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Prevalence and severity of Anxiety among medical students studying in modular curriculum

Saboohi Saeed[1], Jawairia Saleem[1], Madiha Mahmood[2]

Abstract

Introduction: A modular curriculum is required to produce well-equipped medical graduates in the present era. Teaching in this system is multidisciplinary, fast-paced, and includes multiple assessment strategies. This may produce mental stress and anxiety among the students, hindering their academic performance and patient care.

Objectives: To determine the prevalence and severity of anxiety among students of a private medical college in Lahore enrolled in the modular system. **Material and Method:** According to inclusion criteria, 212 first- to fourth-year students were enrolled in this study. Data collection started after obtaining permission from the research ethical committee of the institution. Both male and female medical students were recruited by convenient sampling. All the students were asked to complete the questionnaire. Data were analyzed using the 20th version of SPSS. **Results:** The prevalence of anxiety among medical students was found to be high (97.2%). One-third of the students were suffering from moderate stress, and one-half had mild anxiety. Severe anxiety was found in 9.4% of students. The prevalence of high and moderate anxiety was higher among female students. **Conclusion:** It was concluded that one-third of students are suffering from moderate anxiety, which is more common in female students. It was further discovered that end-of-modular assessments were the primary source of stress.

Keywords: Medical students, Anxiety, Modular system, Stress,

INTRODUCTION

In this modern era, the knowledge of medical science has been expanded enormously. The students in most medical colleges studying under an old conventional system are being bombarded with medical information by the faculty non-harmoniously as each department works in isolation [1, 2]. Consequently, this leaves a medical student confused and unaware of the clinical relevance of most of the topics taught[1]. So, the most common weakness of this old system was that the students failed to apply theoretical knowledge to the patients[2]. Hence, over the years, it was realized that there is an immediate need for such a system for delivering medical knowledge that takes into consideration a curriculum in which extra details are deleted and various aspects of a topic are brought together in a meaningful association by fusion of knowledge and expertise from different disciplines to focus upon the common community diseases and health problems, holistically[3].

[1]Azra Naheed Medical College, Superior University, Lahore,
[2] Al-Aleem Medical College. Lahore
Correspondence:
Saboohi Saeed
Email: dr.saboohisaeed@gmail.com
Azra Naheed Medical College, Superior University, Lahore
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It was given the name "modular curriculum." A module is a unit or system planned to be taught using different multidisciplinary educational strategies [1]. A modular system is necessary in medical education to produce well-equipped medical graduates with a deeper level of knowledge who can effectively serve the community [4]. The modular system includes a series of complexly designed teaching sessions such as problem-based learning (PBLs), large group integrated studies (LGIS), small group discussions (SGDs), self-directed learning (SDL), and direct self-learning (DSL), community-based education and elective programs [5]. Furthermore, the modular system includes different types of assessments per module, such as objectively structured practical examinations (OSPE), objectively structured clinical examinations (OSCE), and viva voce [6]. In this mode of teaching, it becomes more challenging for students to learn, as a research study has discovered that the prevalence of psychological distress is significantly high among these medical students [7]. Another researcher found that in Pakistan, the stress level was higher among students who had multiple repetitive assessments than the annual pass/fail system. Longitudinal assessment in horizontal modules

typically includes end-of-module exams without ample preparation time [6, 8]. All these academic reasons may greatly add to students' mental distress during study time [8].

Moreover, there were additional non-academic reasons for adding continuous mental stress among these students. These include financial load, hostel life, expectations of physician parents, pressure from parents, future career apprehensions, positive family history for mental distress, and loss of a dear one in the near past. Mental stress can be defined as a psychological response to a constant noxious stimulus in an environment accompanied by some physiological responses[9].Academic stress is the nervousness, worries, and disappointment produced due to awareness of the possibility of examination failure and poor academic performance[4].

Long-standing stress in a person may change into an anxiety disorder. Anxiety means undue feelings of severe apprehension, tension, and worries at many times, which may be hindering the personal abilities and performance of the students [10].An anxiety disorder may be manifested by tachycardia, heavy breathing, increased muscle tension, tightening sensation in the chest, nausea, restlessness, headache, and prolonged psychological upsets among medical students, which may lead to poor standards of academic performance and patient care [11]. This anxiety disorder is highly prevalent among medical undergraduate students in Pakistan. Globally, Anxiety disorders among medical students have become an epidemic as it is discovered that one out of three students are suffering from anxiety, being maximally prevalent among medical students in Asia. This study aimed to collect data on anxiety levels among first- to fourth-year medical students enrolled in the modular system at a private medical college. It was conducted to assess the prevalence and severity of anxiety and discover the main stressors contributing to this anxiety.

