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Original Article

Anxiety and quality of life among university students in the health field

Ansiedade e qualidade de vida em estudantes universitários da área da saúde

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ABSTRACT

Objective: to analyze anxiety, quality of life, associated factors, and their correlation among university students in the health field at a public university. **Methods:** a cross-sectional study conducted with 372 students from Nursing, Medicine, Dentistry, Psychology, Pharmacy, and Physical Education. The State-Trait Anxiety Inventory and the World Health Organization Quality of Life-Bref were used to assess anxiety and quality of life, respectively. Data were analyzed using descriptive statistics, inferential tests, and correlation analysis, with a significance level of 5%. **Results:** there was a predominance of females (72.3%) and a moderate prevalence of anxiety in 56.7% of participants. Quality of life showed overall mean scores above 60, although family income and comorbidities significantly influenced the physical, psychological, and environmental domains. There was a strong negative correlation between anxiety and the physical and psychological domains. **Conclusion:** a moderate prevalence of anxiety was observed, along with its association with lower quality of life among university students in the health field. **Contributions to practice:** the findings may provide support for the implementation of institutional strategies aimed at promoting mental health and strengthening emotional support among students.

Descriptors: Anxiety; Quality of Life; Students, Health Occupations; Prevalence.

RESUMO

Objetivo: analisar a ansiedade, qualidade de vida, fatores associados e correlação em estudantes universitários da área da saúde de uma universidade pública. **Métodos:** estudo transversal, realizado com 372 estudantes de Enfermagem, Medicina, Odontologia, Psicologia, Farmácia e Educação Física. Utilizou-se o Inventário de Ansiedade Traço-Estado e *World Health Organization Quality of Life-Bref* para avaliar respectivamente a ansiedade e qualidade de vida. Os dados foram analisados por estatística descritiva, testes de inferências e correlação, com nível de significância de 5%. **Resultados:** observou-se predominância do sexo feminino (72,3%) e prevalência moderada de ansiedade em 56,7% dos participantes. A qualidade de vida apresentou médias globais acima de 60, embora a renda familiar e comorbidades influenciaram significativamente os domínios físico, psicológico e ambiental. Houve correlação negativa forte entre ansiedade e os domínios físico e psicológico. **Conclusão:** evidenciou-se prevalência de ansiedade moderada e a associação com menor qualidade de vida entre os estudantes universitários da área da saúde. **Contribuições para a prática:** os resultados podem oferecer subsídios para a implementação de estratégias institucionais voltadas à promoção da saúde mental e ao fortalecimento do apoio emocional entre acadêmicos.

Descritores: Ansiedade; Qualidade de Vida; Estudantes de Ciências da Saúde; Prevalência.

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Introduction

Mental disorders, such as stress, anxiety, and depression, represent one of the main public health challenges on a global scale, affecting millions of people in different sociocultural contexts[1]. The World Health Organization (WHO) estimates that approximately 970 million people worldwide have been diagnosed with some mental disorder at some point in their lives[2].

Among these disorders is anxiety, which the NANDA-International 2024–2026 nursing diagnosis taxonomy defines as excessive and persistent apprehension in the face of situations or events perceived as dangerous or threatening[3]. This condition leads to behavioral, emotional, physiological, and cognitive changes, such as psychomotor agitation, insomnia, trembling, confusion, among others, and may impair social, occupational, and academic functioning, in addition to negatively impacting quality of life and psychological well-being[4].

Specifically in the university setting, students face a series of demands that may directly impact their mental health. Separation from family, disruption of emotional bonds, adaptation to new routines, high personal and institutional expectations, and academic overload contribute to the onset or worsening of anxiety conditions[5]. University students are also exposed to unhealthy lifestyle habits, such as inadequate sleep, excessive screen use, consumption of alcohol and illicit substances, and a lack of leisure time, factors that increase the risk of mental health problems[6].

Health-related programs deserve special attention in this context, as they present particularities that make them even more emotionally and cognitively demanding. Early contact with human suffering, exposure to complex clinical situations, fear of making mistakes, and the constant pursuit of excellence may significantly contribute to students prioritizing patient care while neglecting their own well-being [7].

Quality of life, in turn, constitutes a central variable in this context. According to the WHO, it is defined as "the individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns"[8:4]. It is a multidimensional concept that involves physical, psychological, emotional, social, and spiritual aspects, reflecting overall life satisfaction[9]. Students with high levels of anxiety usually present lower quality of life indices, which may consequently negatively impact academic performance and reflect a deficient training of future professionals[10].

