



## Effect of test anxiety on academic achievement among senior secondary school students in Obio Akpor Local Government Area in Rivers State, Nigeria

Dr. Celestina Johnson, Dr. Abiodun Adebunmi Omeife-Greg

Department of Educational Psychology, Guidance and Counselling, University of Port Harcourt, Nigeria

### Abstract

Test anxiety is one of the most pervasive emotional challenges facing secondary school students, yet its impact on academic achievement in the Nigerian context remains underexplored. This study examined the effect of test anxiety on academic achievement among senior secondary school students. A descriptive ex-post facto design was adopted, with 180 students selected through stratified random sampling from two public secondary schools in Rivers State, Nigeria. Data were collected using the Test Anxiety Inventory (TAI) and students' academic records from three core subjects. Pearson product-moment correlation and independent samples t-test were used for analysis. Findings revealed a significant negative relationship between test anxiety and academic achievement,  $r(178) = -.55, p < .001$ . Students with high test anxiety performed significantly lower ( $M = 58.30, SD = 7.85$ ) than those with low test anxiety ( $M = 66.60, SD = 8.10$ ),  $t(178) = -7.84, p < .001$ . The study concludes that test anxiety is a significant barrier to academic success among Nigerian secondary school students. Recommendations include the integration of anxiety management programmes into school counselling services and the training of teachers to create low-stress assessment environments.

**Keywords:** Test anxiety, academic achievement, secondary school students, Nigeria, counselling interventions

### Introduction

For many Nigerian secondary school students, examinations are not merely assessments of learning but moments of profound emotional turmoil. The weeks leading up to the Senior Secondary Certificate Examination (SSCE) are often marked by sleepless nights, racing hearts, and a paralyzing fear of failure. Parents, teachers, and society at large place immense pressure on students to perform, viewing examination results as determinants of future opportunities—admission to university, career prospects, and family honor. Amidst this high-stakes environment, a silent but pervasive problem flourishes: test anxiety.

Test anxiety is a psychological condition characterized by excessive worry, physiological arousal, and negative cognitive responses before, during, or after examinations (Zeidner, 1998) <sup>[9]</sup>. It is not merely nervousness; it is a debilitating condition that can impair concentration, disrupt memory retrieval, and undermine years of preparation. For students who have studied diligently, test anxiety can transform potential success into failure, leaving them bewildered and ashamed.

Despite its prevalence and consequences, test anxiety remains underrecognized in Nigerian secondary schools. Guidance counsellors are often overstretched, teachers may misinterpret anxiety as laziness or lack of preparation, and students themselves may internalize their struggles as personal inadequacy rather than a manageable condition. This study seeks to illuminate the relationship between test anxiety and academic achievement, providing empirical evidence that can inform counselling interventions and educational policies.

### Background to the Study

The Nigerian education system places heavy emphasis on examinations. From the Common Entrance Examination to the Junior Secondary School Examination, and culminating in the Senior Secondary Certificate Examination (SSCE), students are subjected to a series of high-stakes assessments

that determine their educational trajectories. The pressure is compounded by large class sizes, limited resources, and societal expectations that often equate examination success with personal worth. In such an environment, test anxiety is not surprising. What is concerning is the lack of systematic attention to its management. Many schools have guidance counsellors, but their caseloads are often overwhelming, and anxiety-specific interventions are rarely prioritized. Teachers, focused on covering the syllabus, may inadvertently exacerbate anxiety through harsh criticism, public ranking of scores, or warnings about the dire consequences of failure. This study is situated within this context, aiming to provide data that can advocate for greater attention to the emotional well-being of students alongside their academic preparation.

### Purpose of the Study

The purpose of this study was to examine the effect of test anxiety on academic achievement among senior secondary school students.

### Research Questions

1. What is the relationship between test anxiety and academic achievement among senior secondary school students?
2. Is there a significant difference in academic achievement between students with high test anxiety and those with low test anxiety?

### Hypotheses

- **H<sub>01</sub>:** There is no significant relationship between test anxiety and academic achievement among senior secondary school students.
- **H<sub>02</sub>:** There is no significant difference in academic achievement between students with high test anxiety and those with low test anxiety.

## Literature Review

### 1. Conceptualizing Test Anxiety

Test anxiety is a multidimensional construct that encompasses cognitive, emotional, and physiological components (Zeidner, 1998)<sup>[9]</sup>. Each component contributes uniquely to the experience of anxiety and its impact on performance.

