Original Article

Exam Anxiety In Medical Students: Prevalence, Contributing Factors, And Mitigation Strategies.

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ABSTRACT

Background: Medical students at high risk for exam anxieties experience negative effects that diminish both their study achievements and emotional health. Excessive course work together with unproductive time allocation and incomplete stress management skills lead to increased exam anxiety.

Objectives: Researchers studied the occurrence and elements causing exam stress and variations between genders in Medical Students learning at Nowshera Medical College.

Study Design : A cross-sectional study.

Place and Duration of study. Department of Community Medicine nowshera Medical college from December 2023 to May 2024

Methods: A total of 200 MBBS students completed an online questionnaire which contained 22 questions during a cross-sectional study investigation. The researchers utilized Microsoft Excel for both descriptive and inferential statistical computations. The researchers secured both ethical approval and consent from participants before starting research activities.

Results: Participants averaged 21.5 years of age with a standard deviation of 2.1 years. Anxiety about exams existed in 77.5% of students (95 females alongside 60 males). Data analysis revealed meaningful differences between genders regarding their performance in time management ($p < 0.05$) as well as their fears of failure ($p < 0.05$) and their susceptibility to exam timing sensitivity ($p < 0.05$).

Conclusion: Medical female students and male students demonstrate clear differences in their experience of exam anxiety. Students develop exam anxiety because of the combination of academic pressure and bad study routines alongside inadequate guidance support. Students need effective stress-management techniques to enhance their overall wellbeing.

Keywords: Exam anxiety, medical students, stress, gender differences

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Introduction:

Exam anxiety encompasses a spectrum of reactions such as intense worry, sadness, distracting thoughts, and nervousness experienced during exams [1]. This phenomenon reflects the behavioral and mental responses triggered by the fear of failure. While moderate anxiety can enhance performance by motivating students, excessive anxiety often impairs academic performance and overall well-being [2].Industrial medical education along with its high-stakes performance standards makes medical students especially prone to anxiety episodes during exams. The educational systems of developing regions emphasize academic success over all else which produces serious pressure on students to perform well [3]. Relentless medical education generates additional anxiety due to both the field's ongoing scientific advancements and treatment protocol evolutions [4]. First-year medical students reportedly experience more anxiety than their upper-class peers do according to current studies. Students usually acquire adaptive methods to face their anxiety through the progression of their education program although their initial adjustment has been difficult [5,6].Medical students develop exam anxiety because of multiple existing elements. Two major stress factors are medical students' poor life choices in sleep habits combined with exercise frequency and dietary decisions together with study approaches that fail to structure learning and rely only on memorization [1]. Students face additional pressure from lengthy coursework demands. Among medical students females typically demonstrate increased anxiety than males as an indicator. Research findings point to cultural expectations as well as dissimilarities in emotional processing abilities [7,8] because they could explain this difference between male and female students' emotional responses. The Objective Structured Clinical Examination (OSCE) and United States Medical Licensing Examination (USMLE) establish themselves as particularly worrisome examination tests for students according to [9] and [10]. Multiple investigations have been conducted into stress reduction approaches using meditation and traditional Chinese medicine and yoga and auricular point stimulation therapy [11-12]. Research by several authors shows auricular acupuncture proves ineffective for exam anxiety reduction while opposing data from other studies exists [13-14]. There exists ongoing debate about yoga's ability to manage anxiety because current research suggests that it plays a minimal role in decreasing examination-related anxiety [15]. Medical students need research that explains both the complex nature of anxiety about exams and their root causes to build better assistance programs for students. This study examines the extent of exam anxiety found among medical students at Nowshera Medical College by analyzing effects of gender differences alongside different approaches to treat anxiety.

Methodology:

This cross-sectional study aimed to evaluate the prevalence and contributing factors of exam anxiety among MBBS students at Nowshera Medical College. The research venue included first through fourth-year MBBS students. Two hundred students joined the study following a random sampling approach. All participants must be enrolled in the MBBS program at the time of study but students who neither completed the survey nor attended during data collection were excluded from analysis. A web-based instrument gathered research data about students' experience with testing anxiety through its questionnaire survey. The 22-item survey included both multiple-response and Likert-style rating scales together with open-response inquiries. The study utilized Microsoft Forms as its platform to distribute the questionnaire across four subsequent weeks. Through online methods students completed questionnaires so they could reach the materials conveniently. Microsoft Excel collected participant responses which the research team analyzed. Descriptive statistics logged how often

students experienced exam anxiety and listed the respected contributing elements. The study used inferential techniques to show gender variations in student anxiety levels together with a factor-based analysis of anxiety affecting them. Microsoft Excel provided the analysis platform where the research team performed data organization and interpretation functions. The research earned ethical approval by the Nowshera Medical College research committee. All participants received informed consent during which they gained absolute comprehension of the study objectives and procedural rights.

