Test Anxiety and Psychological Resilience Among Algerian Baccalaureate Students: "A Correlational and Gender-Based Study"

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Abstract:
This study aimed to examine the relationship between psychological resilience and Test anxiety among third-year secondary school students preparing for the Baccalaureate exam, and to identify differences in test anxiety based on gender. The sample consisted of 115 students aged 17 to 19 from Kroussa El-Senoussi High School in Mostaganem, Algeria. Two scales were used: the Psychological Resilience Scale (Abdelrazak, 2019) and Sarason's Test Anxiety Scale. Results revealed a statistically significant negative correlation between psychological resilience and exam anxiety. Furthermore, significant gender differences were found, with female students reporting higher levels of test anxiety. These findings underscore the importance of promoting resilience to help students cope with academic stress and enhance their well-being.
Keywords: Test Anxiety; Psychological Resilience; Baccalaureate Students.

1- Introduction

Secondary education represents a pivotal stage within the modern educational system, not only as a natural continuation of primary and middle school but also as a decisive phase in a student's academic journey. It culminates in the Baccalaureate exam, a national and high-stakes assessment that determines access to higher education and future career pathways.

This stage is of great importance as it prepares students to face a critical exam whose outcome influences their admission to university and shapes their academic and professional futures. In this context, final exams are considered one of the most psychologically stressful periods, particularly for third-year secondary students. The Baccalaureate exam has become a source of anxiety not only for students but also for teachers and parents, who often invest considerable time, effort, and resources to create optimal conditions for student success.

Consequently, this collective pressure may lead to heightened exam anxiety among students. Local studies (Lemouchi, 2016; Ali & Gharib, 2023; Boutara & El Aswad, 2020; Tekari, 2024) have reported high levels of test anxiety among final-year secondary students. These findings are consistent with global research conducted in various contexts (Samanta. A., 2025; Putwain et al., 2023; Anika et al., 2025; Stefanie et al., 2024), which highlights the widespread nature of this psychological phenomenon.

In this context, test anxiety emerges as a temporary yet intense emotional state characterized by worry, fear of failure, and negative evaluation (Spielberger, 1980). It can hinder students' ability to effectively use their cognitive and emotional resources, particularly during high-stakes exams. Putwain, D., & Daly, A. L. 2014) found that secondary school students in the UK experience elevated levels of test anxiety, especially during official examination periods, negatively impacting their academic performance and cognitive functioning. Similarly, Shin et al. (2021) found that high test anxiety significantly reduced students' ability to inhibit

irrelevant information in visual working memory tasks, especially under high cognitive load, as indicated by contralateral delay activity."

Zeidner (1998) argued that test anxiety is not solely limited to test-taking situations but is deeply rooted in students' self-perceptions, family pressures, and social expectations. One of the psychological constructs associated with reduced test anxiety is psychological resilience, defined by Luthar et al. (2000) as a dynamic process involving positive adaptation in the face of adversity. Resilient students are often able to manage stress more effectively and maintain academic performance under pressure. Recent studies (Bessit, 2021; Sakka, 2020; Merzaq et al., 2023; Liu, Y. et al., 2021; Mammadzada, G et al., 2023) have highlighted the inverse relationship between psychological resilience and test anxiety. These findings suggest that enhancing resilience could be a key protective factor in mitigating anxiety and promoting students' emotional stability and academic success. In the Algerian educational context, it is essential to explore the interplay between test anxiety and resilience, especially given the unique social and academic pressures students face. Understanding this relationship can inform targeted intervention strategies aimed at strengthening students' mental well-being and exam preparedness. Accordingly, this study seeks to examine the nature of the relationship between psychological resilience and test anxiety among third-year secondary students preparing for the Baccalaureate exam, and to investigate whether this relationship differs by gender. In light of the aforementioned literature, it becomes increasingly important to examine the relationship between test anxiety and psychological resilience among students preparing for the Baccalaureate exam in the Algerian educational context. Given the unique academic and socio-cultural pressures placed on these students, particularly in a system where final examinations are a central tool for assessment and university access, understanding how resilience influences anxiety becomes a critical area of inquiry.

This study therefore seeks to answer the following core research questions:

- What is the nature of the relationship between test anxiety and psychological resilience among third-year secondary students preparing for the Baccalaureate exam?
- Does this relationship differ according to gender?

1.1. Hypotheses

Based on the theoretical framework and previous studies, the present study puts forward the following hypotheses:

1. There is a statistically significant negative correlation between test anxiety and psychological resilience among third-year secondary school students.
2. There are statistically significant differences in levels of test anxiety based on gender (male vs. female).