**Cognitive Component:** This refers to the worry, negative self-talk, and catastrophic thinking that occupy the anxious student's mind. Thoughts such as "I am going to fail," "Everyone is smarter than me," or "If I fail this exam, my life is over" consume cognitive resources that should be devoted to the task at hand (Cassady & Johnson, 2002)<sup>[2]</sup>.

**Emotional Component:** This involves feelings of fear, dread, helplessness, and panic. Students may feel overwhelmed before even seeing the examination paper, and these emotions can escalate during the test, further impairing performance.

**Physiological Component:** The body's stress response is activated, leading to symptoms such as rapid heartbeat, sweating, trembling, nausea, and shallow breathing. These physical sensations can be distressing and distracting, compounding the cognitive and emotional challenges.

Together, these components create a vicious cycle: anxiety disrupts performance, poor performance confirms the student's fears, and future anxiety intensifies.

### 2. Academic Achievement in the Nigerian Secondary School Context

Academic achievement is typically measured through examination scores, continuous assessment, and overall grade point averages. In Nigerian secondary schools, the Senior Secondary Certificate Examination (SSCE) conducted by the West African Examinations Council (WAEC) or the National Examinations Council (NECO) serves as the primary measure of academic achievement at this level.

However, academic achievement is not solely a product of intellectual ability. It is influenced by motivation, study habits, teacher quality, family support, and psychological factors—including anxiety. A student with high intellectual potential may underperform if anxiety disrupts their ability to demonstrate that potential under examination conditions.

### 3. Theoretical Framework

This study is grounded in two complementary theories that explain the anxiety-performance relationship. The Yerkes-Dodson Law (1908)<sup>[8]</sup>: This classic psychological principle posits an inverted-U relationship between arousal and performance. Low levels of arousal lead to underperformance due to a lack of motivation. Moderate levels of arousal enhance focus and effort, leading to optimal performance. However, excessive arousal—characteristic of high test anxiety—impairs cognitive functioning and reduces performance. This law helps explain why some anxiety can be motivating, but too much is debilitating.

Cognitive Interference Theory (Sarason, 1984)<sup>[6]</sup>: This theory focuses on the cognitive mechanisms underlying test anxiety. When students are anxious, their attention is divided between the task at hand and task-irrelevant

thoughts (worry, self-doubt, fear of failure). Working memory, which is essential for reasoning, problem-solving, and retrieval, becomes overloaded. As a result, even well-prepared students may struggle to access and apply their knowledge.

These theories provide a framework for understanding why test anxiety is not merely an emotional discomfort but a genuine impediment to academic achievement.

### 4. Empirical Studies

Numerous studies have documented the negative relationship between test anxiety and academic achievement. Cassady and Johnson (2002)<sup>[2]</sup> found that cognitive test anxiety (worry) was a stronger predictor of poor performance than emotionality, suggesting that intrusive thoughts are particularly harmful. Zeidner (1998)<sup>[9]</sup>, in his comprehensive review, concluded that test anxiety consistently accounts for significant variance in examination performance across educational levels and cultural contexts.

Within the African context, studies have reported similar patterns. In Nigeria, research by Adeyemo and Ogunleye (2013)<sup>[1]</sup> found that secondary school students with high test anxiety scored significantly lower in mathematics and English examinations. Similarly, Onyeizugbo (2010)<sup>[5]</sup> reported that test anxiety was a significant predictor of examination performance among Nigerian university undergraduates. However, studies focusing specifically on senior secondary school students remain limited, particularly in the South-South region of Nigeria where this study is situated.

### Methodology

#### 1. Research Design

A descriptive ex-post facto research design was employed. This design is appropriate when the researcher does not manipulate variables but examines existing conditions and relationships (Creswell & Creswell, 2018)<sup>[3]</sup>. Test anxiety was the independent variable (existing condition), and academic achievement was the dependent variable.

#### 2. Study Area

The study was conducted in two public secondary schools in Obio/Akpor Local Government Area of Rivers State, Nigeria. This area was selected due to its dense population of secondary schools and its accessibility for the research.

#### 3. Population and Sample

The target population comprised all senior secondary school (SS II) students in the two selected schools, estimated at 450 students. Using Krejcie and Morgan's (1970)<sup>[4]</sup> table for sample size determination, a sample of 180 students was selected.

Stratified random sampling was employed. The strata were gender (male and female) and school (School A and School B). Within each stratum, students were randomly selected to ensure proportional representation. The final sample consisted of 85 male students (47%) and 95 female students (53%).

