

## Frequency and perceived causes of depression, anxiety and stress among medical students of a private medical institute in Karachi: a mixed method study

Syeda Rubaba Azim,<sup>1</sup> Mukhtiar Baig<sup>2</sup>

### Abstract

**Objective:** To determine medical students' level of mental distress, assess their perceptions of its causes, and to gather their suggestions for possible solutions.

**Methods:** The mixed-method qualitative-quantitative study was conducted at Liaquat National Medical College, Karachi, from August 2016 to March 2017, and comprised medical students across years 1 to 5. In phase one, the depression, anxiety and stress scale-21 questionnaire was administered to explore prevalence rates among the subjects. In phase two, focus group discussions were carried out to explore the possible reasons for the students' mental distress. Data was analysed using SPSS 20.

**Results:** Of the 270 students approached, 188(70%) returned the completed questionnaire. The overall mean age of subjects was 21.4±2.2 years (range: 18-25 years). There were 100(53%) females, and 88(47%) males. The prevalence of depression was 134(71%), anxiety 136(72%) and stress 66(35%). Major concerns mentioned by the students in phase two related to academic issues. Students in the focus group also complained of poor lifestyles, financial constraints, lack of support services for stress management, and lack of physical and recreational facilities. Students suggested that their mental distress might be alleviated by curricular innovations such as reducing the number and duration of lectures, increasing small group activities, and pre-scheduling exams. Students also strongly requested proper support services at the institutional level.

**Conclusion:** There was high mental distress among medical students and it was mainly related to academic pressure.

**Keywords:** Depression, Anxiety, Stress, DASS-21, Focus group. (JPMA 69: 840; 2019)

### Introduction

Mental distress among medical students is a global problem, and regardless of several changes in the medical students' training, this issue can't be overcome.<sup>1</sup> Medical education encompasses challenging curricula and clinical training.<sup>2</sup> The students additionally gain specialised education, training, skills, and attitudes that prepare them to become a competent physician or surgeon. The highly demanding medical education may have considerable stressful effects on the learner's physical and mental health.<sup>3</sup>

Various factors have been identified to be responsible for the impairment in the mental health of these students, including academic pressure such as increased workload, financial issues, sleep deprivation and exposure to suffering patients and deaths.<sup>2,4,5</sup> It is crucial to recognise students' mental distress and their reasons behind this distress so that necessary amendments in the curricula can be developed to ensure production of graduates who can emotionally adapt to be fit for their difficult training

and deal with various aspects of suffering and consequential dropout.<sup>6</sup>

The sound psychological health of students nurtures their learning ability which is essential to produce high-quality medical graduates well equipped with information, problem-solving skills and having good approaches and morals as clinicians. Therefore, it is crucial for an educational institution to assess the mental status of students and its associated factors. Necessary steps then ought to be taken to improve the mental health of students where possible. This will help them to achieve their intended goal of producing competent medical graduates. Many studies have reported that the prevalence of psychological distress is increased among medical students during medical training.<sup>3,7-9</sup> The current study was planned to determine medical students' level of mental distress, to assess their perceptions of its causes, and to gather their suggestions for possible solutions.

### Subjects and Methods

The mixed-method qualitative-quantitative study, done in two phases, was conducted at Liaquat National Medical College, Karachi, from August 2016 to March 2017, and comprised of medical students across years 1 to 5.

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<sup>1</sup>University of Dundee, Dundee, UK, <sup>2</sup>Faculty of Medicine, King Abdul Aziz University, Rabigh, Jeddah, Saudi Arabia.

**Correspondence:** Syeda Rubaba Azim. Email: drrubaba@hotmail.com

In the first phase, the validated Depression, Anxiety and Stress Scale-21 (DASS-21)<sup>10</sup> screening tool was used to evaluate the prevalence of depression, anxiety and stress among the subjects. It is an effective tool for clinical assessment of depression, anxiety and stress. However, the assessment by this tool doesn't reflect the diagnosis. DASS-21 was preferred because it is a simple, reliable and validated tool that can be used for research and clinical purposes. The reported internal consistency of DASS-21 questionnaire is high with Cronbach's  $\alpha$  of 0.84 to 0.97.<sup>10</sup>

Subjects were asked to use 4-point severity/frequency scales to rate the extent to which they had experienced each state over the preceding week. Each item within the scales could be scored from 0 to 3 where: 0= "it does not apply to me at all", 1- "it applies to me to some degree or some of the time", 2= "it applies to me to a considerable degree or a good part of time", and 3= "it applies to me very much, or most of the time". DASS-21 scoring was done according to the scoring guide.<sup>11</sup>

