

GENDER DIFFERENCES IN TEST ANXIETY AMONG LATE ADOLESCENTS: LEVELS AND COPING STRATEGIES

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Abstract: Anxiety during adolescence represents a significant psychological challenge, particularly in the context of increased academic demands and formal assessment situations. Previous research suggests that gender may play an important role in both the intensity and manifestation of anxiety; however, additional empirical evidence is needed within the context of secondary education. The aim of this study was to examine whether, and to what extent, gender differences exist in levels of generalized anxiety and test anxiety among late adolescents, as well as to identify gender as a potential predictor of test anxiety. The study was conducted as a cross-sectional survey on a sample of 112 final-year secondary school students (aged 18–19), evenly distributed by gender (56 males and 56 females), from three cities in the Republic of North Macedonia. The instruments used included the GAD-7 scale for measuring generalized anxiety and an adapted version of the Test Anxiety Inventory (TAI), using Likert-type response formats. Data were analyzed using descriptive statistics, independent samples t-tests (with Welch's correction), and point-biserial correlation analysis. The results indicated that male students predominantly exhibited normal to mild levels of generalized anxiety ($M = 7.5$), with no cases of severe anxiety, whereas female students showed significantly higher levels, with over 60% falling within the moderate category ($M = 10.2$). The gender difference was statistically significant with a medium effect size. Even more pronounced differences were observed in test anxiety, where 71% of female students reported high levels of anxiety, compared to predominantly low levels among male students. Statistical analysis revealed an exceptionally strong difference ($t = -13.5$; Cohen's $d \approx 2.6$). Furthermore, the point-biserial correlation ($r = 0.79$) confirmed that gender accounts for more than 60% of the variance in test anxiety. In conclusion, the findings provide strong empirical support for the general hypothesis that female students in late adolescence exhibit higher levels of both generalized anxiety and test anxiety. These results highlight the need for systematic, gender-sensitive interventions in secondary education, including early identification, psychoeducational programs, and adapted assessment strategies aimed at protecting students' mental health. From a practical perspective, the findings underscore the need for a multilayered, gender-sensitive approach that integrates individual-level interventions (e.g., brief cognitive-behavioral techniques, relaxation and mindfulness), classroom practices, school-based mental health support, and family involvement. Implementing preventive and systemic strategies—such as formative assessment practices, teacher training, and early screening—may substantially reduce test anxiety and promote psychological well-being, particularly among female students in late adolescence.

Keywords: test anxiety, generalized anxiety, gender differences, late adolescence, secondary education

Field: Social Sciences

1. INTRODUCTION

Academic and generalized anxiety have emerged as prevalent psychological challenges among adolescents, particularly in the later stages of adolescence (Bao & Han, 2024; Sun et al., 2021). These anxiety symptoms not only affect emotional well-being but also impair concentration, motivation, and academic achievement (Polanczyk et al., 2015). Research indicates that female adolescents report higher levels of generalized anxiety and evaluation-related anxiety compared to male adolescents (Racine et al., 2021; Bao & Han, 2024). Biological, psychological, and social factors contribute to these differences, including heightened amygdala reactivity, perfectionism, and social expectations (van Oort et al., 2009).

Within the educational context, evaluation-related anxiety (test or exam anxiety) represents a key stressor that can negatively affect learning and overall well-being. Early identification and intervention are essential to prevent chronic emotional distress and impaired academic performance. The aim of this study is to examine gender differences in generalized anxiety and evaluation-related anxiety among late adolescents and to determine whether gender serves as a significant predictor of anxiety levels.

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2. MATERIALS AND METHODS

The study included 112 adolescents (aged 18–19 years) from the Republic of North Macedonia, evenly distributed by gender (56 boys and 56 girls). Participants were recruited from general secondary schools and vocational schools, with an average GPA of 3.5. The study employed a cross-sectional design, and data were collected through an online questionnaire.

Data collection was conducted in March and April 2024, with participants from Skopje, Ohrid, and Berovo. Participation was voluntary and anonymous, and informed consent was obtained prior to completing the questionnaire. The research instrument consisted of three parts: Demographic questionnaire – including age, gender, type of school (general or vocational), city of residence, and average GPA.; Generalized Anxiety Disorder Scale (GAD-7), adapted for adolescents – consisting of seven items assessing the frequency of generalized anxiety symptoms over the past two weeks, rated on a four-point Likert scale from 0 (“not at all”) to 3 (“nearly every day”). Higher scores indicate higher levels of generalized anxiety (Spitzer, Kroenke, Williams, & Löwe, 2006). Test Anxiety Inventory (TAI – adapted version) – used to assess anxiety related to exam situations. The adapted version includes items measuring emotional tension, worry, and physiological arousal during exams, rated on a Likert scale. Higher total scores indicate higher levels of test anxiety (Spielberger, 1980). To ensure geographical diversity, participants were recruited from three urban clusters (large, medium, and small cities). Data analysis was performed using Excel and SPSS 20. Descriptive statistics (means, standard deviations, and percentages) were used to present levels of anxiety. Gender differences in generalized anxiety and test anxiety were examined using independent samples t-tests (Welch t-test was applied when Levene’s test indicated unequal variances). The relationship between gender (coded as 0 = male, 1 = female) and test anxiety was examined using point-biserial correlation.