2- Methods

2.1. Study Methodology

This study employed a descriptive-analytical approach, which seeks to accurately describe and analyze the studied phenomenon- in this case, the relationship between psychological resilience and exam anxiety- in an objective and systematic manner.

2.2, Study Limitations

Subject Scope: This study focused on the relationship between psychological resilience and test anxiety among final-year secondary school students (Baccalaureate candidates). The primary psychological variables examined were limited to resilience and anxiety.

Population Scope: The study was limited to third-year secondary school students enrolled in public schools. As a result, the findings may not be generalizable to students in private institutions or to other educational levels such as middle or university students.

Geographical Scope: The research sample was drawn exclusively from students within the Wilaya of Mostaganem, with a focus on urban areas. Therefore, the results may not reflect the experiences of students from rural contexts or other Algerian wilayas with different educational conditions.

Time Scope: The data were collected between March and April 2025, a period closely preceding the national Baccalaureate examination. The heightened stress levels during this critical academic phase may have

influenced students' responses, and the findings may not fully represent anxiety or resilience levels at other times of the school year.

2.3. Participants

The study sample consisted of 115 third-year secondary school students selected randomly from Kroussa El-Senoussi High School in Aïn Tédelès, Mostaganem Province (Algeria), during the academic year 2024–2025. The participants were aged between 17 and 19 years and were distributed as follows:

• By gender: 58 males (50.4%) and 57 females (49.5%)
• By academic stream: 50 students from the science stream (43.4%) and 65 students from the literature and philosophy stream (56.5%)

2.4. Instruments

The following instruments were used to assess the study variables:

1. Test Anxiety Scale – Sarason Version:

To evaluate test anxiety among secondary school students, the Arabic-translated and adapted version of the Sarason Test Anxiety Scale developed by Sarason et al., 1960) was utilized. The instrument comprises 38 self-assessment items rated on a 4-point Likert scale, 1 = completely Disagree, 2 = Disagree, 3 = Agree, 4 = completely Agree. The scale is structured into three dimensions: the cognitive dimension (23 items), the behavioral dimension (4 items), and the physiological dimension (11 items). Completion of the scale typically takes approximately 10 minutes. Scores from the three STAS-C subscales are summed to yield a total score. The scale has demonstrated internal consistency coefficients ranging from .43 to .81, with the current sample yielding a Cronbach's alpha of .92, indicating high reliability.

The tool showed good internal consistency in this study:

• Cognitive dimension = 0.54
• Behavioral dimension = 0.85
• Somatic dimension = 0.81
• Overall Cronbach's alpha = 0.92

2. Psychological Resilience Scale (Abdelrazak, 2019):

The Psychological Resilience Scale, (Abdelrazak, 2019), is a self-report instrument consisting of 46 items. Among these, 26 items are positively worded, while 20 are negatively worded. Responses are rated on a 5-point Likert scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often., with reverse scoring applied to the negatively phrased items. Total scores can range from 46 to 230, with higher scores indicating greater psychological resilience.. The tool demonstrated high internal consistency in this study with the following Cronbach's alpha values:

• Personal competence = 0.72
• Coping = 0.87
• Emotional balance = 0.89
• Social competence = 0.92
• Perseverance = 0.88
• Positive future orientation = 0.87
• Overall alpha = 0.95

2.5. Procedure

Following official authorization from the Directorate of Education of Mostaganem Province, the researcher went to the selected high school to administer the study instruments. In coordination with the school administration, suitable times were arranged for distributing and collecting the questionnaires. Final-year students were randomly selected and were fully informed about the purpose of the study. They were also assured that their participation was voluntary, their responses would remain anonymous, and the data would be used exclusively for academic research purposes.

3- Results

To test the first hypothesis, Pearson's correlation coefficient was used to examine the relationship between psychological resilience and the three dimensions of test anxiety (cognitive, behavioral, and physiological). The results are shown in Table 1:

Table 1. Correlation between Test Anxiety and Psychological Resilience

(N=115)		
Variables	Psychological Resilience (r)	Significance Level (p)
Cognitive Dimension	-0.55	p < .01
Behavioral Dimension	-0.48	p < .01
Physiological Dimension	-0.52	p < .01
Total Test Anxiety Score	-0.59	p < .01

As shown in Table 1, there is a statistically significant negative correlation between psychological resilience and test anxiety in all its dimensions. The total correlation coefficient (r = -0.59) indicates that higher levels of psychological resilience are associated with lower levels of test anxiety. This suggests that students with high psychological resilience tend to experience lower cognitive, behavioral, and physiological symptoms of exam anxiety.

