

Frequency of Anxiety During Exam/ Assessments among Medical Students

Ammara Butt¹, Aroosa Ishaque²

- ¹ Associate Professor, Department of Psychiatry, Allama Iqbal Medical College/ Jinnah Hospital, Lahore Pakistan
Research Idea, Result Analysis, Bibliography, Critical Review, reviewing it critically for important intellectual content
- ² Postgraduate Resident of Psychiatry, Jinnah Hospital, Lahore-Pakistan
Study formulation, Literature Review, data Collection

CORRESPONDING AUTHOR

Dr. Ammara Butt

Associate Professor, Department of Psychiatry,
Allama Iqbal Medical College/ Jinnah Hospital,
Lahore Pakistan
Email: aamirammar@yahoo.com

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ABSTRACT

Background: The phenomenon of severe anxiety and self-doubt experienced by individuals prior to taking exams or assessments can significantly impair their performance, potentially leading to poor outcomes. Research on the prevalence and contributing factors of assessment-related anxiety among medical students in Pakistan is scarce. **Objective:** The aim of this study was to ascertain the prevalence of exam-related anxiety among medical students and identify its associated factors. **Study Design:** Cross sectional study. **Settings:** Allama Iqbal Medical College/ Jinnah Hospital Lahore Pakistan. **Duration:** Six months from 09-12-2022 to 09-06-2023. **Methods:** After approval of the study proposal and attaining the informed consent of the medical students, they were explained the purpose of study. After inclusion, all the students were asked questions as per PHCC test anxiety questionnaire to determine presence as well as healthy or unhealthy nature of stress. All these students with anxiety were assessed for factors related to this stress including female gender, 1st year of medical college, oral exam, poor time management skills and pre-existing psychological distress. All data was collected in a self- made pro forma. **Results:** Total of 135 students, mean age was 23.30±2.48 years. Frequency of anxiety was 51.1% (n=69). Frequency of female gender factors in students with anxiety versus without anxiety was 52.3% (n=56) versus 47.7% (n=51), 1st year in medical college 87.9% (n=58) versus 12.1% (n=8), oral exam 79.7% (n=59) versus 20.3% (n=15), poor time management skills 95.6% (n=43) versus 4.4% (n=2) and pre-existing psychological distress was 92.3% (n=24) versus 7.7% (n=2). **Conclusion:** The results indicate that a considerable proportion of medical students experience significant exam anxiety, with 51.1% affected. The study further revealed a notable correlation between anxiety and factors such as being in the first year of medical college, facing oral exams, inadequate time management skills, and pre-existing psychological distress. Given its prevalence, the issue of problematic exam anxiety among medical students warrants increased attention.

Keywords: Exam anxiety, Medical students, Female gender.

INTRODUCTION

Anxiety encompasses a range of disorders characterized by intense nervousness, fear, apprehension, and excessive worrying. It manifests as a pervasive feeling marked by tension, worrisome thoughts, and physical alterations such as elevated blood pressure.¹ Anxiety is essentially the distressing sensation of fear about upcoming events, akin to the foreboding of an impending doom.² Symptoms of anxiety can range in number, intensity, and frequency, varying from person to person and can either be short lived or persistent and becomes much more prominent in times of stress, for example during the recent times of COVID pandemic.³

While the median age of onset of anxiety is 30 years, a very broad range exists for the spread of age at time of onset, and it becomes more common with older age.⁴ It is also highly prevalent among medical students especially during exams as these are times of sheer stress for them.⁵ Similarly, another study was conducted to determine frequency of anxiety in medical students during exams and reported that it was 53.8%. This study also examined various variables that contribute to exam related anxiety among medical students and reported that frequency of exam related anxiety was much higher in female students as compared to males (79% vs 33%), those who were in their first year of medical school as compared to subsequent years (72% in 1st year, 53% in 2nd year, 46%

in 3rd and 4th year and 42% in final year), those giving oral exams as compared to written exams (47.9% vs 4.35%), those with poor time management as compared to those with good time management skills (42.56% vs 9.74%) and in students who have pre-existing psychological distress (e.g, due to domestic or socioeconomic problems) as compared to those without it (35.12% vs 17.17%).⁶ Similarly, another study showed the frequency of anxiety among medical students was 33.8% globally.⁷

MBBS is often regarded as the most challenging course among all academic programs, with medical school being known for its stressful atmosphere. This stress can adversely impact students' academic achievements, physical health, and mental wellness. The considerable personal and social compromises students must endure to achieve strong academic performance in a highly competitive setting subjects them to significant stress. This can lead to a range of psychological issues, including depression, anxiety, and stress-related disorders. The studies previously done in Pakistan, highlighting exams and academics as major stressors in Pakistani Medical students did not give particular emphasis on exam anxiety itself; this study was conducted to document if similar factors are present in our student population.