Demographic variables such as age, gender and socioeconomic conditions of the family were also noted. In the first phase, data was collected from the subjects. It was done at a time when there was no exam close in order to avoid any additional stress being recorded by the students. The questionnaires were distributed at the end of the lecture with the help of the teachers. Informed consent was taken from the students before handing them the questionnaire. Approval was obtained from the Ethical Committee of the University of Dundee, Dundee, Scotland, United Kingdom, as the principal investigator was registered there as a student of postgraduate medical education. OpenEpi version 3 was used to calculate the sample size by taking population size of 500 medical students (total students in the college), the frequency of the outcome factor 50%, the confidence level of 90% and margin of error at 5%. The calculated sample size was 176, but more students were invited because of chances of non-response.<sup>12</sup>

In the second phase, a focus group discussion (FGD) was used as the qualitative method of data collection. Purposive sampling was used with gender balance and equal representation of each year of study. The participation was, again, on a voluntary basis. The participants were recruited by sending emails to all students of the college, which included the information sheet and consent and details about the study. Students who were interested in participating in FGDs contacted the researchers themselves, and were selected purposively 2 males and 2 females from each year of study; 4 students x 5 years = 20 students total and two discussion sessions were arranged. All the selected

students attended the FGDs. We relied on two FGDs because participants of both the groups raised similar issues and there was no intragroup conflict and the findings were exhausted. Few semi-structured questions were discussed in the FGDs such as, what are the main causes of depression, anxiety, and stress among medical students? What should be the solutions to reduce the risk of depression, anxiety, and stress among medical students?

SPSS 20 was used for data analysis. Frequencies and percentages were calculated for qualitative variables and mean  $\pm$  standard deviation were calculated for quantitative variables. One-way analysis of variance (ANOVA) was used to compare the mean difference in depression, anxiety and stress scores between genders, among academic years and different demographic groups. Tukey's honestly significant difference (HSD) post-hoc test was also performed.  $P < 0.05$  was considered statistically significant. A thematic approach was adopted for the qualitative data analysis. The analysis was done by manually indexing themes into topics and categories.

## Results

Of the 270 students approached in the first phase, 188(70%) returned the completed questionnaire. The overall mean age of subjects was  $21.4 \pm 2.2$  years (range:

**Table-1:** Comparison of DASS 21 scores according to academic years and overall DASS 21 score among study participants.

Academic year	Depression Mean $\pm$ SD	Anxiety Mean $\pm$ SD	Stress Mean $\pm$ SD
1st year	10.31 $\pm$ 6.165	8.67 $\pm$ 5.435	12.72 $\pm$ 5.301
2nd year	11.25 $\pm$ 4.621	10.13 $\pm$ 4.062	12.88 $\pm$ 4.570
3rd year	14.00 $\pm$ 4.870	10.41 $\pm$ 4.420	14.90 $\pm$ 5.115
4th year	12.17 $\pm$ 4.178	10.94 $\pm$ 5.313	13.11 $\pm$ 6.205
5th year	12.85 $\pm$ 5.620	10.58 $\pm$ 4.103	13.77 $\pm$ 5.067
P-value	0.038	0.248	0.459
Overall DASS 21 Scores (Mean $\pm$ SD)	12.1 $\pm$ 5.3	10.2 $\pm$ 4.7	13.4 $\pm$ 5.3

DASS-21: Depression, anxiety and stress scale-21  
SD: Standard deviation.

**Table-2:** Comparison of DASS 21 scores according to different socioeconomic status.

Socioeconomic status	Depression Mean $\pm$ SD	Anxiety Mean $\pm$ SD	Stress Mean $\pm$ SD
Good	11.62 $\pm$ 5.41	9.79 $\pm$ 4.91	13.03 $\pm$ 4.92
Moderate	12.94 $\pm$ 5.45	10.69 $\pm$ 4.77	13.81 $\pm$ 5.87
Poor	11.89 $\pm$ 4.03	10.32 $\pm$ 3.15	14.53 $\pm$ 5.11
P-value	0.291	0.482	0.416

DASS-21: Depression, anxiety and stress scale-21.