There are high prevalence rates of anxiety among health students, ranging from 38.4% to 83.10%[11-13]. The State-Trait Anxiety Inventory (STAI) is an important instrument used in the Brazilian context, with moderate to high levels of anxiety identified in up to 76.4% of students, influenced by factors such as academic overload, professional insecurity, and emotional demands related to clinical practice[14-15]. Regarding quality of life among university students, the application of the World Health Organization Quality of Life-Bref (WHOQOL-Bref) indicated low satisfaction with health (score of 44.32) and probable psychological impairment, mainly affecting the psychological and physical domains, with median scores of 50.57 and 52.92, respectively, suggesting significant impairment in the well-being of this population[16-17].

Despite the discussion on mental health in the academic environment, there is a gap in the literature regarding studies that specifically investigate anxiety and quality of life among health students in the context of public universities, particularly within the setting of the present study. There is a concentration of studies on isolated programs, such as Medicine or Nursing, without considering the diversity of health programs within the same institutional environment[10,16]. It is also noteworthy that the combined use of the STAI for anxiety and the WHOQOL-Bref for quality of life is still limited, which restricts an integrated understanding of these phenomena. Furthermore, the present study

is justified by its regional context, inclusion of multiple health programs, and joint analysis of anxiety and quality of life.

Considering this scenario, it is essential to analyze anxiety, associated factors, and its correlation with quality of life among university students in the health field, using the aforementioned instruments, in order to support actions aimed at promoting mental health in higher education institutions. Knowledge of anxiety levels and quality of life may guide institutional policies for welcoming and psychological support, as well as serve as a basis for preventive and educational interventions, promoting student retention and well-being. Therefore, this study aims to analyze anxiety, quality of life, associated factors, and their correlation among university students in the health field at a public university.

Methods

Type of study

This is a cross-sectional study. The study was conducted at a public university in northern Minas Gerais, Brazil, and was guided by the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement. Data collection was carried out in person from March to May 2025.

Population and Sample: inclusion and exclusion criteria

The population consisted of students regularly enrolled in the programs of Nursing, Medicine, Dentistry, Psychology, Pharmacy, and Physical Education. For sample composition, a finite population of 1,719 enrolled students (February 2025) was considered, adopting a conservative prevalence of 50%, a 95% confidence level, and a 5% margin of error, resulting in an estimated minimum sample of 315 participants. Accessibility, interest, and availability of university students to voluntarily participate in the study were considered.

Students aged ≥ 18 years, enrolled and attending their programs, were included in the study. Those absent on the day of data collection were excluded. During the data collection period, 372 university students participated in the study.

Study protocol

During the recruitment of university students, the study was advertised on social media, on university bulletin boards, and in classrooms. Participants who met the eligibility criteria and agreed to take part in the study signed the Informed Consent Form. In the classroom setting, they completed a self-administered questionnaire on sociodemographic and clinical characteristics, as well as measures of anxiety and quality of life. The instruments were administered before the start of classes, during breaks, or after classes had ended.

Variables

The following sociodemographic and clinical variables were considered: age, sex, marital status, undergraduate program, academic term, income, skin color, city of origin, presence of comorbidities, use of psychotropic medications (duration of use and adverse events), and use of non-pharmacological therapy. The State-Trait Anxiety Inventory (STAI) was used to assess anxiety levels[18]. The World Health Organization Quality of Life-Bref (WHOQOL-Bref) was used to assess perceived quality of life[19].

Data source/measurement

Sociodemographic and clinical characteristics were obtained through a researcher-developed questionnaire. Anxiety was assessed using the State-Trait Anxiety Inventory (STAI), which consists of 20 items divided into the state subscale (referring to the current moment) and the trait subscale (personal characteristic). Responses are given on a four-point Likert scale, ranging from 1 ("not at all") to 4 ("very much

so"), with a total score ranging from 20 to 80, in which higher scores indicate higher levels of anxiety. In the present study, total results (trait and state) were presented using the following cutoff points: scores from 20 to 40 indicate low anxiety, 41 to 60 indicate moderate anxiety, and 61 to 80 indicate high anxiety[18].

