

An Investigation into Exam Anxiety Among Upper Secondary Education Students: Effects and Associated Factors in Shahin Shahr, Isfahan

Monir Rostam Abadi^{1*}, Sima Janatian², Saeed Miri³

¹PhD in Educational Psychology, Department of Psychology, Faculty of Psychology and Educational Sciences ,Isfahan Branch) Khorasgan ,(Islamic Azad University ,Isfahan ,Iran

²Assistant Professor, Department of Psychology ,Ragheb Isfahani
Higher Education Institute ,Isfahan ,Iran

³MA, Department of Psychology ,Ragheb Isfahani Higher Education Institute ,Isfahan ,Iran.

*Corresponding author

Abstract

Exam anxiety is one of the most prevalent psychological issues that has a detrimental and inhibitive role in the mental health and educational performance of students, particularly those in secondary education. This problem can disrupt a student's performance and lead to failure and unsatisfactory outcomes in examinations. The inability to cope with situations such as exam conditions is one of the destructive effects of exam anxiety. This article presents a cross-sectional descriptive-analytical study involving 300 upper secondary education students (150 boys and 150 girls) randomly selected from Shahin Shahr, Isfahan. The Test Anxiety Inventory (TAI) questionnaire was administered to all students. Data were analyzed using one-way ANOVA, independent t-tests, and Pearson correlation coefficients. The results indicated that 79 students experienced high exam anxiety, 158 had moderate exam anxiety, and 63 exhibited low anxiety levels. Additionally, a statistically significant difference was found in scores related to exam anxiety based on students' gender and parental education level (with a significance level of P at 5%). The Pearson correlation revealed an inverse and significant relationship between exam anxiety and students' GPA (with an r -value of -0.326). This article underscores the necessity of utilizing psychological and counseling services, given the high levels of exam anxiety among students and considering the negative impact of anxiety on academic performance.

Keywords: Exam, Exam Anxiety, Upper Secondary Education, Shahin Shahr

Introduction

Anxiety is defined as an unpleasant state or condition accompanied by worry, typically stemming from an unclear source (1-5). Exam anxiety represents a specific form of anxiety characterized by physical, cognitive, and behavioral symptoms that arise during exam preparation and while taking tests. This type of anxiety becomes problematic when its intensity interferes with both the preparation for exams and the execution of tests (6-9). When anxiety surpasses normal levels, it can manifest in symptoms such as distraction, distress, and feelings of helplessness (10), which can subsequently diminish an individual's productivity and performance (6). Physiological responses associated with chronic anxieties may lead to a reversible reduction in the volume and size of the hippocampal structure, thereby affecting memory function (11-14).

Although exam anxiety is not explicitly classified as a disorder in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders, it can be conceptualized within the framework of specific phobias or categorized under unspecified anxiety disorders when there is inadequate diagnostic information for precise or differential diagnosis (15).

In terms of prevalence rates for exam anxiety, Fathi et al. report that it affects between 10% to 30% of students, with a specific prevalence rate of 17.2% noted among high school students in Iran (10). Exam anxiety can have detrimental effects on students' academic performance; however, a moderate level of this anxiety may enhance their performance (16-19). A substantial body of research indicates that addressing and treating this form of anxiety can lead to improvements in academic scores and overall performance (20-22). Conversely, findings suggest that exam anxiety exerts a negative and harmful influence on students' capacity to achieve success and reach higher academic levels (24-25). Furthermore, exam anxiety negatively impacts various dimensions of students' emotional, cognitive, behavioral, and affective experiences (26-28).

Exam anxiety is defined by an intense fear of poor performance during exams and assessments (29-32). When individuals experience worry and concern regarding their cognitive abilities in an examination context, this anxiety can lead to diminished performance. Additionally, anxiety poses significant challenges that can jeopardize personal adaptation and require considerable energy to maintain equilibrium (33-36). Each individual displays a certain degree of anxiety and psychological tension when confronted with an exam; while experiencing some level of anxiety before or during an examination is normal, what matters is the severity and degree of overwhelming anxiety that affects certain individuals. Students suffering from severe anxiety may encounter temporary forgetfulness and perceptual errors that hinder their likelihood of success (37-40).

