**Original Article**

# Assessment of Test Anxiety and its Correlation with Academic Performance among Undergraduate Students

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## ARTICLE INFO

## ABSTRACT

Globally, around one in every three medical students suffer from anxiety. Test anxiety is a physical, mental and emotional reaction to threat of failure in exams and consists of worry and perception as components and it may lead to poor academic performance. **Objective:** To assess the level of test anxiety and its correlation with academic performance among undergraduate students. **Methods:** This cross-sectional analytical study was conducted from 1st September to 15th December, 2022 with purposive sampling technique to collect the data from the undergraduate students at Sohail University, Karachi. Westside Test Anxiety Scale questionnaire was used. Data were analyzed by using SPSS version 22.0. Descriptive statistics, Mann Whitney and Spearman's correlation were measured. **Results:** 44% of the participants were male, 94% were single, 50% were nursing students and 57.5% were 1st and 2nd year undergraduate students. Majority of the respondents (70.5%) were suffering from high to extremely high-test anxiety whereas (17.5 %) participants had mild to moderate level of anxiety. The significant association was found between test anxiety and study program (p-value 0.021). The weak reciprocal correlation coefficient was found between academic performance and test anxiety (r = -.473). **Conclusions:** Findings of this study suggest that 88% of undergraduates had high to extremely high-test anxiety. A significant link between the study program and level of anxiety and a significant correlation were also found between academic performance and test anxiety. The causes and contributing elements of anxiety must be addressed. The test anxiety puts the undergraduates on high risk for learning deficits and unhealthy consequences.

## INTRODUCTION

Anxiety is an emotion which consist feelings of tension, physical changes and worried thoughts. In addition, anxiety disorders are the most common type of mental health diseases with approximately 15% lifetime incidence. Poor health can be caused by anxiety, and students feel during their examinations [1]. Test anxiety which is a physical, mental and emotional reaction to risk of failure in exams and consist of worry and perception as components. Both, worry and perception have an impact on students' academics, interpersonal relations, self-confidence and mental health [2]. Exam anxiety influence student's academic achievement, their mental and physical wellbeing thus resulting in a low quality of life [3]. Because, the students with high levels of anxiety have a low success. Moreover, extreme level of worry is dangerous for physical and psychological health and affects a person's ability to perform his personal, social, familial, professional, and academic actions [4]. Among the students of health profession, 25% to 65% are suffering from test anxiety [5]. This test anxiety affects their motivation, focus, learning, performance in exams, and even cause them to drop out of university [5]. Globally, approximately one in every three undergraduate medical students suffers from anxiety, representing a 33.8% occurrence rate that is higher than the general population. Stress and anxiety also experienced by nursing and physiotherapy students [6].

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The undergraduate students may experience anxiety for a variety of reasons, including last-minute studying, lack of sleep, ineffective time management, and lack of confidence [7]. A previous study showed linked between test anxiety and low academic achievement as test anxiety is also related to psychological problems, parental pressure, irrational thoughts about tests, results etc. [8]. Students frequently struggle to adjust their academic life, which promotes the prevalence of depressed emotions which impact negatively due to worry and uncontrolled situation of exams [9]. Students with moderate test anxiety can concentrate more on the paper as compared to those with high levels of anxiety [10]. Test anxiety may increase due to poor memory and perceived level of stress among health sciences students. Specifically, in Pak-Indian subcontinent, the psychological distress has been increased among Pakistani (70%) and Indian students (49.1%) [11]. Test anxiety leads to worry which represents the decline in intellectual aspect of a learner and this intellectual aspect is associated with cognitive impairment, poor concentration and exam performance. So, the assessment of test anxiety is quite necessary [12]. This concern is considered valuable in multiple studies even in the context of Pakistan [1, 2] but mostly the attention paid to general students and less attention has been paid undergraduate health sector students. No previous study in the public or private sector in Pakistan was found regarding the prevalence of test anxiety and its correlation with academic performance among undergraduate health sector students. Therefore, this study was aimed to assess the level of test anxiety and its correlation with academic performance among undergraduate health care students in Karachi.