Quality of life was assessed using the WHOQOL-Bref instrument[19], an adapted version consisting of 26 questions covering the physical, social, psychological, and environmental domains, in addition to two general questions assessing overall quality of life and satisfaction with health. This instrument uses a five-point Likert scale and is evaluated through scores on a positive scale, meaning that higher scores indicate better quality of life. The scores for each domain were transformed to a scale from 0 to 100; however, due to the absence of specific cutoff points for the WHOQOL-Bref, higher scores are considered indicative of better quality of life.

Analysis of results and statistics

Data were analyzed using SPSS® software, version 24. Initially, descriptive analysis was performed, with continuous variables presented as means and standard deviations (SD), and categorical variables as absolute and relative frequencies.

Normality of distribution was assessed using the Shapiro–Wilk test, and homogeneity of variances between groups was evaluated using Levene's test. Continuous variables were presented as mean ± SD, regardless of distribution, to standardize the tables and improve readability, even in cases of nonparametric distribution.

For comparisons between two independent groups, Student's t-test was used. When normality was not met ($p < 0.05$ in the Shapiro–Wilk test), the nonparametric Mann–Whitney U test was applied. Comparisons involving three or more independent groups were performed using one-way analysis of variance (ANOVA). If homoscedasticity was not met, Welch's ANOVA was applied, followed by the Games–Howell post hoc test; when assumptions were met, Tukey's post hoc test was used. For non-normal distributions, the Kruskal–Wallis test was applied.

In addition, Spearman's correlation was performed to investigate associations between the WHOQOL-Bref domains and the STAI anxiety score, considering the nonparametric nature of the data. The significance level adopted was $p < 0.05$ for all analyses. The complete dataset is publicly available for free access and consultation in Mendeley Data[20].

Ethical aspects

The study was approved by the Research Ethics Committee of the State University of Montes Claros under opinion no. 6.320.239/2023, Certificate of Presentation for Ethical Consideration: 73849723.6.0000.5146.

Results

A total of 372 health students from a public university in Minas Gerais participated in the study. Most participants were female, 269 (72.3%), and self-identified as mixed race. Regarding distribution by program, Nursing predominated, with 187 (50.3%) students, and most participants were in the early years of their undergraduate programs (1st to 5th semester; n=235; 63.2%) (Table 1).

Table 1 – Distribution of sociodemographic characteristics of health students, with absolute (n) and relative (%) frequencies (n = 372). Montes Claros, MG, Brazil, 2025

Variables	n (%)
Sex	
Male	103 (27.7)
Female	269 (72.3)
Race/skin color	
White	132 (35.5)
Black, mixed race, or other	240 (64.5)
Age group (years)	
< 24	312 (83.9)
25-31	46 (12.4)
≥ 32	14 (3.8)

(the Table 1 continue in the next page...)

Variables	n (%)
Marital status	
With a partner	23 (6.2)
Without a partner	349 (93.8)
Program	
Nursing	187 (50.3)
Medicine	77 (20.7)
Physical Education (Bachelor's and Licensure)	58 (15.6)
Dentistry	38 (10.2)
Psychology or Pharmacy	12 (3.2)
Academic term	
1st to 5th	235 (63.2)
6th to 10th	137 (36.8)
Engages in paid work	
No	245 (65.9)
Yes	127 (34.1)
Family income (minimum wage)	
No fixed income	21 (5.6)
1	65 (17.5)
2 to 3	170 (45.7)
4 to 5	64 (17.2)
6 to 7	30 (8.1)
≥ 7	22 (5.9)

The presence of comorbidities was reported by 153 (41.1%) students, with anxiety 124 (33.3%), insomnia 38 (10.2%), and depression 37 (9.9%) being the most frequent. Among the students, 74 (19.9%) reported using medications for insomnia or anxiety.

The total STAI score ranged from 20 to 75, with a mean of 46.7 (SD = 11.0), with a prevalence of moderate anxiety identified in 211 (56.7%) participants, low anxiety in 118 (31.7%), and high anxiety in 43 (11.6%). Regarding descriptive measures of quality of life domains (WHOQOL-Bref), scores ranged from 0 to 100, with means above 60 in all domains, indicating an overall positive perception of quality of life.

Notably, when considering anxiety and quality of life together, statistically significant differences were identified among subgroups according to family income and the clinical variables anxiety, depression, and insomnia (Tables 2, 3, and 4).