#### 4. Instruments

##### Two instruments were used:

**1. Test Anxiety Inventory (TAI):** Developed by Spielberger (1980)<sup>[7]</sup>, the TAI is a widely used 20-item scale measuring two dimensions of test anxiety: Worry

(cognitive) and Emotionality (affective). Items are rated on a 4-point Likert scale (1 = Almost Never, 4 = Almost Always). Sample items include: “During examinations, I feel very nervous” and “I worry about failing my exams.” The TAI has demonstrated strong reliability across diverse populations. In this study, Cronbach’s alpha was  $\alpha = .88$ , indicating excellent internal consistency.

**2. Academic Achievement Scores:** Students’ academic achievement was measured using their average scores from three core subjects: English Language, Mathematics, and Biology. These subjects were selected because they are compulsory for most secondary school students and are assessed through standardized examinations. Scores were obtained from school records, representing the students’ first-term examination results.

**5. Procedure**

Ethical approval was obtained from the Rivers State Ministry of Education and the principals of the participating schools. Informed consent was obtained from parents/guardians, and assent was obtained from the students. Students were assured that their responses would be kept confidential and would not affect their grades. Data collection was conducted over two weeks. The TAI was administered during regular class periods by trained research assistants. Students completed the questionnaire in approximately 15 minutes. Academic records were then accessed through the schools’ examination offices with permission.

**6. Data Analysis**

Data were analyzed using SPSS version 27. The following analyses were performed:

- Descriptive statistics (means, standard deviations) to summarize the variables.
- Pearson product-moment correlation to test the relationship between test anxiety and academic achievement ( $H_{01}$ ).
- Independent samples t-test to compare academic achievement between high and low anxiety groups ( $H_{02}$ ). Students scoring above the 75th percentile on the TAI were classified as the high anxiety group ( $n = 90$ ), and those scoring below the 25th percentile were classified as the low anxiety group ( $n = 90$ ). This classification method follows established practice in anxiety research.

All hypotheses were tested at the .05 significance level.

**Results**

**1. Descriptive Statistics**

A total of 180 students participated in the study. Table 1 presents the descriptive statistics for the main variables. Below is Table 1 formatted in APA 7th edition style, with a clear structure and a concise interpretive note?

**Table 1:** Descriptive Statistics of Test Anxiety and Academic Achievement \*(N = 180)\*

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Test Anxiety	180	1.85	4.70	3.52	0.68
Academic Achievement	180	42.00	82.00	62.45	8.90

**Note:** Test anxiety was measured on a 4-point scale (1 = Almost Never, 4 = Almost Always). The mean test anxiety score of 3.52 indicates that students, on average, experienced moderate to high levels of test anxiety. Academic achievement is expressed as a percentage (%). The mean score of 62.45% reflects average performance, with considerable variation observed (range = 42.00% to 82.00%).

**2. Test of Hypothesis One**

Hypothesis one stated that there is no significant relationship between test anxiety and academic achievement. Pearson product-moment correlation was computed to test this hypothesis.

**Table 2:** Pearson Correlation between Test Anxiety and Academic Achievement \*(N = 180)\*

Variable	1	2
1. Test Anxiety	—	-.55**
2. Academic Achievement	-.55**	—

**Note:** \* $p < .01$  (2-tailed).

**Table 3:** Group Statistics for Academic Achievement by Test Anxiety Level

Anxiety Group	N	Mean	Std. Deviation	Std. Error Mean
High Anxiety	90	58.30	7.85	0.83
Low Anxiety	90	66.60	8.10	0.85

**Note:** High anxiety = scores above the 75th percentile on the Test Anxiety Inventory; low anxiety = scores below the 25th percentile.

**Table 4:** Independent Samples t-test Comparing Academic Achievement by Anxiety Level

Variable	T	df	p	Mean Difference	95% CI (Lower)	95% CI (Upper)
Academic Achievement	-7.84	178	<.001	-8.30	-10.39	-6.21

**Note:** Levene’s test for equality of variances was not significant (\* $p = .65$ ), indicating homogeneity of variances.

**Hypothesis One**

A Pearson product-moment correlation was conducted to examine the relationship between test anxiety and academic achievement. As shown in Table 2, there was a moderate, negative, and statistically significant correlation between the two variables, \* $r(178) = -.55$ , \* $p < .001$ . This indicates that students who reported higher levels of test anxiety tended to achieve lower academic scores. Consequently, the null hypothesis was rejected.

