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Anxiety among High School Students: Prevalence, Intensity, and Associated Factors

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Abstract: Anxiety is a significant mental health issue during adolescence and can be influenced by academic demands and concerns about the future. Objective: To investigate the presence and intensity of anxiety symptoms among adolescents enrolled in high school at a public institution in the state of Goiás, Brazil, comparing anxiety levels by gender and analyzing their association with study time, physical activity, and anthropometric characteristics. Methods: This was a quantitative, cross-sectional, descriptive study conducted with 54 adolescents, including 15 males and 39 females. Anxiety symptoms were assessed using the Beck Anxiety Inventory (BAI), along with a sociodemographic, anthropometric, and lifestyle questionnaire. Results: All participants exhibited symptoms of moderate or severe anxiety. The mean anxiety scores were higher among female participants compared to male participants (36.25 ± 11.88 vs. 29.06 ± 10.53, respectively; $p = 0.045$). A positive and statistically significant correlation was observed between duration of study and anxiety levels ($r = 0.291$; $p = 0.009$). Severe anxiety was identified in 92.3% of female participants and in 53.3% of male participants. No statistically significant associations were observed between anxiety levels and body mass index or physical activity. Conclusion: The adolescents evaluated exhibited a high prevalence of anxiety symptoms, with greater intensity among female participants and a positive association between anxiety levels and study time. These findings reinforce the importance of implementing preventive strategies and providing accessible spaces for psychological support in the school environment.

Keywords: Anxiety, Adolescents, High school, Mental health, School environment, Physical education.

INTRODUCTION

Mental health is a state in which an individual is able to cope with the stresses and pressures of daily life, recognizing their own capabilities, learning, working, and actively participating in society (WHO, 2019). It is a biological and human phenomenon, intrinsically connected to sociocultural and historical factors, as well as individual experiences (Almeida Filho et al., 1999).

Associated with mental health is anxiety, which is physiologically characterized as the body's response to feelings of fear, tension, worry, or situations perceived as

threatening (Dourado et al., 2025). When this state becomes pathological, it begins to compromise the individual's social, professional, and academic functioning, as well as their physical and mental health (Sousa & Silva, 2023).

During adolescence, anxiety results from frequent psychological pressures and uncertainties regarding academic and professional futures. Because they face high expectations from family, school, and society, young people constitute a group vulnerable to the development of mental disorders, particularly anxiety disorders (Rocha *et al.*, 2022). According to the World Health Organization, more than 359 million people worldwide have been diagnosed with an anxiety disorder (WHO, 2025). This condition raises concerns in both clinical and social contexts, as it manifests a variety of symptoms, such as impaired concentration, irritability, insomnia, phobias, and nausea (American Psychiatric Association, 2024).

In the educational setting, studies indicate that anxiety symptoms tend to be more frequent and intense among high school students, particularly among female students, and become more pronounced as students advance through the grades (Oliveira & Boruchovitch, 2021). Thus, research on this topic is essential to inform interventions capable of preventing, managing, and alleviating these symptoms, thereby promoting students' quality of life and academic performance (Cunha & Martins, 2022).

The rationale for this study lies in the importance of understanding the impact of anxiety on the mental health of high school adolescents. Although the school environment can serve as a safe and welcoming space, it can also trigger anxiety due to the high volume of social stimuli and daily pressures - a situation that is exacerbated when students' concerns are ignored.

Given this, the objective of this study was to identify the presence and intensity of anxiety symptoms among adolescents enrolled in high school at a public institution in the state of Goiás, comparing the results by gender and analyzing their association with daily study time, physical activity, and the participants' anthropometric characteristics.

METHODOLOGY

This study is characterized as quantitative research with a cross-sectional design and descriptive nature. The investigation was conducted with adolescents enrolled in a public school in the state of Goiás, aiming to identify the presence, intensity, and distribution of anxiety symptoms according to gender (male and female) and daily routines.

The study sample consisted of 54 adolescents, including 15 males (27.8%) and 39 females (72.2%). Participants were selected through non-probabilistic convenience sampling, considering students who were available on site and who voluntarily agreed to participate in the study. The inclusion criterion was that participants be regularly enrolled in the institution's technical program integrated with high school.

