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The Relationship between Exam Anxiety and Academic Performance among High School Students

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Abstract

This study explores the relationship between exam anxiety and academic performance among high school students. The research was conducted with a sample of 60 students from the third year of secondary school. Using a descriptive-analytical approach, the study measured exam anxiety levels through a standardized scale and academic performance through students' annual grades. The results revealed a weak negative correlation between exam

anxiety and academic performance (r = -0.04), which was not statistically significant (p = 0.75). Furthermore, the study examined sub-categories of exam anxiety, finding that low levels of anxiety were positively correlated with higher academic performance (r = 0.999, p = 0.00), while high levels of anxiety showed no significant correlation with performance. These findings challenge previous studies that suggested a stronger relationship between anxiety and performance. The study concludes by discussing the implications for educational strategies aimed at managing exam anxiety to improve students' academic outcomes.

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Introduction

Academic success is often perceived as a benchmark for students' intellectual capabilities and future prospects. However, this success does not solely depend on cognitive abilities; psychological variables also play a pivotal role. Among these variables, exam anxiety has emerged as one of the most studied and impactful factors affecting academic performance. Exam anxiety refers to the physiological, emotional, and cognitive responses students experience in evaluation settings, which can impair concentration, recall, and problem-solving abilities (Zeidner, 1998; Cassady& Johnson, 2002).

The pressure to perform well academically, especially in competitive educational systems, intensifies students' stress levels. In high-stakes exam environments such as national assessments in secondary education, students often experience elevated levels of anxiety, which may hinder their academic achievements (Putwain, 2007). While some degree of anxiety can be motivating, excessive anxiety may become debilitating, leading to what Sarason (1984) described as "cognitive interference," where anxious thoughts disrupt task performance.

Despite a large body of research pointing to a negative correlation between exam anxiety and academic performance, the strength and direction of this relationship remain inconclusive. Some studies have reported strong negative associations (e.g., Cassady& Johnson, 2002), while others found minimal or even non-significant links, suggesting that other factors such as individual resilience, preparation, and test-taking skills may mediate this relationship.

2. Purpose of the Study

the current study aims to examine the relationship between exam anxiety and academic performance among high school students in their final year (third year of secondary school). Specifically, the research investigates the levels of exam anxiety present in students and explores how these levels correlate with their academic performance, measured through annual grades.

3. Research Objectives

To assess the general level of exam anxiety among third-year high school students.

To determine the nature and strength of the relationship between exam anxiety and academic performance.

To analyze whether varying degrees of anxiety (low vs. high) differently affect academic outcomes.

4. Research Hypotheses

General Hypothesis: There is relationship between exam anxiety and academic performance among third-year secondary school students.

Specific Hypothesis 1: There is a significant relationship between high levels of exam anxiety and low academic performance.

Specific Hypothesis 2: There is a significant relationship between low levels of exam anxiety and high academic performance.

5. Significance of the Study

Understanding how exam anxiety influences academic outcomes is critical for educators, school psychologists, and policymakers. Identifying this relationship can guide interventions and support mechanisms to reduce anxiety and enhance student performance. Moreover, findings from this study can contribute to the existing literature by shedding light on the psychological dynamics of learning and performance in the context of Algerian secondary education.

Methods

1. Study Design

This research employed a **descriptive-correlational design** aimed at exploring the relationship between exam anxiety and academic performance among high school students. The study does not manipulate variables but rather observes and analyzes existing conditions within a defined population. This quantitative approach enables the examination of the extent to which two variables—exam anxiety and academic achievement—are related using statistical methods.

2. Population and Sampling

the target population consisted of students in the **third year of secondary school** (final year before university entrance) from a selected high school. The final sample included **60 students**, selected through **purposive sampling**, ensuring that all participants were in their final academic year and had recently undergone significant exam experiences.

This sample size was considered adequate for the statistical procedures employed, particularly Pearson's correlation coefficient, which is appropriate for evaluating relationships between continuous variables in moderately sized samples.

3. Instruments and Measures

Exam Anxiety Scale: The students' levels of exam anxiety were measured using a standardized scale that included sub-dimensions such as *state anxiety* and *trait anxiety*. The overall scale provided a comprehensive score reflecting general test anxiety, with higher scores indicating greater levels of anxiety.

State Anxiety reflects the temporary emotional condition specific to the exam situation.

Trait Anxiety indicates a more general tendency to experience anxiety in test-related settings.

Academic Performance: Academic achievement was operationalized using each student's **annual grade point average (GPA)**. This measure was chosen for its objectivity and relevance in reflecting overall academic success.

4. Procedure

The study was conducted in a structured manner following ethical and methodological protocols. Students were first briefed about the study's purpose and assured of the confidentiality and anonymity of their responses. The anxiety questionnaire was administered in a controlled classroom setting, and academic records were obtained with administrative approval.