**Hypothesis Two**

An independent samples t-test was used to compare academic achievement between students with high test anxiety (\* $n = 90$ ) and those with low test anxiety (\* $n = 90$ ). Group statistics are presented in Table 3, and the t-test results are shown in Table 4.

Levene’s test for equality of variances was not significant (\* $p = .65$ ), confirming the assumption of homogeneity of variances. The t-test revealed a statistically significant difference between the two groups, \* $t(178) = -7.84$ , \* $p < .001$ . Students with low test anxiety achieved significantly higher academic scores ( $M = 66.60$ ,  $SD = 8.10$ ) compared to those with high test anxiety ( $M = 58.30$ ,  $SD = 7.85$ ). The mean difference was  $-8.30$ , with a 95% confidence interval ranging from  $-10.39$  to  $-6.21$ . The effect size (Cohen’s \* $d = 1.04$ ) indicates a large practical significance. Therefore, the null hypothesis was rejected.

## Discussion

The findings of this study provide compelling evidence that test anxiety is a significant barrier to academic achievement among Nigerian senior secondary school students. The negative correlation ( $r = -.55$ ) between test anxiety and academic achievement aligns with a substantial body of international research (Cassady & Johnson, 2002; Zeidner, 1998) [2, 9] and confirms that anxiety is not merely an emotional discomfort but a genuine impediment to performance.

When a student sits for an examination with a mind consumed by worry, their cognitive resources are divided. They are not simply answering questions; they are simultaneously fighting intrusive thoughts, managing physical symptoms, and grappling with fear. This internal battle leaves less cognitive capacity for the task at hand—retrieving information, reasoning through problems, and organizing responses. The Yerkes-Dodson Law helps explain this phenomenon: the high arousal characteristic of test anxiety pushes students past the optimal point of performance into a zone where cognitive functioning deteriorates.

The significant difference in academic achievement between high and low anxiety groups (a gap of over 8 percentage points) underscores the practical consequences of test anxiety. In the context of Nigerian secondary education, where the difference of a few percentage points can determine admission into competitive university programmes, this gap represents not merely a statistical finding but a life-altering difference. Students with high test anxiety are not less capable; they are less able to demonstrate their capability under examination conditions.

The Cognitive Interference Theory (Sarason, 1984) [6] offers a compelling explanation. Anxious students' working memory—the cognitive workspace where information is held and manipulated—becomes clogged with task-irrelevant thoughts. As one student in the pilot study confided: "I study for weeks, but when I see the exam paper, my mind goes blank. I know the answers, but I cannot reach them." This description captures the essence of cognitive interference: knowledge is present but inaccessible.

### 1. The Human Cost of Test Anxiety

Beyond the numbers, this study speaks to the lived experiences of Nigerian secondary school students. In conversations during data collection, students described sleepless nights before examinations, physical symptoms such as nausea and trembling, and a pervasive sense of dread that began weeks before assessments. Some spoke of feeling that their entire worth was determined by a single examination result. Others described the disappointment of parents and teachers when performance did not reflect effort.

One student, a girl who had consistently scored among the top in her class, shared: "I studied harder than anyone. But in the exam hall, my hands were shaking, and I could not think. My result was not me." Her words echo a broader truth: test anxiety is a thief of potential. It steals the opportunity for students to demonstrate what they truly know and can do.

### 2. Implications for Guidance and Counselling

The findings of this study have profound implications for guidance and counselling practice in Nigerian secondary

schools. For Counsellors: There is an urgent need to integrate test anxiety management into school counselling programmes. This should include:

- **Screening:** Routine assessment of test anxiety levels among students, particularly those in examination classes.
- **Psychoeducation:** Helping students understand that anxiety is a normal response but can be managed. Normalizing the experience reduces shame and encourages help-seeking.
- **Cognitive-behavioural interventions:** Teaching students to identify and challenge anxious thoughts ("I will fail") and replace them with realistic, encouraging self-talk ("I have prepared; I will do my best").
- **Relaxation techniques:** Training in deep breathing, progressive muscle relaxation, and mindfulness to manage physiological arousal.

**For Teachers:** Teachers play a crucial role in shaping the examination environment. Recommendations include:

- Reducing pressure by reframing examinations as opportunities to demonstrate learning rather than life-or-death events.
- Avoiding public ranking of scores, which can intensify anxiety for struggling students.
- Incorporating low-stakes assessments (quizzes, group work) alongside high-stakes examinations to reduce the weight of any single test.
- Recognizing signs of test anxiety (avoidance, physical complaints, and disproportionate distress) and referring students for counselling.