Data collection took place in person at the institution's sports facilities. Printed questionnaires were distributed to the adolescents to be completed individually at that same location. Throughout the administration period, the researchers involved were present to provide support and address any questions regarding the items, ensuring that participants completed the questionnaires independently and that the responses were kept confidential.

To ensure anonymity, students were identified only by the first letter of their first and last names.

Anxiety symptoms were assessed using the Beck Anxiety Inventory (BAI). This instrument consists of 21 items that measure the intensity of anxiety-related cognitive and affective symptoms associated with anxiety disorders, allowing individuals to be classified into four levels of severity. Scores are classified as minimal anxiety (0 to 7 points), mild anxiety (8 to 15 points), moderate anxiety (16 to 25 points), and severe anxiety (26 to 63 points). In addition, a second questionnaire was used to collect sociodemographic, anthropometric, and lifestyle data, covering variables such as biological sex, Body Mass Index (BMI), weekly time spent on physical activity, daily time spent studying, and the current school year.

This research was conducted in strict adherence to the ethical guidelines and criteria established for scientific investigation involving human subjects, in compliance with Resolutions No. 466/2012 and No. 510/2016 of the National Health Council (CNS/MS). The project was duly submitted for review to the Research Ethics Committee of the Federal Institute of Goiás (CEP/IFG) and received formal approval under Opinion No. 7,398,399.

The data were processed and analyzed using the Statistical Package for Social Sciences (SPSS, version 23.0). Continuous variables were presented as mean and standard deviation (Mean ± SD), and categorical variables as absolute (n) and relative (%) frequencies. The normality of the data distribution was verified using the Shapiro-Wilk test. The comparison of anxiety scores and other continuous measures between males and females was performed using the nonparametric Mann-Whitney test. The association between duration of study and anxiety level was analyzed using Spearman's correlation test. In all analyses, a statistical significance level of $p < 0.05$ was adopted.

RESULTS AND DISCUSSION

The study sample consisted of 54 adolescents duly enrolled at the selected educational institution. To present the results, three tables were prepared showing the anthropometric characteristics, anxiety scores, and lifestyle of the sample, comparing male (n = 15) and female (n = 39) participants. Each table presents different variables, aiming to understand anxiety in the school environment, specifically among high school students.

Table 1: Sample Characteristics.

Variable	Male n (%)	Female n (%)	P
BMI	21.31 ± 4.55	20.52 ± 4.46	
Anxiety	29.06 ± 10.53	36.25 ± 11.88	0.045
Week of physical activity training	23.80 ± 54.08	68.41 ± 121.33	
Study duration	54.08 ± 26.11	56.92 ± 25.56	

Source: Prepared by the authors (2026).

As shown in Table 1, the mean Body Mass Index (BMI) was similar between boys (21.31 ± 4.55 kg/m²) and girls (20.52 ± 4.46 kg/m²). The amount of time spent studying each day also showed no significant differences between boys (54.08 ± 26.11 min) and girls (56.92 ±

25.56 min). However, a statistically significant difference was identified in anxiety levels (p = 0.045) among the female participants, as the adolescent girls in the study had a significantly higher mean score of (36.25 ± 11.88) compared to the boys (29.06 ± 10.53).

Table 2: Correlation between the variables.

Variable		
Duration of studies × anxiety	0.291*	0.009

Source: Prepared by the authors (2026).

By correlating the variables presented in Table 2, it was possible to identify a statistically significant and positive association only between study time and anxiety (r = 0.291; p = 0.009), with these values expressed as mean ± standard deviation and the Mann-Whitney U test (p < 0.05). This correlation indicates that, in the studied population, an increase in time spent studying is proportionally associated with the levels of anxiety demonstrated by the students.

Table 3: Comparison of anxiety levels by gender.

Variable	Male n (%)	Female n (%)	
Minimum anxiety	—	—	0.001
Mild anxiety	—	—	
Moderate anxiety	07 (46.7)	03 (7.7)	
Severe anxiety	08 (53.3)	36 (92.3)	

Source: Compiled by the authors (2026).