Table 2 – Means and standard deviations of WHOQOL-Bref and STAI scores according to sociodemographic variables of students from the Center for Biological and Health Sciences at a public university (n=372). Montes Claros, MG, Brazil, 2025

Variables	Perception of quality of life	Satisfaction with health	Physical domain	Psychological domain	Social domain	Environmental domain	STAI
Sex							
Male	73.5 ± 18.5	63.8 ± 22.1	68.4 ± 15.5	64.8 ± 16.3	70.6 ± 19.8	64.4 ± 15.6	43.2 ± 10.6
Female	74.0 ± 17.4	59.7 ± 22.6	64.5 ± 13.8	58.8 ± 15.8	69.1 ± 17.7	62.1 ± 14.4	48.0 ± 10.9
p-value	(0.868*)	(0.100*)	(0.012*)	(0.001*)	(0.324*)	(0.170†)	(<0.001*)
Race/skin color							
White	75.4 ± 19.3	61.0 ± 24.6	66.4 ± 14.4	60.3 ± 16.6	68.6 ± 18.8	63.8 ± 13.9	46.3 ± 11.5
Other	73.0 ± 16.8	60.7 ± 21.4	65.1 ± 14.4	60.5 ± 15.9	70.0 ± 18.1	62.1 ± 15.2	46.9 ± 10.8
p-value	(0.127*)	(0.741*)	(0.332*)	(0.962*)	(0.470*)	(0.284†)	(0.645†)
Age group (years)							
< 24	74.4 ± 17.3	61.2 ± 22.2	66.0 ± 14.0	60.4 ± 16.2	70.3 ± 17.6	63.7 ± 14.2	46.7 ± 11.2
25-31	71.7 ± 20.1	59.2 ± 23.8	64.7 ± 13.6	60.9 ± 15.6	67.0 ± 20.8	56.8 ± 15.4	47.8 ± 10.5
≥32	67.8 ± 18.1	57.1 ± 26.7	57.6 ± 21.8	60.7 ± 19.2	60.1 ± 24.0	61.6 ± 19.3	44.0 ± 10.1
p-value	(0.385‡)	(0.768‡)	(0.172‡)	(0.955‡)	(0.193‡)	(0.012‡)	(0.520‡)
Marital status							
Without a partner	73.8 ± 17.9	60.7 ± 22.4	65.5 ± 14.3	60.3 ± 16.1	69.8 ± 18.2	62.7 ± 14.8	46.8 ± 11.0
With a partner	73.9 ± 14.0	63.0 ± 24.8	66.0 ± 15.7	63.4 ± 16.4	65.2 ± 19.6	63.7 ± 14.5	45.3 ± 11.4
p-value	(0.890*)	(0.422*)	(0.941*)	(0.169*)	(0.323*)	(0.743*)	(0.492*)

*Mann–Whitney U test; †Student's t-test; ‡Kruskal–Wallis test; STAI: State-Trait Anxiety Inventory

Table 3 – Means and standard deviations of WHOQOL-Bref and STAI scores according to program and income variables of students from the Center for Biological and Health Sciences at a public university (n=372). Montes Claros, MG, Brazil, 2025