Conversely, many students may be adequately prepared for exams; however, due to elevated levels of this specific type of anxiety, they may struggle to showcase their abilities effectively (41). Extensive research indicates that exam anxiety produces negative consequences such as feelings of inadequacy in performance, diminished motivation, and reduced focus—factors that significantly contribute to increased dropout rates within society (42). Furthermore, studies have established a connection between anxiety and learning; the stress associated with it often leads to numerous failures and physical ailments. This unwanted condition adversely impacts academic outcomes, positioning it as a primary contributor to students' educational failures (43). Schaffer et al. have illustrated that students experiencing high levels of exam anxiety tend to prolong their educational journey due to performance deficits and exhibit greater social concerns, psychological disorders, and psychotic symptoms compared to their peers (26).

Previous research suggests that the phenomenon of exam anxiety has likely emerged since assessments were first utilized for evaluating individuals' effectiveness and performance. In recent years, challenges related to entrance examinations (such as those for selective schools or university admissions) along with parental pressures regarding test results may exacerbate the prevalence of exam anxiety among students at these educational stages. Given the detrimental role that exam anxiety plays in both mental health and academic achievement—alongside its adverse effects on student performance—and noting that no prior study has assessed exam anxiety among school students in Shahin Shahr, this research seeks to explore exam anxiety among upper secondary education students in Shahin Shahr along with its associated factors.

Methodology

This research is a descriptive-analytical study conducted in 2024. The target population for this study comprises all upper-secondary education students in Shahin Shahr. To achieve this, a sample of 300 upper-secondary education students enrolled in preparatory classes for university entrance exams was selected through convenience sampling. Only those students participating in the national university entrance exam for the first time were included in the analysis. Exclusion criteria encompassed students who expressed unwillingness to participate or those receiving pharmacological treatment for psychological disorders or anxiety.

Data collection involved administering a demographic characteristics questionnaire alongside the standardized Test Anxiety Inventory (TAI), which consists of 25 items rated on a four-point scale (Never = 0, Rarely = 1, Sometimes = 2, Often = 3). The scoring range for this test spans from a minimum of zero to a maximum of seventy-five points. Results were categorized into three levels of anxiety: mild (scores from 0 to 25), moderate (scores from 26 to 50), and severe (scores from 51 to 75).

To evaluate the reliability of the exam anxiety scale, both internal consistency and test-retest methods were utilized. The Cronbach's alpha coefficient was calculated to determine internal consistency and test-retest

reliability. Additionally, the Cooper-Smith Self-Esteem Inventory was employed to assess the model's validity. Data analysis was performed using one-way ANOVA, independent t-tests, and Pearson correlation coefficients. Participants completed the questionnaires without providing personal identification information, and data analysis was carried out using SPSS statistical software.

Results

The findings reveal that there were equal numbers of male and female students, with each group consisting of 150 individuals. Out of the total participants, 291 did not have any history of specific illnesses, while 9 reported having such conditions. In terms of academic disciplines, 183 students were enrolled in experimental fields, 76 in mathematical fields, and 41 in the humanities. The average GPA among participating students was found to be 17.62 with a standard deviation of 2.16. For male students, the mean exam anxiety score was reported as 48.26 with a standard deviation of 16.69; for female students, these figures were higher at a mean of 54.49 and a standard deviation of 19.35. The minimum and maximum exam anxiety scores for male students ranged from 6 to 69, while for female students, they ranged from 11 to 83. The research indicated that out of the participants, 79 exhibited high levels of exam anxiety, 158 experienced moderate anxiety, and 63 reported low anxiety levels. Furthermore, the results demonstrated a statistically significant difference in scores related to exam anxiety based on both student gender and parental education levels (with a significance level of P at .05). Average anxiety scores for both genders are detailed in Table 1. Although the ANOVA test did not show significant differences in mean exam anxiety scores across different fields of study (Table 2), it did indicate significant differences based on parental education levels (Table 3). Additionally, the Pearson correlation coefficient revealed a significant inverse relationship ($r = -0.326$) between exam anxiety and students' GPAs. The predictive capacity of GPA derived from exam anxiety was determined through linear analysis to be .175 (Table 4).