MATERIAL AND METHOD

This descriptive study was conducted after the Institutional Ethical Review Board approved the proposal. The target population consisted of MBBS students in their first to fourth year (n=600) at this private medical college, studying under a modular curriculum. The final year was still being studied under the old conventional system, so it was not included in this study. The data for this study were collected from June 2023 to December 2023.

The sample size was calculated using the internet software Raosoft. The confidence interval is 5%, and the confidence level (percentage of probability) is 95%. According to a previous study in Pakistan, the anxiety distribution was 70%. The sample size obtained was 212. Regarding exclusion criteria, any student having a family history of anxiety, suffering from some chronic sickness, having lost a near relation within a year, or already using anxiolytic medicines and a single parent was excluded from the study[12]. A research questionnaire was prepared and distributed manually to each class. The number of respondents was 310, yielding a 50% response rate. The research questionnaire had three sections. The first section included personal information. The second section consisted of questions related to non-academic reasons for anxiety. The third section included the Beck Anxiety Inventory[13]. This questionnaire is a self-report measuring 21 common somatic and cognitive symptoms of anxiety.

Data was collected through convenient sampling from first- to fourth-year MBBS classes. After the participants received the questionnaire, their consent signatures were obtained. Participation in this study was voluntary, and all information collected was kept confidential. The collected data was entered and analyzed in SPSS version 20. The means and standard deviation for quantitative variables were calculated. ANOVA was applied to compare groups. A p-value of less than 0.05 was significant.

RESULTS

A total of 212 students from the first to fourth year at ANMC-Lahore, with a mean age of 20.78 ± 1.515 (age range: 17—26) years, were selected for this study. The selection of students from the first to the fourth year of MBBS was such that 60 (28.3%) students were included in the first year, 54 (25.5%) in the second year, 50 (23.6%) in the third year, and 48 (22.6%) in the fourth year. The gender percentage was 46% male and 54% female. There were 43%-day scholars, and 57% were hostel residents. Regarding marital status, 96% of students were unmarried.

Table 1: Frequency of Different Levels of Anxiety Among Medical Students

Anxiety Level	Anxiety Score	Frequency (n=212)	Percentage (%)
No Anxiety	0	6	2.8
Mild Anxiety	1–21	118	55.7
Moderate Anxiety	22–35	68	32.1
Severe Anxiety	36–63	20	9.4
Total with Anxiety	**1–63**	**206**	**97.2**

The anxiety levels were measured by using the Beck Anxiety Inventory, and frequency analysis was performed by SPSS20. The prevalence of anxiety in our study is found to be 97.2%. Out of it, 55.7% (n=118) are suffering from mild anxiety, 32.1%

(n=68) from moderate and 9.4% (n=20) from severe anxiety. It was found further that the mean anxiety score was 19.74±10.77. This was higher in females (20.83±10.30) than in males (18.47±10.74); this difference was statistically significant (P<0.05).

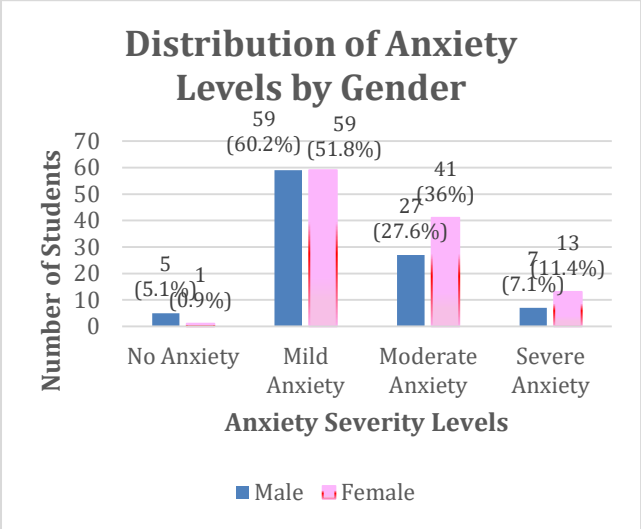

Figure 1: Gender-wise prevalence of severity of anxiety among medical students.
(According to the Beck Anxiety Inventory, anxiety scores 1-21 is mild anxiety, 22-35 are moderate anxiety, and 36-63 are severe anxiety).