To test the second hypothesis regarding gender-based differences in test anxiety, an independent samples t-test was conducted. The results are presented in Table 2:

Table 2. Independent sample t-test
ddl=113

Gender	N	Mean	Standard Deviation	t	Significance Level (p)
Male	58	88.26	18.97	-4.67	p < .01
Female	57	107.29	24.30		

An independent samples t-test was conducted to examine the differences in test anxiety according to gender. The results revealed a statistically significant difference between males (M = 88.26, SD = 18.97) and females (M = 107.29, SD = 24.30), t(113) = -4.67, p < .01. These findings indicate that female students experience significantly higher levels of test anxiety than male students. This supports the second hypothesis, which predicted the presence of gender-based differences in test anxiety.

4- **Discussion**

This study aimed to explore the relationship between psychological resilience and exam anxiety among final-year secondary school students preparing for the Baccalaureate exam, as well as to identify gender-based differences in levels of test anxiety. Two primary hypotheses were proposed:

(1) a significant negative correlation exists between psychological resilience and test anxiety

(2) significant differences in test anxiety exist based on gender.

4.1. Discussion of the First Hypothesis:

The findings of this study confirmed a statistically significant negative correlation between psychological resilience and test anxiety across all three measured dimensions cognitive, behavioral, and physiological. This suggests that students who demonstrate higher levels of resilience tend to experience lower levels of anxiety in examination settings. This result aligns with an emerging body of literature indicating that resilience serves as a key psychological resource that enables adolescents to cope effectively with academic stress. Numerous studies conducted in both Arab and international contexts have confirmed this inverse relationship. For instance, Rahmani and Fattal (2023) reported a strong negative correlation (r = -0.69, p < .01) between psychological resilience and exam anxiety among secondary school students in Lebanon. Their findings underscored the role of resilience in mitigating stress responses and promoting emotional regulation during high-stakes testing environments. Similarly, Merzaq et al. (2023), in a study conducted among Moroccan

baccalaureate students, found that individuals with high resilience levels displayed significantly lower anxiety and demonstrated greater emotional stability during exam periods. From a theoretical standpoint, these findings support the psychological flexibility model, which posits that resilient individuals exhibit adaptive cognitive and emotional strategies when facing stressors (Hayes, S. C. et al. 2006). In this context, resilience may act as a buffer against the maladaptive thought patterns and emotional reactivity that characterize test anxiety, especially in its cognitive and physiological dimensions. According to Türk (2024), psychological flexibility - a core component of resilience- is a significant predictor of reduced academic stress, enabling students to shift attention away from worry and toward goal-directed behavior under pressure. Moreover, Tekin and Satan (2024) identified resilience and mindfulness as key protective factors in academic contexts, showing that students who cultivate these traits are less susceptible to anxiety and perform better academically. Their findings highlight the importance of emotional self-regulation and acceptance-based coping strategies, which are commonly developed through resilience training and mindfulness-based interventions. Several empirical studies have provided further evidence for the protective role of resilience. Trigueros et al. (2020), in a study involving Spanish adolescents, found that resilience negatively predicted both academic stress and test anxiety, and that its effects were mediated by academic engagement. This suggests that resilience not only buffers the emotional impact of academic pressure but also enhances motivation and commitment to learning tasks. Similarly, Hayat A, et al. (2021) observed that medical students with high levels of academic resilience experienced significantly lower anxiety during final exams. These results reinforce the idea that resilience supports effective stress management by promoting positive self-beliefs and adaptive thinking. In more integrative models, researchers have emphasized the mediating and moderating roles of resilience. For example, Jamshidi, M. A., et al. (2018) demonstrated that resilience acts as a mediating variable between spiritual intelligence and test anxiety, indicating that its effects may extend beyond direct emotional regulation to influence deeper cognitive-affective processes such as meaning-making and self-efficacy. Intervention-based research also supports these conclusions. Sun et al. (2025) conducted a study on high school students using a mindfulness-based cognitive intervention specifically designed to enhance psychological resilience. The results revealed a statistically significant reduction in students' test anxiety, along with improved emotional coping mechanisms. These findings suggest that mindfulness-based programs are effective in fostering both psychological flexibility and resilience, reinforcing their potential applicability within school-based mental health support frameworks. Taken together, these findings highlight the importance of incorporating resilience-building strategies into educational and psychological support programs. Fostering resilience can empower students to reinterpret exam situations as manageable challenges rather than overwhelming threats, thereby reducing the activation of anxiety-related thoughts and somatic symptoms (Trigueros et al., 2020; Hayes et al., 2006). Given the multidimensional nature of test anxiety, it is essential that intervention efforts address the emotional, cognitive, and physical components simultaneously.