## METHODS

This cross-sectional analytical study was performed from 1st September to 15th December, 2022 including 200 willing undergraduate students at Jinnah College of Nursing, Jinnah College of Rehabilitation and Jinnah College of Pharmacy, Sohail University Karachi. The students of post-graduation, specialization and other disciplines and who were unwilling were excluded from this study. For sampling, purposive sampling technique was used. By using Slovin's formula i.e. $n = N / (1 + Ne^2)$ where n is the sample size, N is population (400), and e is the margin of error (0.05) and 95% level of confidence, we estimated the sample size which was 200 [13]. Data were collected through a self-developed demographic form. Moreover, Westside Test Anxiety Scale (WTAS) was used which consist of 10 questions on self-assessment of anxiety and cognitive impairment. Westside test anxiety scale is a valid technique of assessing test anxiety of r = 0.44 with WTAS score; positive score indicates improved performance in

those with lower levels of test anxiety. The test comprises 6 questions on dealing with memory loss and impaired cognitive processing, as well as 4 questions about exam anxiety. The response was given a score between 1 and 5, with scores more than 3 suggesting intervention needs and abnormally high-test anxiety. The WTAS questionnaire scores were categorized into low, normal or average, high normal, moderately high, high and extremely high-test anxiety levels; as per standard recommendations [12]. An ethical approval was taken from Ethical Review Committee Sohail University, Karachi (ERC-Protocol #:000234/22). Permission for data collection was obtained from head of all three departments. Informed consent form was given to the participants before filling questionnaire. The academic performance of respondents was assessed by their relevant department and we took from them. Data were analyzed by using SPSS version-22. Descriptive statistics, Mann Whitney and Spearman's correlation were used for frequency, percentages and correlation values. P-value ≤ 0.05 was considered as significant.

## RESULTS

Out of 200 respondents 88 (44%) were male, 103 (51.5%) students were in between of 17-21years of age, 12 (6%) participants were married, 100 (50%) of the students were from nursing department and 115 (57.5%) undergraduates were studying in 1st and 2nd year (Table 1).

**Table 1:** Demographic Characteristics of Study Participants (n=200)

| | | |
|---|---|---|
| **Age** | 17–21years | 103(51.5%) |
| | 22–26years | 97(48.5%) |
| **Sex** | Male | 88(44%) |
| | Female | 112 (56%) |
| **Program** | G-BSN | 100(50%) |
| | Pharm-D | 50 (25%) |
| | DPT | 50 (25%) |
| **Year of Study** | 1st & 2nd year | 115(57.5%) |
| | 3rd & 4th year | 85(42.5%) |
| **Marital Status** | Married | 12 (6%) |
| | Unmarried | 188 (94%) |

Table 2 shows the percentage and frequency of test anxiety score. Out of 200 participants, Majority of the individuals 141 (70.5%) were suffering from high test anxiety to extremely high-test anxiety whereas 17.5 % (n=35) partakers had mile to moderate level of anxiety. Moreover, and only 12 % (n=24) were found normal on anxiety score.

**Table 2:** Percentage and Frequency of test anxiety score(n=200)

| Test Anxiety Scale | Score | Frequency (%) |
|---|---|---|
| Comfortably low-test anxiety | (1.0—1.9) | 10(5) |
| Normal or average test anxiety | (2.0—2.5) | 14(7) |
| Mild test anxiety | (2.5—2.9) | 8(4) |
| Moderately high (some items rated 4=high) | (3.0—3.4) | 27(13.5) |

| High test anxiety (half or more of the items rated 4=high) | (3.5—3.9) | 47(23.5) |
|---|---|---|
| Extremely high anxiety (items rated 4=high and 5=extreme) | (4.0—5.0) | 94(47) |
| Total Population | – | 200(100) |

Table 3 shows the correlations of test anxiety with demographic data. In which the Mean Rank of age group 1, male, married, year 1 & 2 and Pharm-D students were high (93.94, 94.31, 95.63, 98.47, 111.36 respectively) with the P-value (0.895, 0.805, 0.191, 0.132 and 0.021 respectively). The only significant result was found between test anxiety and study program (p-value 0.021).

**Table 3:** Correlations of Test Anxiety with demographic data (n=200)

| Variables | Categories | Mean Rank | p-value |
|---|---|---|---|
| Age | 17 to 21 years | 93.94 | 0.895 |
| | 22 to 26 years | 93.03 | |
| Sex | Male | 94.31 | 0.805 |
| | Female | 92.63 | |
| Marital Status | Married | 95.63 | 0.191 |
| | Un-married | 91.23 | |
| Study Year | 1st & 2nd Year | 98.47 | 0.132 |
| | 3rd & 4th Year | 88.20 | |
| Study Program | Generic BSN | 103.40 | 0.021 |
| | Pharm-D | 111.36 | |
| | DPT | 83.84 | |

Table 4 shows the correlation between test anxiety and academic performance. The significant correlation coefficient was found between academic performance and test anxiety (P-value <0.0001). There is an inverse weak correlation between anxiety score and academic achievement, as anxiety score up to 1 degree will lead to academic performance by 0-.473.