Results:

In the study conducted with 200 MBBS students from Nowshera Medical College, it was found that 155 students, accounting for 77.5%, reported experiencing exam anxiety. The sample included 60 male students (38.7%) and 95 female students (61.3%) as shown in Figure 1.Among the factors contributing to exam anxiety represented in Figure 2, the course load emerged as a major concern for 149 students (96%). The extensive volume of material required was particularly stressful, with female students experiencing slightly higher levels of anxiety due to the course load (96.8%) compared to male students (95%). Poor time management was also a critical issue, affecting 148students (95%). Here, female students (100%) reported greater difficulties with time management compared to their male counterparts (88.3%), indicating that managing study time effectively is a significant challenge for them.The lack of academic guidance was noted by 130 students (83.8%) as another important factor contributing to anxiety. Both male (83.3%) and female students (84.2%) were similarly impacted by insufficient guidance, suggesting that more robust support structures are needed for all students. Another factor was the tendency to memorize information without fully understanding it, which was reported by 129 students (83%). There was no substantial difference in this factor between male (83.3%) and female students (83.15%), indicating that both genders face similar challenges in their study methods.Fear of failure was a significant source of anxiety for 110 students (71%). This fear was notably more intense among female students (80%) than male students (56.6%), pointing to a higher level of anxiety related to performance and the potential for failing exams among females. Exam timing, whether in the morning or evening, also contributed to anxiety, with 77 students (49.6%) affected. Female students (60%) were more likely to be impacted by the timing of exams compared to male students (33.3%), reflecting a possible sensitivity to when exams are scheduled.Distractions such as mobile phones and the internet were cited by 109 students (70%) as factors increasing their exam anxiety. Both male (70%) and female students (70.5%) were similarly affected, highlighting that digital distractions are a widespread issue. Statistically significant difference ($p < 0.05$) was observed in time management, fear of failure, and exam timings, while other factors showed no significant gender differences as shown in Table 1.The study also explored how students manage their exam anxiety. While some students used relaxation techniques like meditation and yoga, the effectiveness of these strategies and any differences in their impact between genders were not fully analyzed. Many students reported physical symptoms of anxiety, such as sweaty palms, shaky hands, nausea, and heart palpitations. A significant number of students were unaware of or had not utilized effective anxiety-reduction techniques, indicating a need for greater education on managing

stress.

Figure 1. Gender Distribution of Exam Anxiety.

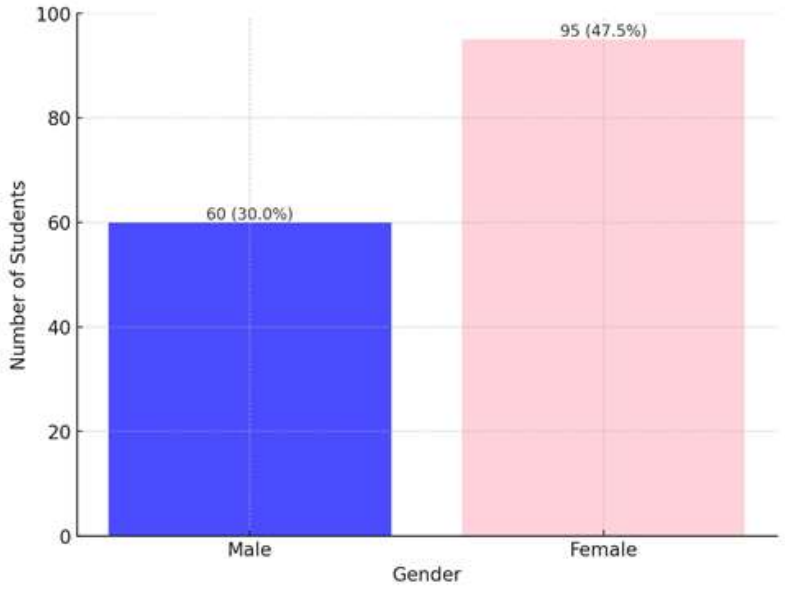

Figure 2. Graphical representation of factors contributing to Exam anxiety.