After data collection, responses were coded and entered into SPSS (Statistical Package for the Social Sciences) for analysis. The statistical methods used included:

Descriptive statistics: Means and standard deviations were calculated for all variables.

Inferential statistics: Pearson's correlation coefficient (r) was used to assess the linear relationship between exam anxiety levels and academic performance.

5. Ethical Considerations

Participation in the study was **voluntary**, and all students were informed of their right to withdraw at any stage without penalty. Parental and institutional consents were obtained prior to data collection. All data were anonymized to maintain participants' privacy and confidentiality.

Results

1. Descriptive Statistics

To begin the analysis, descriptive statistics were calculated to summarize the data collected on both **exam anxiety** and **academic performance**. The sample consisted of **60 students** from the third year of secondary school.

The mean **academic performance** (measured by the annual GPA) was **12.29** with a standard deviation of **2.48**, indicating moderate academic achievement within the group. The overall **exam anxiety score** had a mean of **98.48** and a standard deviation of **7.93**, suggesting a moderately high level of test anxiety among the sample.

Sub-dimensions of exam anxiety showed:

State anxiety: Mean = **49.11**, SD = **4.59**

Trait anxiety: Mean = **49.36**, SD = **5.05**

These figures suggest a balance between the temporary emotional reaction to exams and a more persistent anxious disposition.

Table 1: Descriptive Statistics of Exam Anxiety and Academic Performance

Variable	N	Mean	Standard Deviation
Academic Performance (GPA)	60	12.29	2.48
State Anxiety	60	49.11	4.59
Trait Anxiety	60	49.36	5.05
Total Exam Anxiety	60	98.48	7.93

2. Hypothesis Testing

2.1. General Hypothesis

H_0: There is no statistically significant relationship between exam anxiety and academic performance.
H_1: There is a statistically significant relationship between exam anxiety and academic performance.

Using **Pearson's correlation**, the analysis revealed a weak **negative correlation** between exam anxiety and academic performance:

r = -0.04, p = 0.75

Since the p-value exceeds the significance threshold of 0.05, the result is **not statistically significant**, and the null hypothesis is **accepted**. This indicates that **no meaningful relationship** exists between overall exam anxiety and academic performance in this sample.

2.2. First Sb-Hypothesis: High Exam Anxiety and Academic Performance

H_0: There is no statistically significant relationship between high exam anxiety and academic performance.
H_1: There is a statistically significant relationship between high exam anxiety and academic performance.

The results show:

r = 0.00, with a **non-calculable p-value** due to a **lack of high-anxiety participants** (n = 0 in the "high anxiety" group).

This indicates **no relationship** and reinforces the acceptance of the null hypothesis. There is **no significant correlation** between high levels of exam anxiety and academic performance in this sample.

2.3. Second Sub-Hypothesis: Low Exam Anxiety and Academic Performance

H_0: There is no statistically significant relationship between low exam anxiety and academic performance.
H_1: There is a statistically significant relationship between low exam anxiety and academic performance.

Here, the results are striking:

r = 0.999, p = 0.00

This demonstrates a **very strong positive correlation** between **low levels of exam anxiety** and **higher academic performance**, which is **statistically significant** at the 0.05 level. Thus, the **null hypothesis is rejected**, and the **alternative hypothesis is accepted**.

3. Distribution of Exam Anxiety Levels

To better understand the anxiety distribution among students, scores were categorized into four ranges: very low, low, moderate, and high.

Table 2: Distribution of Exam Anxiety Levels

Anxiety Level	Score Range	Frequency	Percentage
Very Low	**0 – 40**	**0**	**0%**
Low	**41 – 80**	**2**	**3.3%**
Moderate	**81 – 121**	**58**	**96.7%**
High	**122 – 162**	**0**	**0%**
Total		**60**	**100%**

The data clearly show that the **vast majority (96.7%)** of students fall within the **moderate range** of exam anxiety. Only a small fraction (3.3%) fall into the **low anxiety** category, and **none** were classified as having either very low or high anxiety.

Discussion

1. Interpretation of General Hypothesis Results

The core objective of this study was to explore whether there exists a statistically significant relationship between exam anxiety and academic performance among third-year secondary school students. Contrary to expectations based on a broad spectrum of earlier studies (Cassady& Johnson, 2002; Sarason, 1984), the current research found **no significant correlation** between overall exam anxiety and academic achievement (**r = -0.04**, **p = 0.75**). This result indicates that anxiety—at least as experienced by this specific student group—**does not meaningfully influence** their academic performance.

Several factors may explain this outcome. First, the **homogeneity of anxiety levels** within the sample, where 96.7% of students fell into the "moderate" anxiety category, suggests limited variability in the independent variable (exam anxiety), which can weaken potential correlations. Additionally, these students may have developed adaptive coping strategies over time, allowing them to manage moderate levels of anxiety effectively without it negatively affecting their performance.