Finally, when comparing the anxiety levels presented in Table 3, it is noteworthy that no participant of either gender fell into the minimal or mild anxiety categories. All adolescents evaluated exhibited moderate to severe anxiety levels, with 46.7% (n = 7) of the male participants reporting moderate anxiety and 53.3% (n = 8) reporting severe anxiety. Among female participants, the prevalence of severe anxiety reached 92.3% (n = 36), while only 7.7% (n = 3) were classified as having moderate anxiety, revealing a statistically significant difference in the distribution of severity between the sexes (p = 0.001).

DISCUSSION

The findings of this study reveal a reality that calls for attention to the mental health of the adolescents analyzed, highlighting a significant prevalence of moderate-to-severe anxiety symptoms. The absence of students in the minimal or mild anxiety categories reflects the high level of emotional strain that the school environment imposes on students. This scenario is consistent with the report presented by the World Health Organization (WHO), which identifies anxiety disorders as among the leading causes of distress and feelings of helplessness during adolescence (WHO, 2021). Furthermore, studies have shown that anxiety is common among adolescents in the school setting and is related to factors such as academic overload, constant assessments, difficulties with time management, and uncertainties regarding their academic or professional future (Meneses et al., 2026).

An analysis of gender differences revealed that girls exhibit higher levels of anxiety ($p = 0.045$), while among boys, scores were divided between moderate (46.7%) and severe (53.3%) levels. This higher prevalence among females aligns with data from the National School Health Survey (PeNSE), conducted by the IBGE in collaboration with the Ministry of Health, in which 61.6% of girls reported frequent feelings of anxiety and excessive worry, compared to 38.4% of boys (IBGE, 2021). The scientific literature describes that this difference occurs due to the interaction of biological and psychosocial factors, hormonal changes associated with puberty, greater pressures and concerns about body image, and social threats—factors that increase adolescent girls' vulnerability to anxiety symptoms (Ladouceur, 2026; Sequeira et al., 2025; Putri et al., 2025; Demkowicz et al., 2025).

One finding of the study was the positive and statistically significant relationship between daily study time and anxiety scores ($r = 0.291$; $p = 0.009$). Although this represents a low correlation, the data confirm a direct association between these variables in the context of academic stress: the more time students spend studying, the more stressed they become, and, consequently, the more anxiety symptoms they experience. Although a study routine is essential for education, recent research raises concerns about mental health in high school, noting that long hours of study without breaks and the fear of poor performance are triggers for emotional distress (Wang et al., 2025). According to Jagiello et al. (2025), high school is characterized by preparation for college entrance exams and constant assessments, subjecting students to a high level of daily stress.

Regarding anthropometric variables (BMI) and physical activity, no statistically significant differences were observed between genders in the sample studied. Although physical exercise is widely recognized in the literature as a protective factor for mental health, the average training time reported by adolescents was low and highly variable. This suggests that, given the heavy academic workload and school-related stress, physical activity may be taking a back seat for students or may be insufficient to counteract the impact of emotional stressors.

Despite these important findings, the present study has some limitations, such as the small sample size ($n = 54$) and non-probabilistic convenience sampling. However, the findings provide a valuable local assessment and serve as a solid scientific basis for future interventions and research related to anxiety in the school setting.

CONCLUSION

This study achieved its objective by identifying moderate to severe levels of anxiety among the adolescents evaluated, highlighting a greater intensity of symptoms among females. In addition, a correlation was confirmed between the time devoted to studying and elevated anxiety levels. Regarding the anthropometric characteristics assessed and physical activity practices, no significant differences were observed between the sexes. The findings underscore the need for greater attention to mental health in the school setting, especially given the impact of the academic overload that students experience. It is recommended that preventive measures and psychological support networks be implemented within the institution, with a focus on stress management and the healthy organization of study routines. Finally, for future research, it is suggested that larger samples and more comprehensive sampling methods be used to deepen the understanding of factors associated with anxiety in adolescents within the educational context.

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