The current findings suggest several practical implications. Educators and school counselors should consider integrating resilience training into the curriculum, particularly during exam preparation periods. Programs focused on mindfulness, cognitive restructuring, problem-solving, and stress management may help students develop the internal psychological resources necessary to handle academic pressure. Additionally, psychological interventions aimed at enhancing self-efficacy and emotional regulation may further strengthen resilience and reduce vulnerability to test anxiety. The widespread implementation of such programs may not only improve academic performance but also enhance students' overall mental health and well-being.

4.2. Discussion of the Second Hypothesis

The second hypothesis proposed that there are statistically significant gender-based differences in test anxiety levels. This hypothesis was supported by the data. An independent samples t-test indicated that female students reported significantly higher levels of test anxiety (M = 107.29, SD = 24.30) compared to male students (M = 88.26, SD = 18.97), with a statistically significant difference (t (113) = -4.67, p < .01).

The results revealed statistically significant gender differences in test anxiety, with female students reporting notably higher anxiety levels than their male counterparts. This finding is consistent with a substantial body of literature which suggests that females are more susceptible to test anxiety compared to males (Rahmani &

Fattal, 2023; Merzaq et al., 2023; Anika et al., 2025). These patterns have been attributed to both biological and sociocultural factors, such as heightened emotional awareness, greater sensitivity to evaluation, and societal expectations that place a higher premium on academic perfection for girls (Núñez-Peña et al., 2016). Moreover, the tendency among female students to experience increased anxiety does not necessarily equate to diminished academic performance. Several studies have shown that although female students may report higher levels of test-related stress, they also tend to develop effective coping mechanisms - such as planning, help-seeking, and self-regulation - that allow them to maintain or even exceed academic expectations (Türk, 2025; Núñez-Peña et al., 2016). This paradox aligns with research in educational psychology suggesting that moderate anxiety, when paired with high self-efficacy and adaptive coping, may in fact enhance motivation and performance (Putwain & Daly, 2014). These results are further supported by findings from Putwain & Daly (2014), who observed similar gender disparities among UK secondary students, attributing the difference to social and emotional factors such as fear of failure, performance expectations, and internalized academic pressure. Likewise, Núñez-Peña et al. (2016) emphasized the role of individual learning styles and self-concept in shaping how students experience and respond to academic stress. Sakka et al. (2020) also noted that adolescent girls demonstrate greater emotional reactivity during high-stakes exams.

However, some scholars (e.g., Jamshidi et al., 2018; Sun et al., 2025) have cautioned against over generalizing gender differences without considering mediating variables such as academic track, parental expectations, socioeconomic background, and personality traits. These nuances suggest that gender alone may not be a sufficient predictor of test anxiety and that contextual and individual factors must also be accounted for.

In summary, the study's findings provide empirical support for both hypotheses. The inverse relationship between psychological resilience and test anxiety highlights the value of incorporating resilience-building strategies within school-based mental health programs. At the same time, the statistically significant gender-based differences in test anxiety underscore the need for differentiated psychological and pedagogical interventions that consider the emotional, cognitive, and motivational profiles of students.

These findings not only align with trends documented in international educational psychology research but also offer critical insights for the Algerian academic context where the Baccalaureate exam is a high-stakes gateway to higher education. Therefore, fostering psychological resilience and addressing gender-specific stressors should be integral components of any efforts aimed at enhancing student well-being and academic success.

5- Conclusion

This study confirms a significant negative correlation between psychological resilience and exam anxiety among third-year secondary school students preparing for the Baccalaureate exam. Students with higher resilience reported lower levels of test anxiety across cognitive, behavioral, and physiological domains. Additionally, female students exhibited higher anxiety levels than their male counterparts, a finding consistent with prior research. These results underscore resilience as a key protective factor against exam-related stress, highlighting the potential value of school-based interventions such as mindfulness practices and socio-emotional learning programs to enhance students' coping abilities and academic outcomes.

Future research should investigate the long-term effects of resilience training and explore moderating variables such as socioeconomic status, parental involvement, and school climate to better understand the complex interplay between resilience and test anxiety. Such work will contribute to more effective strategies for supporting adolescents during high-stakes academic transitions.

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