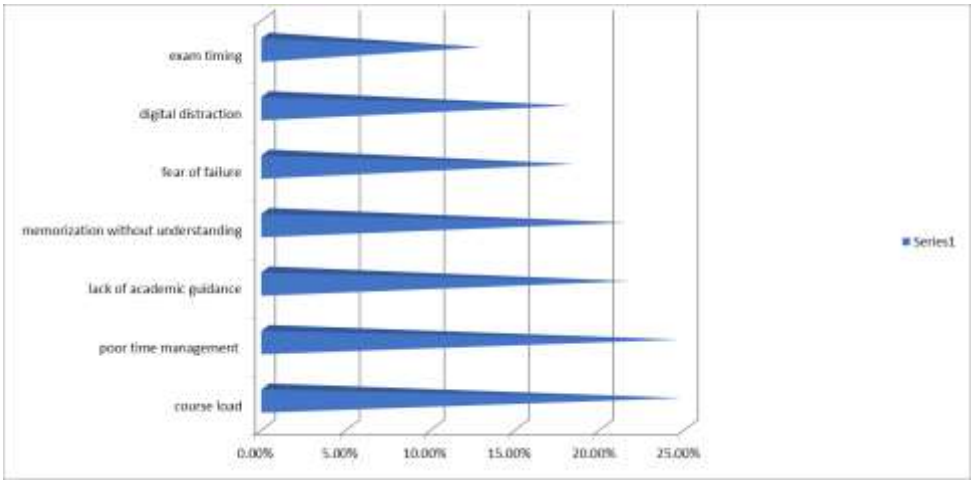

Table. 1. Results of questionnaire filled by medical students.

Factors contributing in exam anxiety	Total	Total (%)	Male (n%) Total=60	Female (n%) Total=95	P value
Course load	149	96%	57 (95%)	92 (96.8%)	0.351
Time management	148	95%	53 (88.3%)	95 (100%)	<0.0001
Lack of guidance	130	83.8%	50 (83.3%)	80 (84.2%)	0.844
Memorizing without understanding	129	83%	50 (83.3%)	79 (83.15%)	0.973
Fear of failure	110	71%	34 (56.6%)	76 (80%)	<0.001
Timings of exam (morning/ evening)	77	49.6%	20 (33.3%)	57 (60%)	<0.001
Distraction (mobile, internet)	109	70%	42 (70%)	67 (70.5%)	0.941

Discussion:

Exam anxiety is a prevalent issue among medical students, especially during exam periods. While a moderate level of anxiety can serve as a motivator and enhance performance, excessive anxiety can adversely affect both academic and social aspects of students' lives. This study explores various factors contributing to exam anxiety, building upon findings from previous research.Our study reveals significant gender differences in exam anxiety. Consistent with earlier research [16,17], female students generally report higher levels of anxiety compared to their male counterparts. Female students often experience heightened emotional intensity, such as trembling hands, even when well-prepared[18]. They also tend to exhibit lower confidence levels before exams, in contrast to the lower anxiety reported by males ($p<0.05$).Key contributors to exam anxiety identified in this study include inadequate preparation, low self-confidence, and past experiences of failure. Many students expressed anxiety due to insufficient preparation, last-minute cramming, and ineffective study habits, such as memorizing textbooks without proper understanding[19]. These behaviors reflect poor time management and ineffective study strategies, which are linked to increased anxiety and impaired learning [20]. Interestingly, while some studies suggest no significant correlation between academic records and exam anxiety, our findings indicate otherwise ($p=0.03$). Many students reported anxiety related to their academic performance, suggesting that academic expectations significantly impact emotional well-being. This variation may be attributed to differences in mentalities and the level of support provided by educational systems in different countries[21].Regarding anxiety reduction techniques, our study found no

evidence supporting the effectiveness of auricular acupuncture in reducing exam anxiety among medical students ($p>0.05$). This conclusion is consistent with another research [22]. Additionally, our findings align with previous studies indicating that yoga does not significantly reduce exam anxiety ($p=0.07$).In summary, this research highlights the multifaceted nature of exam anxiety and emphasizes the need for targeted interventions that address both academic and emotional factors. Effective strategies should consider gender differences, improve study habits, and provide appropriate support to manage anxiety and enhance overall well-being among medical students.

Conclusion:

This study investigates the sources of exam anxiety among medical students at Nowshera Medical College, District Nowshera. The study data shows stress affects female students more often than it affects male students in academic settings. Medical students experience anxiety due to several key stress factors including excessive study material, lengthy exam periods and test anxiety alongside poor instruction and shallow memorization practices which does not establish understanding of concepts and mobile device distractions and exam timing. Students often experience poorly managed anxiety because they lack familiarity with useful methods to overcome test anxiety. To enhance exam experiences together with student wellness systematically addressing these stress-related problems will make a meaningful difference in student performance.

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Declaration Statements

Conflict of Interest: We hereby declare that there are no conflicts of interest regarding this research. The authors have no financial or personal relationships that could have influenced the results or interpretation of this study.

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Ethical Approval: This study was conducted following ethical guidelines, and all necessary approvals were obtained from the relevant ethics committees or review boards.

Data Integrity: We affirm that the data presented in this research is accurate and has not been manipulated or falsified in any way.

Authors Contribution

Concept & Design of Study: **Muhammad Bilal**

Drafting:**Hamna Wasiq, Laiba Wasiq**

Data Analysis: **Hamna Wasiq, Laiba Wasiq**

Critical Review: **Hamna Wasiq, Laiba Wasiq**

Final Approval of version: **All Authors as mentioned above.**

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