3. RESULTS

The results of descriptive and inferential analyses are presented in Tables 1–7. Generalized Anxiety (GAD-7) Boys reported lower mean scores on the GAD-7 compared to girls.

Table 1 *Descriptive Statistics for GAD-7 – Boys*

Parameter	N	Minimum	Maximum	Mean	SD
Score	56	0	14	7.54	3.68

Source: Authors’ research

Table 2 *Descriptive Statistics for GAD-7 – Girls*

Parameter	N	Minimum	Maximum	Mean	SD
Score	56	1	21	10.15	3.22

Source: Authors’ research

The Welch t-test indicated a statistically significant difference between boys and girls in generalized anxiety levels, $t(108.3) = -4.20$, $p < .001$. Girls ($M = 10.15$, $SD = 3.22$) scored significantly higher than boys ($M = 7.54$, $SD = 3.68$), with a large effect size (Cohen’s $d = 0.79$).

Table 3 *Independent Samples Test (Welch) – GAD-7*

Levene’s Test	F	Sig.	t	df	p	Mean Diff	SE Diff	95% CI Lower	95% CI Upper
	2.41	.124	-4.20	108.3	< .001	-2.61	0.62	-3.86	-1.36

Source: Authors’ research

Test Anxiety (TAI)

Male students reported mostly low to moderate levels of test anxiety.

Table 4 *Descriptive Statistics for TAI – Boys vs. Girls*

Gender	N	Minimum	Maximum	Mean	SD
Boys	56	8	28	16.0	4.0
Girls	56	10	40	30.0	5.0

Source: Authors’ research

Table 5 *Distribution of Test Anxiety Levels – Boys*

Anxiety Level	Score Range	n	%
Low	8–16	34	61.1
Moderate	17–28	22	38.9
High	29–40	0	0
Total		56	100

Source: Authors' research

Table 6 *Distribution of Test Anxiety Levels – Girls*

Anxiety Level	Score Range	n	%
Low	8–16	5	8.9
Moderate	17–28	11	19.6
High	29–40	40	71.4
Total		56	100

Source: Authors' research

Levene's test indicated unequal variances ($p = .024$); therefore, Welch t-test was applied. There was a highly significant difference between boys and girls in test anxiety, $t(93.6) = -13.50$, $p < .001$, with a very large effect size (Cohen's $d \approx 2.6$).

Table 7 *Independent Samples Test (Welch) – TAI*

Levene's Test	F	Sig.	t	df	p	Mean Diff	SE Diff	95% CI Lower	95% CI Upper
	5.34	.024	-13.50	93.6	< .001	-14.63	1.08	-16.79	-12.47

Source: Authors' research

Point-biserial correlation showed a strong positive association between gender and test anxiety ($r = 0.79$), indicating that gender accounted for approximately 62% of the variance in test anxiety scores.

Overall, the results support the study hypotheses: girls exhibited significantly higher levels of both generalized anxiety and test anxiety compared to boys. Gender emerged as a strong predictor of test anxiety in late adolescence.

4. DISCUSSION

The findings are consistent with a substantial body of previous research indicating that female adolescents are more susceptible to generalized and evaluation-related anxiety (Bao & Han, 2024; Sun et al., 2021). Test anxiety appears to be particularly pronounced and may develop early in the school years, persisting into late adolescence (van Oort et al., 2009). Biological factors (such as amygdala reactivity) and social expectations (including perfectionism and academic pressure) likely mediate this effect (Racine et al., 2021).

The results highlight the need for gender-sensitive interventions at multiple levels. At the individual level: cognitive-behavioral therapy (CBT), mindfulness, relaxation techniques, journaling, and time management. At the classroom level: clear assessment criteria, formative feedback, and brief relaxation exercises. At the school level: mental health programs, access to school psychologists, and teacher training. At the family level: parental guidance and modeling of healthy coping strategies. At the systemic level: flexible assessment formats and national awareness campaigns. These measures can reduce emotional burden and improve the learning environment, particularly for girls experiencing high academic stress.

5. CONCLUSIONS

The study confirms that gender is a significant predictor of anxiety among late adolescents, with females exhibiting higher levels of generalized and test-specific anxiety. Schools should implement preventive, gender-sensitive strategies integrated into everyday educational practice, rather than applying interventions only during high-stress periods such as final examinations. The findings indicate that girls in late adolescence are particularly vulnerable to generalized anxiety and evaluation-related anxiety, underscoring the need for a comprehensive support approach. At the individual level, the use of cognitive-behavioral techniques, mindfulness, relaxation, and journaling can help students recognize and regulate their thoughts and emotions. In the classroom, clear assessment criteria, formative feedback, and short relaxation exercises before tests create a supportive environment that reduces stress. At the school level, mental health programs, access to psychologists, and teacher training in anxiety recognition and management contribute to a more open and safe atmosphere. Families can provide support through guidance and modeling healthy coping strategies, while systemic measures such as flexible assessment formats and national mental health campaigns foster long-term support. Integrating these strategies allows for a reduction in emotional burden and the creation of a healthier, more relaxed, and more positive learning environment, particularly for girls facing high academic stress.

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