Table 1. Comparison of Mean and Standard Deviation of Exam Anxiety Scores Among Students by Gender

Gender	Mean	Standard Deviation	Independent t-test
Male	48.37	16.72	$P = 0.071$
Female	54.37	19.36	

Table 2. Comparison of Mean and Standard Deviation of Exam Anxiety Scores Among Students by Field of Study

Field of Study	Mean	Standard Deviation	ANOVA
Experimental	47.21	17.14	$P = 0.149$
Mathematical	50.24	19.31	
Humanities	46.09	16.63	

Table 3. Comparison of Mean and Standard Deviation of Exam Anxiety Scores Among Students by Parental Education Level

	Parental Education Level	Number	Mean	Standard Deviation	P
Father's Education Level	Illiterate	11	46.13	14.51	0.009
	Under Diploma	67	46.21	14.69	
	Diploma	98	48.41	15.67	

	University	124	50.09	17.09	
Mother's Education Level	Illiterate	19	46.85	16.24	0.008
	Under Diploma	92	47.45	16.97	
	Diploma	117	50.31	17.79	
	University	72	52.59	19.63	

Table 4. Results of Regression Analysis Between GPA and Exam Anxiety

Variable	r ²	B	SE	P
GPA	0.173	0.141	0.103	0.002

Discussion

Exam anxiety is recognized as a prevalent and significant educational issue that closely relates to the academic performance and progress of both students and learners. This form of anxiety manifests in evaluative or problem-solving contexts, where it is characterized by doubts regarding one's performance and its consequences, leading to a marked decline in coping abilities. In essence, exam anxiety diminishes the level at which individuals can perform compared to their true capabilities. Students who possess confidence in their abilities tend to experience lower levels of anxiety during their studies. The findings from this research are consistent with those reported by Mohammadi et al. (2014) (44) and Darabi et al. (2013) (45), highlighting a significant presence of anxiety among students. Furthermore, the results indicated a statistically significant difference in mean exam anxiety scores based on parental education levels; specifically, children of parents with university degrees reported higher levels of exam anxiety. This may stem from the perception that higher education places greater emphasis on entrance examinations, potentially exacerbating both parental and student anxieties. Additionally, a significant inverse correlation was found between exam anxiety scores and students' GPAs, suggesting that those with elevated exam anxiety tend to achieve lower GPAs than their less anxious peers. Given that GPA serves as an indicator of academic performance, it can be inferred from this study's findings that high levels of exam anxiety contribute to poor academic outcomes; such anxiety can increase the likelihood of errors during examinations among students.

Conclusion

This article highlights that exam-related anxiety poses a significant and detrimental risk to students' educational processes. The study conducted on 300 students in Shahin Shahr, Isfahan, provides detailed insights into this issue. The findings reveal a high incidence of exam anxiety among upper-secondary education students, along with a strong correlation between anxiety levels, gender, and GPA. Furthermore, the results illustrate the negative impact of anxiety on academic performance. In light of the widespread nature of exam anxiety and its harmful consequences for both individuals and the educational system, it is crucial to implement measures that support the mental health goals of children and adolescents to mitigate potential physical, psychological, educational, and economic repercussions. Additionally, it is advisable to pursue more extensive research aimed at understanding the factors that contribute to the rising prevalence of this disorder and to develop effective preventive and therapeutic strategies for managing exam anxiety.

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