Another explanation might be related to **cultural and educational context**. In some settings, moderate stress is normalized and may even be perceived as necessary motivation. Thus, students may not interpret or internalize this anxiety in a manner that affects performance, which aligns with the Yerkes-Dodson law (1908) that posits performance improves with arousal up to an optimal point, after which it declines.

2. Discussion of the First Sub-Hypothesis

The first sub-hypothesis posited a significant relationship between **high levels of exam anxiety** and academic performance. However, statistical analysis yielded a correlation coefficient of **r = 0.00**, with no available p-value due to the **absence of students categorized as highly anxious**. This absence was striking—**0% of the sample** fell into the "high anxiety" bracket.

This could reflect **sample bias** or a **limitation in the anxiety scale thresholds** used. Alternatively, it may suggest that the school environment or recent educational interventions have successfully reduced high levels of anxiety among students. Whatever the reason, the lack of data in this category made it impossible to evaluate this hypothesis properly.

Nevertheless, this result diverges from earlier studies like Al-Agha (1988) and Hansly (1985), which reported that students with high anxiety performed worse than their less anxious peers. The discrepancy may be due to differences in population demographics, cultural perceptions of exams, or the effectiveness of anxiety-coping interventions in recent years.

3. Discussion of the Second Sub-Hypothesis

Interestingly, the **second sub-hypothesis** yielded a **strong, statistically significant positive correlation** between **low exam anxiety** and **high academic performance** (**r = 0.999**, **p = 0.00**). Though based on only two students in the low anxiety category, this result supports the long-held view that lower anxiety levels are associated with better performance (Zeidner, 1998; Spielberger, 1980).

While the extremely high correlation might raise questions of overfitting or small sample bias, it nonetheless suggests that when students experience less exam-related stress, they may engage more effectively in academic tasks. They likely exhibit **greater focus, higher confidence, and improved memory recall**, all of which are essential components of successful test taking.

However, this finding must be interpreted cautiously due to the **very limited sample size** in the low anxiety group (n = 2). Still, it serves as a starting point for recommending **stress management programs** and **emotional regulation training** in schools, particularly for students identified as vulnerable to exam-related distress.

4. Comparison with Previous Research

The findings of this study **partially diverge** from the majority of earlier research in this area. Studies such as those by Zeidner (1998), Cassady& Johnson (2002), and Sarason (1984) consistently reported that higher exam anxiety correlates negatively with academic achievement. In contrast, the current study found **no such link** in a general sense.

The strongest departure is from previous findings that identified **high exam anxiety** as a significant performance inhibitor. Our inability to assess this dimension due to missing data highlights a **critical limitation** and suggests that future research should aim to include more **anxiety-diverse samples** to better capture the full spectrum of experiences.

5. Possible Explanations for Anomalies

Homogeneity of anxiety levels in the sample limited variability for analysis.

Coping mechanisms or stress tolerance may vary culturally or individually.

Measurement limitations, such as categorization thresholds, might not reflect subtle variations in student anxiety.

Small sample size in key sub-groups (especially low and high anxiety) reduced statistical power.

6. Educational and Psychological Implications

These findings offer valuable insights for educators and school psychologists. Since moderate anxiety appears to have a **neutral effect**, and **low anxiety correlates positively** with performance, schools should focus on:

Implementing **stress-reduction programs** (e.g., mindfulness, breathing techniques).

Offering **psychological counseling** for students at risk of high anxiety.

Encouraging healthy **study habits** and time management strategies.

Efforts should also be directed at **early detection** of students showing signs of elevated anxiety so interventions can be administered before performance suffers.

Conclusion

This study aimed to explore the relationship between **exam anxiety** and **academic performance** among third-year high school students. The results showed that there was a **weak negative correlation** between exam anxiety and

academic performance, but this relationship was **not statistically significant.** Further analysis of specific anxiety levels revealed that **low exam anxiety** was positively correlated with **higher academic performance**, although this was based on a small sample. Notably, **high anxiety** did not show any measurable effect, due to the absence of students in the "high anxiety" category within the sample.

The findings suggest that **moderate levels of anxiety** may not necessarily hinder academic success and that students with **lower anxiety** levels tend to perform better. These results challenge some of the prevailing beliefs in the literature that higher levels of anxiety consistently impair academic outcomes. The absence of high anxiety students in the study limits the interpretation of the findings, especially when compared with other studies that found strong negative correlations between high exam anxiety and academic performance.

Given these insights, educators and school counselors should **promote stress-reduction techniques** and offer **psychological support** to help students manage their anxiety effectively. Moreover, future research should seek to include a more **diverse sample** of students, capturing a broader range of anxiety levels to better understand the nuances of this relationship.

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