METHODS

A cross sectional study was conducted at Allama Iqbal Medical College/ Jinnah Hospital Lahore for the six months after approval of synopsis, 09-12-2022 to 09-06-2023. The Non-probability convenience sampling technique was used. Sample size of 135 students was calculated using WHO sample size by assuming Confidence level = 95%, 8% margin of error and taking expected frequency of anxiety during exams/assessments among medical students as 33.8%.⁷ Medical college students of different years of study, of age 18-30 years and either male or female gender that are willing to be part of study will be included in this study. The students who have a history of mental illness or are on any medication for mental disorder will be excluded from the study.

After approval of the study proposal and attaining the informed consent of the medical students, they were explained the purpose of study. After inclusion all the students were asked questions as per PHCC test anxiety questionnaire to determine presence as well as healthy or unhealthy nature of stress. All these students with anxiety were assessed for factors related to this stress including female gender, 1st year of medical college, oral exam, poor time management skills (i.e., can take out at least 4 hours of study time daily from routine) and pre-existing psychological distress (due to domestic or socioeconomic problems). All data was collected in a self-made proforma

with utmost priority to study participants confidentiality that will be provided by not mentioning personal identifiers like name or address in proforma and making sure that information was released to any other person.

The data was analyzed using SPSS software. The numeric variables (age, year of medical college, PHCC score, K10 score) were expressed as mean \pm standard deviation. The categorical variables (gender, anxiety, nature of anxiety, factors related to exam related anxiety) were represented as frequency and percentages. Data was stratified by age to deal with effect modifiers. Post-stratification chi-square test was significance level of 5%.

RESULTS

Table 1: Distribution of female gender, 1st year of medical college, oral exam, poor time management skills and pre-existing psychological distress (N=135)

| | | Frequency | Percent % |
|-------------------------------------|-------------|-------------------|-----------|
| Age Group | 18-25 years | 107 | 79.3% |
| | 26-30 years | 28 | 20.7% |
| Female Gender | Yes | 107 | 79.3% |
| | No | 28 | 20.7% |
| | Total | 135 | 100.0% |
| 1st Year of Medical College | Yes | 66 | 48.9% |
| | No | 69 | 51.1% |
| | Total | 135 | 100.0% |
| Oral Exam | Yes | 74 | 54.8% |
| | No | 61 | 45.2% |
| | Total | 135 | 100.0% |
| Poor Time Management Skills | Yes | 45 | 33.3% |
| | No | 90 | 66.7% |
| | Total | 135 | 100.0% |
| Pre-Existing Psychological Distress | Yes | 26 | 19.3% |
| | No | 109 | 80.7% |
| | Total | 135 | 100.0% |
| Anxiety | Yes | 69 | 51.1% |
| | No | 66 | 48.9% |
| Nature of Anxiety | Healthy | 40 | 57.97% |
| | Unhealthy | 29 | 42.03% |
| | Total | 69 | 100.0% |
| PHCC Score (Mean \pm SD) | | 20.26 \pm 10.76 | |
| K10 score (Mean \pm SD) | | 11.42 \pm 5.79 | |

A total of 135 patients fulfilling inclusion and exclusion criteria were selected to determine the frequency of various factors related to anxiety during assessments or exams in students with anxiety. Age distribution of the patients was done, it showed that out of 135 patients, 79.3% (n=107) were in age group of 18-25 years and 20.7% (n=28) were in age group of 26-30 years. Gender distribution of the patients was done, it showed that 20.7% (n=28) were male and 79.3% (n=107) were female. Frequency of anxiety was 51.1% (n=69). Frequency of healthy anxiety was 57.97% (n=40) and unhealthy anxiety 42.03% (n=29). Distribution of factors related to anxiety was done, female gender was 79.3% (n=107), 1st year of

medical college 48.9% (n=66), oral exam 54.8% (n=74), poor time management skills 33.3% (n=45) and pre-existing psychological distress was 19.3 % (n=26). Frequency of female gender factors in students with anxiety versus without anxiety was 52.3% (n=56) versus 47.7% (n=51), 1st year in medical college 87.9% (n=58) versus 12.1% (n=8), oral exam 79.7% (n=59) versus 20.3% (n=15), poor time management skills 95.6% (n=43) versus 4.4% (n=2) and pre-existing psychological distress was 92.3% (n=24) versus 7.7% (n=2). Distribution of PHCC score was 20.26±10.76. Distribution of K10 score was 11.42 ± 5.79. (Table 1)

Table 2, shows the association between gender, oral exam, Poor Management skill, preexisting psychological distress with anxiety. The results indicate that oral exam, Poor Management skill, preexisting psychological distress and significant association with anxiety. (Table 2)

