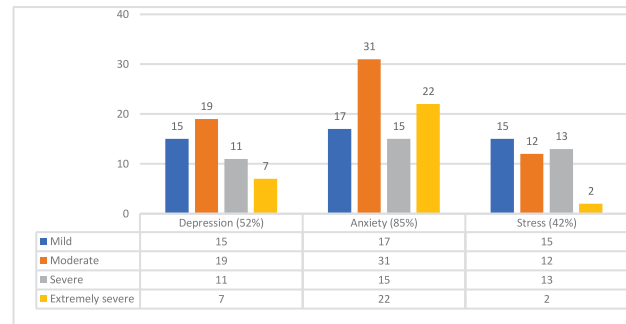
## Results

Out of 140 students, 40 questionnaires were removed from the analysis due to incomplete response, this left us with 100 questionnaires, resulting in a response rate of 71.4%, 49 hostelites and 51 day-scholars. The mean age of students was 22.5, ranging from 19 – 26 years. The highest incidence of stress, anxiety, and depression was among students of 23-26 years of age. The hostelites

were more prone to anxiety (87.7%) as compared to day-scholars, and all students who had migration from another institute suffered from anxiety as shown in Table I, whereas it was noted that the occurrence of depression (54.9%) and stress (45.1%) was more in day-scholars. Moreover, students who had average or poor relationships with their families, poor health status, introverted and cautious personalities, belonged to lower middle or middle socioeconomic class, and poor academic performance were all more depressed, anxious, and stressed.

The frequency and percentages of the cases, that were diagnosed anxiety, depression and stress on DASS-21 Scale are shown in the Figure 1. Its shows that moderate depression (19%) was most common

as compared to mild (15%), severe (11%) and extremely severe (7%) cases of depression. Out of all the reported cases of anxiety, cases of moderate anxiety (31%) were most common among medical students. Whereas mild stress (15%) was highest among students, that were labeled stressed on DASS-21 Scale.



**Figure 1: Depression Anxiety and Stress among the Participants**

DEMOGRAPHICS	Frequency (n)	Anxiety DASS-21 > 6 n (%)	Depression DASS-21 > 5 n (%)	Stress DASS-21 > 4 n (%)
<b>Age in years</b>				
19-22	71	33 (46.4)	59 (83.1)	26 (36.6)
23-26	29	19 (65.5)	26 (89.6)	16 (55.1)
<b>Living situation</b>				
Hostelite	49	24 (48.9)	43 (87.7)	19 (38.7)
Day Scholar	51	28 (54.9)	6 (100)	23 (45.1)
<b>Student</b>				
Migration	5	51 (53.6)	80 (84.2)	41 (43.1)
Freshmen	95	1 (20)	5 (100)	1 (20)
<b>Relationship with family</b>				
Good	86	40 (46.5)	72 (83.7)	31 (36.1)
Average	8	6 (75)	8 (100)	5 (62.5)
Poor	6	6 (100)	5 (83.3)	6 (100)
<b>Health Status</b>				
Excellent	28	11 (39.2)	25 (89.2)	9 (32.1)
Good	60	30 (50)	50 (83.3)	24 (40)
Average	8	8 (100)	6 (75)	6 (75)
Poor	6	3 (75)	4 (100)	3 (75)
<b>Social Media</b>				
< 4hrs	64	28 (43.6)	51 (79.6)	22 (34.3)
> 4hrs	34	24 (70.5)	34 (94.4)	20 (55.5)
<b>Personality</b>				
Introvert	31	24 (77.4)	28 (90.3)	17 (54.8)
Outgoing	28	13 (46.4)	20 (71.4)	12 (42.8)
Adventurous	29	10 (34.4)	20 (68.9)	7 (24.1)
Cautious	12	5 (41.6)	12 (100)	6 (50)
<b>Socioeconomic class</b>				
Lower middle	1	1 (100)	1 (100)	-
Middle	30	13 (43.3)	25 (83.3)	10 (33.3)
Upper middle	63	36 (57.1)	55 (87.3)	29 (46)
Upper	6	2 (33.3)	4 (66.6)	3 (50)
<b>Academic performance</b>				
Good	74	36 (48.6)	65 (87.3)	29 (39.1)
Poor	26	16 (61.5)	20 (76.6)	13 (50)

## Discussion

As medicine is a demanding profession that requires a lot of sacrifices with a hectic study routine, long study hours, clinical rotations, extensive syllabus, disturbed sleep, increase workload, competitive environment, and gender inequality which can be both physically and emotionally exhausting, which often results in students feeling depressed, anxious, and stressed.