**For Schools:** Institutional policies should support a balanced approach to assessment. This includes:

- Ensuring adequate counselling services, with counsellors trained in anxiety management.
- Providing examination preparation workshops that address not only content but also test-taking strategies and stress management.
- Encouraging parental education on realistic expectations and the importance of emotional well-being alongside academic performance.

### 3. Limitations of the Study

Several limitations should be acknowledged. The study was conducted in two schools within a single local government area, which may limit generalizability to other regions or school types (private, rural, etc.). The use of self-reported anxiety may introduce bias, as students may underreport or overreport symptoms. Additionally, the cross-sectional design captures a single point in time; it cannot establish whether anxiety causes poor performance or whether poor performance increases anxiety over time—likely, both occur in a cyclical pattern.

### 4. Suggestions for Further Research

Future research should explore:

- **Gender differences:** Are female students more susceptible to test anxiety, as some studies suggest? If so, what interventions are most effective for each gender?

- **Longitudinal studies:** How does test anxiety develop and change over the secondary school years? When is intervention most effective?
- **Intervention research:** What is the effectiveness of school-based anxiety management programmes in the Nigerian context? Randomized controlled trials are needed.
- **Cultural factors:** How do cultural expectations, family pressure, and societal views of education shape test anxiety in Nigeria?

### Conclusion

Test anxiety is not a trivial concern. It is a genuine psychological condition with measurable, significant consequences for academic achievement. This study has demonstrated that among Nigerian senior secondary school students, higher test anxiety is associated with lower performance, and students with high anxiety achieve scores substantially below their less anxious peers.

Yet test anxiety is manageable. With appropriate counselling interventions, supportive teaching practices, and institutional policies that recognize the whole student—mind and emotions together—schools can help students transform anxiety from a barrier into a manageable challenge. The goal is not to eliminate nervousness entirely (a moderate degree of arousal can be motivating) but to prevent anxiety from reaching levels that impair performance.

For the student who sits in the examination hall, heart racing, mind blank, the cost of untreated test anxiety is not merely a lower score—it is a diminished sense of self, a missed opportunity, a door closed that might have opened. This study is offered in the hope that greater awareness will lead to greater action, and that more Nigerian students will have the opportunity to show what they truly know.

### Recommendations

Based on the findings of this study, the following recommendations are made:

1. School counsellors should implement routine screening for test anxiety among senior secondary school students, particularly those preparing for external examinations. Early identification enables timely intervention.
2. Cognitive-behavioural therapy (CBT) techniques should be incorporated into counselling services to help students identify and modify anxious thoughts. Group counselling formats may be particularly efficient and effective.
3. Teachers should be trained to recognize signs of test anxiety and to create classroom environments that reduce examination stress. This includes avoiding public ranking, using varied assessment methods, and providing clear expectations.
4. Schools should establish examination preparation workshops that include stress management techniques such as relaxation training, time management, and positive self-talk strategies.
5. Parents should be educated about the impact of pressure and unrealistic expectations on their children's performance. School-parent forums can address this topic.
6. Further research should explore the effectiveness of school-based anxiety interventions in the Nigerian

context, using experimental designs to establish causality.

### References

1. Adeyemo DA, Ogunleye AJ. Test anxiety as a predictor of academic performance among secondary school students in Oyo State, Nigeria. *Journal of Educational Research and Development*, 2013;10(2):45–58.
2. Cassady JC, Johnson RE. Cognitive test anxiety and academic performance. *Contemporary Educational Psychology*, 2002;27(2):270–295.
3. Creswell JW, Creswell JD. *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications, 2018.
4. Krejcie RV, Morgan DW. Determining sample size for research activities. *Educational and Psychological Measurement*, 1970;30(3):607–610.
5. Onyeizugbo EU. Test anxiety and academic performance among Nigerian university students. *Nigerian Journal of Clinical Psychology*, 2010;3(1):45–56.
6. Sarason IG. Stress, anxiety, and cognitive interference: Reactions to tests. *Journal of Personality and Social Psychology*, 1984;46(4):929–938.
7. Spielberger CD. *Test Anxiety Inventory: Preliminary professional manual*. Consulting Psychologists Press, 1980.
8. Yerkes RM, Dodson JD. The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurology and Psychology*, 1908;18(5):459–482.
9. Zeidner M. *Test anxiety: The state of the art*. Plenum Press, 1998.