Table 2: Association between gender, oral exam, Poor Management skill, preexisting psychological distress with anxiety

| Gender | Anxiety | | Total | P-value |
|--|---------------|------------|-----------------|---------|
| | Yes | No | | |
| Female | 56 (52.3%) | 51 (47.7%) | 107 (100.0%) | 0.673 |
| Male | 13 (46.4%) | 15 (53.6%) | 28 (100.0%) | |
| Total | 69 (51.1%) | 66 (48.9%) | 135 (100.0%) | |
| Oral exam | | | | |
| Yes | 59 (79.7%) | 15 (20.3%) | 74 (100.0%) | 0.000 |
| No | 10 (16.4%) | 51 (83.6%) | 61 (100.0%) | |
| Poor time management skills | | | | |
| Yes | 43 (95.6%) | 2 (4.4%) | 45 (100.0%) | 0.000 |
| No | 26 (28.9%) | 64 (71.1%) | 90 (100.0%) | |
| Pre-existing psychological distress | | | | |
| Yes | 24 (92.3%) | 2 (7.7%) | 26 (100.0%) | 0.000 |
| No | 45 (41.3%) | 64 (58.7%) | 109 (100.0%) | |

DISCUSSION

Medical schools and universities are commonly acknowledged as high-stress environments, negatively affecting students' academic performance, physical health, and mental health. While medical education is often seen as particularly stressful, it remains uncertain whether it is more so compared to other forms of higher education.

In current study we determine the frequency of various factors related to anxiety during assessments or exams in

students with anxiety. We found that out of 135 patients, 79.3 % (n=107) were in age group of 18-25 years and 20.7 % (n=28) were in age group of 26-30 years. Mean age was 23.30±2.48 years. Frequency of anxiety was 51.1% (n=69). Frequency of female gender factors in students with anxiety versus without anxiety was 52.3% (n=56) versus 47.7% (n=51), 1st year in medical college 87.9% (n=58) versus 12.1% (n=8), oral exam 79.7% (n=59) versus 20.3% (n=15), poor time management skills 95.6% (n=43) versus 4.4% (n=2) and pre-existing psychological distress was 92.3% (n=24) versus 7.7% (n=2).

In this study, over half of the participants (52.3%) were female, aligning with the findings of other research studies.^{8,9} Similarly, a study conducted in 2011 also supported this trend, with 71 (65.1%) of the participants being female.¹⁰ In contrast, Zhang's research did not show a significant difference between male and female participants, with females comprising 33 (52%) of the study group.¹¹ However, this is subject to debate, as Hornblow A and colleagues did not observe any gender differences in their research.¹²

A cross-sectional study comparing medical students across various years found that those in their final year tended to exercise more frequently, sleep longer each night, and have a higher number of close friends. This suggests that medical students might gradually develop improved self-care practices and achieve a healthier balance between their professional and personal lives over time.¹³ In contrast, a longitudinal study observed an increase in self-reported stress levels among medical students as they advanced through their studies.¹⁴ The shift to clinical wards in later years of medical school can be as challenging and stress-inducing as the initial transition from high school or pre-medical studies to a demanding medical curriculum. One hypothesized cause of the heightened susceptibility to anxiety, stress, and depression among medical students in clinical years is the mistreatment and abuse they may experience from clinical supervisors.¹⁵

During their clinical years, many medical students will confront patient deaths and challenging interactions with patients and caregivers for the first time. As they advance in their medical training, the increase in responsibilities inevitably leads to higher stress levels. Consequently, there should be an enhanced focus on promoting wellness programs and mental health resources in medical schools, especially as students become increasingly susceptible to anxiety.

In this study, the prevalence of test anxiety related to oral examinations was found to be 79.7%. This aligns with findings from similar studies carried out in Germany and India.^{16,17} One plausible explanation for this high level of anxiety could be that oral exams demand extra

competencies, such as language proficiency, social interaction, and communication skills, which are not as emphasized in written exams, thereby potentially heightening the anxiety.

In our research, we observed that 95.6% of students experiencing anxiety also demonstrated poor management skills. This may be attributed to ineffective study methods leading to inadequate preparation. Such students tend to encode and store information insufficiently, making it challenging to retrieve this poorly learned material during exams. Moreover, the likelihood of experiencing test anxiety was 92.3% higher in students who were already undergoing psychological distress compared to those without such distress. This finding is consistent with studies from Saudi Arabia, which have identified a significant and positive correlation between psychological distress and test anxiety.^{18,19}

CONCLUSION

The results indicate that a considerable proportion of medical students experience significant exam anxiety, with 51.1% affected. The study further revealed a notable correlation between anxiety and factors such as being in the first year of medical college, facing oral exams, inadequate time management skills, and pre-existing psychological distress. Given its prevalence, the issue of problematic exam anxiety among medical students warrants increased attention.

LIMITATIONS

The limitation of study was a single centered study.

This study involve only medical students. The results of the study can't be generalized on overall population.

SUGGESTIONS / RECOMMENDATIONS

It was recommended that to conduct a multicenter study with larger sample size to evaluate the different factors of anxiety.

CONFLICT OF INTEREST / DISCLOSURE

There was no conflict of interest.

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