Our study found that anxiety (85%) was most common among medical students as compared to depression (52%) and stress (42%). This was similar to a study conducted by American Psychological Association found that anxiety was the most common mental health concern among college students, followed by depression.<sup>14</sup> But study conducted in a Malaysian Medical College found that 31.1% of the participants were found to be depressed, with the majority falling into the moderately depressed category, 53.9% had anxiety, and 26% had stress.<sup>15</sup> Similarly, Egyptian medical students were found depressed (64.2%), anxious (77.1%), and stressed (70.4%).<sup>16</sup> In Delhi, India stress and anxiety was 32.0% and 40.1% respectively, as compared to depression (43.8%).<sup>17</sup>

Maser B *et al.*,<sup>18</sup> reported that the incidence of mood disorders, anxiety disorders, suicidal thoughts, and psychological discomfort were considerably higher among medical students aged 20–34. Moreover,

students who are away from their hometowns and families residing in hostels are more anxious than their day scholar colleagues and those who get transferred from some other institutes are at high risk of having anxiety and depression due to change of place, environment, friends and colleagues as perceptible by the study in Northwest England and three overarching themes were identified: "The space between"; "Hotels as vessels for cultivating communities and friendships" and 'The significance of accommodation-based pastoral staff'.<sup>18</sup> This leaves young people vulnerable as they go through a process to re-attach to new people and a new setting, and loneliness and social isolation were vividly felt during this phase. The shift disrupts attachment to place and connections with significant persons.<sup>18</sup>

Loneliness was made worse by locations that hinder social cohesiveness. Since it is typical for students to disconnect both mentally and physically from their flat if they do not make friends there, pastoral professionals that work in accommodations have a crucial role to play.<sup>19</sup> Although these results highlight the value of the human aspect in housing, it is necessary to create spaces that that promotes a sense of community, belonging, and wellness.

It was interesting to note that day scholars appear more depressed and stressed than hostelites attributed primarily to daily commuting between college and their residences, several occurred aspects of commuting were linked to general mental health according to Roberts *et al.*<sup>20</sup> Moreover, there is a linear increase in anxiety followed by depression for each academic level. The increased difficulty with each academic year, may make it difficult for students to keep a balance between their social life and studies, and likewise results were observed by a study conducted by Ishtiaq S *et al.*,<sup>21</sup> and it has also been noticed that low-scoring medical students feel higher levels of stress, anxiety, and depression than high-scoring students.<sup>22</sup>

Several steps can be taken to help students regarding management of depression, anxiety, and stress. This may include mental health societies for students to open up and seek help, counseling services for the students, extracurricular activities, developing healthy coping strategies, and setting realistic expectations and goals.

## Conclusion

there is a high frequency of anxiety (85%), followed by depression (52%) and stress (42%) among medical students. Age, year of study, family relationship, health status, personality, social class, and academic performance were all strongly correlated with stress, anxiety, and depression, which can inform strategies to mitigate these triggers and promote the mental and physical well-being of future health care professionals.

## Limitations

This study has several limitations that should be evaluated through additional studies. Firstly, this study did not concentrate on additional factors that contribute to depression, anxiety, and stress like drug abuse, family history of anxiety and depression, stressful life events, and childhood traumas. Secondly, the study may not be generalized as the study sample was composed of medical students confined to only one private medical college. Third, a short form of the original DASS-42 version (DASS-21) is used, we noticed that the findings were specific to this version, and we anticipated that the invariance of all versions of the DASS will be tested in future studies.

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#### CONFLICT OF INTEREST

Authors declared no conflicts of Interest.

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#### DATA SHARING STATMENT

The data that support the findings of this study are available from the corresponding author upon request.

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