There was no anxiety found in 5.1% of males and 0.9% of females, while 60.2%males and 51.8% of females were suffering from mild anxiety. Furthermore, there was moderate intensity of anxiety among 27.6% of males and 36% of females. Severe anxiety was present in 7.1% of males and 11.4% of females. It was further discovered that the prevalence of moderate and severe anxiety was more predominant among females than males.

Table 2: Class-wise Mean Anxiety Scores and Overall Mean Anxiety Score

Class/Year	**Mean Anxiety Score**	**Number of Students (n)**	**Std. Deviation**
1st Year	21.35	60	9.641
2nd Year	19.09	54	9.436
3rd Year	19.08	50	9.860
4th Year	19.15	48	13.300
Overall Mean	**19.74**	**212**	**10.553**
P-value: *Not Significant*			

The mean anxiety score was not significantly high among first-year medical students. Multivariate analysis of the mean anxiety score with all non-academic factors revealed no significant dependency.

DISCUSSION

The prevalence of anxiety in this study is 97.2%. It is higher than found by Laique T et al. 2020 among Pakistani students. There, it was 71.6 %. Meanwhile, the global prevalence in a meta-analysis was 33.8% and 76.8%. The reason for such a high prevalence of anxiety among the students in our study may be due to the time-bound multiple module assessments, the fast pace of covering the curriculum, the multidisciplinary approach, fear of subpar performance, and deficient internal assessments[14].Very few studies regarding mental health and anxiety in the modular curriculum are available in Pakistani students to date. In our study, 55.7% of students had mild anxiety, 32.1% of students had moderate types of anxiety, and 9.4% suffered from severe anxiety. So, more than one-third (41%) of students have higher stress levels. It was reported in another study that moderate anxiety in 22.6.4% and severe anxiety in 8.6% of Pakistani medical students [7]. Our results are comparable with this study regarding moderate anxiety, but the percentage for mild anxiety is higher in our study. The overall mean anxiety score in our study was 19.74±10.77. This is in line with what was reported by Kumar B. in 2019 in another study among Pakistani Medical students 19.15 ± 11.20 [15]. The mean anxiety score was significantly higher (P<0.05) in females in this study. The same findings were reported by other studies in Pakistan (16) and in the Middle East [16]. Regarding the severity of anxiety level, 27.6% of males and 36% of females had a moderate intensity of anxiety. Severe anxiety was present in 7.1% of males and 11.4% of females in our study. So, corresponding values for the prevalence of moderate and severe anxiety were higher in females than males. Similar results are reported by Baber A and Kumar B among the Pakistani population [16, 17]and in the Middle East. The reason may be that female medical students are more serious and focused on their career achievements than males [18]. In this study, anxiety level decreases with each consecutive academic year. The maximum prevalence of anxiety was noted in first-year students. This may be due to exposure to new subjects and environments [19]. Afterward, medical students become well-acquainted with and adapt to the teaching and assessment system [20]. Furthermore, 73.1% of all students suffered from anxiety while appearing in the end modular exam assessments, so it may be considered the main stressor among all. Regarding the non-academic

factors contributing to students' anxiety, a multivariate analysis was done to predict the impact of other non-academic factors on the mean anxiety score. These were the frequencies of home visits, and hostel stays, doctor parents, parental pressure, career anxiety, and economic status. All these showed no statistically significant impact on the mean anxiety score.

Future recommendations: Student screening strategies should be developed from early years to identify students with hyper-anxiety conditions. Teachers and administrators must encourage help-seeking behaviors among students who are experiencing stress. It is essential to provide these students with appropriate psychotherapy, counseling, and rehabilitation by establishing a Student Mental Health Support Unit as soon as possible to prevent further deterioration of their academic performance and mental health. Although the average anxiety score shows a significant association with females, the identification of anxiety and the provision of treatment and prevention services should involve both genders.

Limitation of the study: This study included subjects from only this medical college, aged 1 to 4 years. To obtain more reliable results, this study should be conducted over a wider range.

CONCLUSION

The prevalence of anxiety among students in a modular curriculum is high, with most experiencing mild anxiety. Hence, one-third of the students are suffering from moderate anxiety, which is more common in female students. It was further observed that end-of-modular assessments were the primary source of stress.

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