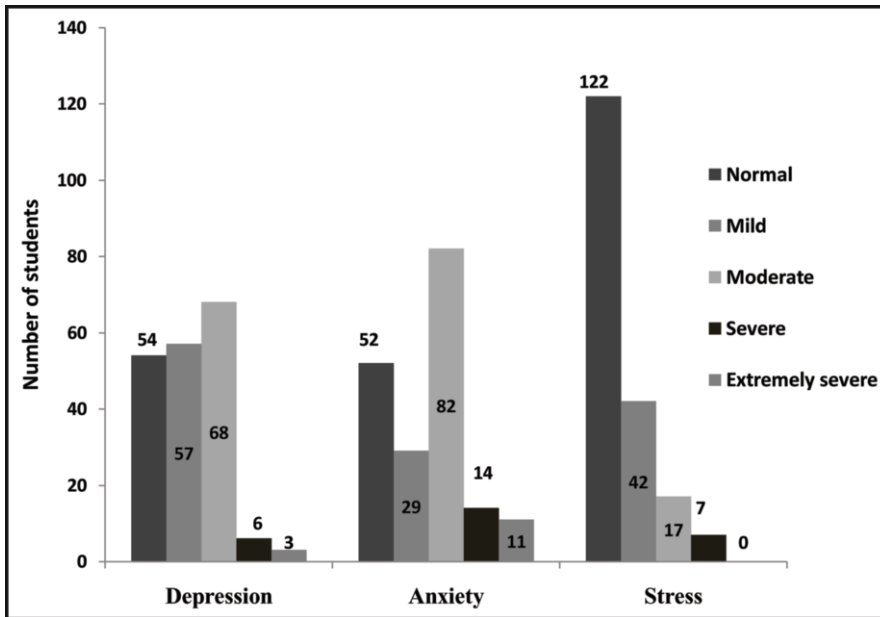


Figure 1: Depression, Anxiety and Stress level among study participants.

18-25 years). There were 100(53%) females, and 88(47%) males, The prevalence of depression was 134(71%), anxiety 136(72%) and stress 66(35%). Depression was mild in 57(30.3%) cases, moderate 68(36.2%), severe 6(3.2%) and extremely severe 3(1.6%). Anxiety was mild in 29(15.4%) cases, moderate 82(43.6%), severe 14(7.4%), and extremely severe 11(5.9%). Stress was mild in 42(22.3%) subjects, moderate 17(9%), and severe 7(3.7%) Figure 1.

The mean depression score was significantly higher in 3rd year students compared to 1st year students ( $p=0.035$ ) whereas no significant difference was observed in other such comparisons ( $p>0.05$ ). Anxiety and stress scores were generally higher in 3rd, 4th and 5th year students (Table-1).

The mean depression, anxiety and stress score were generally higher in students who had moderate and poor socioeconomic status but the difference was not significant (Table-2).

In the second phase, academic burden was the first theme identified when FGD participants were asked to talk about the reasons for mental distress. Nearly all participants mentioned that the huge amount of information and high demands of the medical curriculum is one of the main causes of high psychological distress. All the participants agreed that they had a lot of academic burden and they were always busy with their exams and assignments.

"We have lots of things to learn in a limited time period."

A 2nd-year female student said, "We have to secure good grades to maintain our GPA".

Students mentioned that they couldn't study deeply due to the enormous amount of syllabus to cover.

"We usually use guidebooks instead of standard reference books for the exam, because we don't have time to study those big books..."

Transition was the second theme identified. Students in both FGDs believed that the amount of mental distress varied between the years of study. A preclinical student pointed out that the transition period, when a student entered a medical college from high school, is very challenging

for some students, especially for those who were not able to get a good grade on an initial set of tests of the medical course, and it would be easy to get stressed.

"Getting into a medical institute is very difficult and competitive."

Students have also highlighted that the transition from preclinical to clinical is also very stressful because clinical medicine is new and unfamiliar to them.

"Third year is really tough; everything's chucked in ... medicine and surgery are very hard subjects."

The net theme identified was lack of support system. Some students also showed their concern about the lack of proper support system in the institution. They feel that stressed students are not picked up at the right time, and they actually don't know what to do, and where to go. This further increases distress. They stressed the need of proper department that may cater to the problems of students and also guide them when needed.

"There is no one with whom we can discuss our problem ... they should have a separate department for this purpose. Where we can discuss our problems.

"There is no proper counselling service for struggling students."

Another theme was poor lifestyle. Many participants expressed that it was challenging for them to find a

balance because they were "never able to catch up". A number of students said it is often hard to enjoy the time because of high academic demands.

"I have no time for exercise or self-care."

"We have almost negligible leisure activities."

The final theme identified in FGDs was finance which was highlighted as a significant area of concern by the students as the study site was a private facility where students had to pay a much higher amount compared to public-sector institutes. Besides, they had to spend much on buying expensive books.

"I spent a lot of money in the first year on books alone."

In terms of solutions, the participants suggested several steps that they thought could enhance their well-being.

Junior students (1st and 2nd year) mentioned that they have to listen to lectures that they said were too long and sometimes boring. There was a lack of interactive classes like small group discussions. They insisted on increasing interactive activities.

"Lectures are long and boring...duration of the lecture should be reduced."

A final year student stressed the need to provide career counselling that may help them to choose sub-fields for the future.

"Special career counselling should be provided to final year students."