**Table 4:** Correlation between Test Anxiety and Academic Performance (n=200)

| Correlations | | | Test Anxiety Score | Test Percentage |
|---|---|---|---|---|
| Spearman's rho | Test Percentage | Correlation Coefficient | 1.000 | -.473** |
| | | Sig. (2-tailed) | – | <0.0001 |
| | | N | 200 | 200 |
| | Test Anxiety Score | Correlation Coefficient | -.473** | 1.000 |
| | | Sig. (2-tailed) | <0.0001 | – |
| | | N | 200 | 200 |
| Correlation is significant at the 0.01 level (2-tailed) | | | | |

# DISCUSSION

The findings of the study revealed that more than ¾ of the students had high to extremely high-test anxiety. These results are similar to study by Macauley et al., [1], which found greater than normal anxiety among their participants. Contradictory results were found that partakers had moderately highly anxiety in a previous study that was conducted in 2018 in Pakistan [2]. Some other studies also support these findings and report highest anxiety levels among the students [4, 14, 15, 16]. Contrarily, moderate level of test anxiety revealed in numerous studies [17-19]. A past study reported mild anxiety level among his undergraduate participants [18]. The significant prevalence of anxiety was also observed by Shafique in her study during the year 2020 [3]. The possible causes for this increased prevalence of anxiety among students may be parental expectations, extensive course content, less facilitation by teachers, institute culture and peer pressure [1-3]. While observing the Mean Rank of demographic variables and their correlation with test anxiety, the significant association was retrieved only in study program. The students of Pharm-D program had high test anxiety (111.36 on Mean Rank). Similarly, these results were also found in a past study in which Pharm-D students had increase level of test anxiety [8]. On the other hand, Desai et al., observed higher anxiety levels in physiotherapy pupils [7]. Anxiety levels were also found higher among MBBS students reported a former research conducted in 2017 [13]. The researchers stated that academic burden, difficult course content, maladjustment in novel environment are the influential factors that causes anxiety and stress among health profession undergraduates [7, 13]. Test anxiety was found high among our male students (94.31 on Mean Rank) without significant correlation of gender with test anxiety similar to a past study [14]. Although it is revealed in few past studies that prevalence of test anxiety is much higher among female undergraduates [6, 8, 9, 15, 16]. This higher anxiety may be prevailing due to less opportunities, social and cultural restraints, family issues and instability in novel environment for girls. The current study observed high levels of anxiety among 1st and 2nd year students instead of 3rd and 4th year undergraduates. Similar results were found in a past research [8]. Duraku et al., in 2017 found highest anxiety levels among 1st year students [17]. Contrarily, some researchers found high levels of test anxiety among their senior students [4, 16]. We may suggest that with the passage of time, students increase their self-confidence, develop learning skills and competencies and it may lead to decrease in undergraduates' anxiety level. This study observed inverse correlation between test anxiety and academic performance as anxiety score increase up to 1 degree the academic achievement will decrease to 0-.473. It shows that high level of anxiety interferes students' motivation, learning and academic achievement [5]. Balogun et al., denoted that undergraduates with high level of test anxiety are likely to forget what they read. These results were also supported by numerous previous studies [5, 8, 10, 16, 17]. On the contrast, Brady et al., in his study

which was conducted in 2018 affirmed that those students who were less certain regarding their exam performance due to greater anxiety got benefit from the reassessment of their contributing factors showed decreased anxiety and improved academic performance in the examinations [19]. The undergraduate students should also take help from their supervisors, mentors and teachers to relieve their anxiety. Meanwhile, on clinical site, preceptors should pay attention to deal psychological needs of nursing s undergraduates during their tenure and provide psychological training to undergraduates like positive meditation, music therapy, spiritual help, breathing training, aromatherapy and guided refection [20]. University personnel should be incorporating psychological management training during initial semesters [21]. Cipra and Müller-Hilke et al., suggest that medical personnel place precise emphasis on applying strategies for coping with anxiety and effective learning [22]. The faculty members and mentors can support their undergraduates in lessening test anxiety, and they also need to know how to help nursing students to develop strengths and coping mechanism to overcome test anxiety. Involvement of parents/guardians can also help to manage psychological problems and test anxiety.

## CONCLUSIONS

The current study emphasizes the level of test anxiety among undergraduate students and observed its correlation with their academic performance. The findings of the study revealed that majority of the undergraduates had high to extremely high-test anxiety. A significant link between the study program and anxiety were also found. The significant correlation coefficient was found between academic performance and test anxiety. There is an inverse weak correlation between anxiety score and academic achievement, as anxiety score up to 1 degree will lead to academic performance by 0-.473. The test anxiety puts the undergraduates on high risk for learning deficits and unhealthy consequences.

## Authors Contribution

Conceptualization: KH
Methodology: SK, KH
Data Collection: MS, G, T, IT
Formal analysis: TA, AA
Writing-review and editing: KH, TA, AA

All authors have read and agreed to the published version of the manuscript.

## Conflicts of Interest

The authors declare no conflict of interest.

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