## Discussion

The results of phase one of the study indicated high prevalence of anxiety, depression and stress among the sample of medical students. The prevalence of depression, anxiety and stress were 71%, 72%, and 35% respectively. These figures are higher than a few western studies<sup>2,3</sup> but lower than studies done in Nigeria,<sup>13</sup> India,<sup>8</sup> and Nepal.<sup>14</sup> An Egyptian medical institute reported almost the same results of depression (63.6%), anxiety (78.4%) and stress (57.8%).<sup>15</sup> A previous study in Karachi also revealed that 70% of the students had anxiety and depression.<sup>16</sup> It is obvious that our study, like many other non-Western studies, revealed considerably high prevalence of mental distress. This might be due to the introduction of curriculum innovation to reduce mental distress in Western countries decades ago, while in Asian and African countries this concept is relatively new and medical institutions rarely give desired attention to the well-being of students.<sup>13</sup> A recent study from Pakistan suggested that the awareness and use of spiritual

wellness as a coping strategy among medical students is beneficial.<sup>17</sup>

FGD participants attributed high mental distress in medical students to academic burden. This finding is consistent with literature.<sup>15,18</sup> It is a well-accepted fact that academic workload is considerably higher in medical education.<sup>5</sup> A nominal amount of stress is crucial for good performance, but sustained stress can shut down the individual's ability to cope.<sup>19</sup> It was concluded from FGDs that students were overwhelmed by the huge amount of syllabus, a number of assessments, long duty hours and lack of time for leisure activities which caused increased mental distress.

Students, especially junior ones (1st & 2nd year) raised their concerns regarding a large number of examinations. It is a fact that good assessment practices in medical training at all levels is a crucial aspect of academic life and a central component in medical education.<sup>20</sup> It is suggested that exams should be pre-scheduled with proper gaps in between so that the students may prepare themselves properly.<sup>21</sup>

In phase one, slightly higher prevalence of distress in third-year medical students compared to other students. The FGD participants also revealed that mental distress was higher in third and first year students, which are the key transition periods, as described earlier. Third year students revealed that they had to face extra challenges besides their academics as they entered clinical years. They often had to leave their friends group and frequently rotate through various disciplines of the hospital with different sets of doctors. Each department needs exclusive medical knowledge and skills, which might uncover students' deficiencies.<sup>5</sup> Two other studies have pointed out that there is an increased mental distress in students during their clinical year.<sup>3,22</sup> Moreover, first year students also attributed their distress to academic overload and number of exams. A study reported that the level of stress is higher in first year students compared to senior students.<sup>23</sup>

Students also revealed in FGDs that most of them did not bother to take help even if they feel stressed out, and often hide their feelings because there is the fear of stigma from disclosure. In phase one of the study, the majority of the students were found to have mild to moderate levels of distress. Reporting the distress of medical students at the initial stage is very important because if it is not addressed at an early stage, it can progress to more severe levels which might have serious consequences, e.g., affecting the students' career, patient care, health system and the society as a whole.<sup>13</sup> Early

identification of mental distress and effective psychological support is critical for avoiding possible future illnesses.

Most of the students during FGDs believed that they were not enjoying life as they should. They mentioned that they found very limited time for sleep and other social activities, which only further increased the level of stress. Lack of proper sleep may also expose students to mood disorders.<sup>24</sup> The high demands of medical education leave a minimal opportunity for students to relax and recreate, which could reduce the quality of life among medical students.<sup>25</sup> There is reason to agree with students' recommendation during the FGDs that it is crucial to provide more opportunities for sports and recreational activities, e.g., monthly movie show, indoor games, access to a gymnasium, event celebrations and music concerts, and make their health a priority.<sup>26</sup>

Students also highlighted finance as a significant area of concern, and this is complementing the findings of phase one in which mental distress was seen to be higher in students belonging to lower and moderate socio-demographic backgrounds compared to the higher ones. The current study was conducted in a private institution where students have to pay heavy fees compared to public-sector institutions. Medical educators cannot do much regarding this administrative issue, but it is important to be aware of the situation and be accommodative whenever possible. There is a need to develop scholarship opportunities for the needy and capable students and give students access to e-books and journals to provide some relief to the students.<sup>21</sup>

The current study had its limitations. It was not a follow-up study, and presented a snapshot of a certain period, so it is difficult to know how the behaviour would evolve over time among the same students. The study was based on student perceptions, and it might not have reflected the complete reality. The study was conducted at a private medical college and the results cannot be generalised to all medical colleges in the country. However, the study does provide a baseline dataset for further comprehensive studies in the future.

## Conclusion

There was a high prevalence of depression, anxiety and stress in the participating medical students. FGDs revealed that mental distress was mainly related to the academic domain.

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