Variables	Perception of quality of life	Satisfaction with health	Physical domain	Psychological domain	Social domain	Environmental domain	STAI
Program							
Nursing	72.4 ± 17.5	59.3 ± 23.6	64.1 ± 14.6	58.7 ± 17.0	69.6 ± 18.0	61.4 ± 15.1	48.3 ± 11.4
Medicine	77.3 ± 19.5	60.7 ± 20.0	69.6 ± 12.6	65.0 ± 13.9	72.6 ± 18.6	69.9 ± 14.4	42.8 ± 10.4
Physical Education	73.3 ± 14.7	61.2 ± 23.0	64.6 ± 17.3	60.1 ± 17.3	65.9 ± 19.6	58.5 ± 13.2	45.2 ± 11.0
Dentistry	73.7 ± 20.1	66.4 ± 21.2	67.0 ± 12.4	61.1 ± 13.9	69.1 ± 17.3	61.5 ± 11.9	47.4 ± 9.1
Psychology and Pharmacy	77.1 ± 12.9	64.6 ± 22.5	62.5 ± 7.4	59.0 ± 12.5	66.7 ± 17.4	61.4 ± 11.9	52.7 ± 8.6
p-value	(0.242*)	(0.537*)	(0.019†)	(0.058*)	(0.379*)	(<0.001‡)	(<0.001§)
Academic term							
1st to 5th	74.6 ± 17.7	60.7 ± 22.1	65.3 ± 14.0	59.7 ± 15.8	69.0 ± 18.3	63.0 ± 15.0	47.1 ± 10.9
6th to 10th	72.6 ± 17.6	60.9 ± 23.2	65.9 ± 15.1	61.8 ± 16.7	70.3 ± 18.4	62.3 ± 14.4	46.0 ± 11.2
p-value	(0.398‖)	(0.773‖)	(0.611‖)	(0.198‖)	(0.597‖)	(0.688¶)	(0.465‖)
Engages in paid work							
No	74.9 ± 18.0	61.5 ± 22.0	65.4 ± 14.4	59.9 ± 16.0	69.7 ± 18.6	63.4 ± 14.7	46.9 ± 10.5
Yes	71.8 ± 16.9	59.4 ± 23.5	65.8 ± 14.5	61.6 ± 16.5	69.2 ± 17.8	61.5 ± 14.7	46.4 ± 12.1
p-value	(0.109‖)	(0.515‖)	(0.915‖)	(0.465‖)	(0.648‖)	(0.248¶)	(0.710¶)
Family income							
No fixed income	73.8 ± 16.7	67.8 ± 19.6	71.6 ± 17.8	65.3 ± 15.0	73.8 ± 15.0	64.7 ± 14.2	44.5 ± 11.5
1	68.5 ±18.4	56.1 ± 24.2	58.6 ± 16.5	54.5 ± 17.7	65.9 ± 18.1	54.0 ± 13.9	51.1 ± 10.8
2 to 3	71.3 ± 17.8	58.2 ± 22.4	66.0 ± 13.7	60.0 ± 16.3	68.5 ± 19.0	61.1 ± 13.6	47.0 ± 10.8
4 to 5	79.3 ± 15.1	68.3 ± 20.0	66.7 ± 11.7	63.3 ± 12.6	71.5 ± 14.2	65.3 ± 13.7	45.8 ± 10.6
6 to 7	80.0 ± 15.2	65.8 ± 19.1	71.4 ± 12.0	65.7 ± 15.7	71.9 ± 21.4	75.3 ± 13.8	42.1 ± 11.1
≥ 7	85.2 ± 16.6	59.1 ± 26.2	65.2 ± 13.0	61.5 ± 16.9	74.6 ± 21.4	74.7 ± 9.8	42.8 ± 9.8
p-value	(<0.001*)	(0.012*)	(<0.001**)	(0.006**)	(0.217*)	(<0.001**)	(0.001**)

*Kruskal–Wallis test; †Kruskal–Wallis with Bonferroni correction (p<0.05) — difference between Medicine and Nursing/Psychology; ‡Bonferroni post hoc (p<0.05) — difference between Medicine and Nursing/Dentistry/Physical Education; §Kruskal–Wallis with Bonferroni correction (p<0.05) — difference between Medicine and Nursing/Dentistry/Psychology, and between Physical Education and Psychology; ‖Mann–Whitney U test; ¶Student's t-test; **One-way ANOVA; STAI: State-Trait Anxiety Inventory

Table 4 – Means and standard deviations of WHOQOL-Bref and STAI scores according to clinical variables of students from the Center for Biological and Health Sciences at a public university (n=372). Montes Claros, MG, Brazil, 2025

Variables	Perception of quality of life	Satisfaction with health	Physical domain	Psychological domain	Social domain	Environmental domain	STAI
Anxiety							
Yes	69.7 ± 19.7	53.0 ± 24.4	58.7 ± 13.8	52.6 ± 16.1	63.8 ± 19.6	59.0 ± 14.9	51.6 ± 9.8
No	75.9 ± 16.3	64.7 ± 20.5	69.0 ± 13.4	64.4 ± 14.7	72.4 ± 17.0	64.6 ± 14.3	44.3 ± 10.8
p-value	(0.003*)	(<0.001*)	(<0.001*)	(<0.001*)	(<0.001*)	(0.001†)	(0.001*)
Depression							
Yes	62.2 ± 22.5	41.2 ± 24.4	52.6 ± 16.1	45.7 ± 18.7	56.7 ± 23.2	57.0 ± 15.8	54.6 ± 10.1
No	75.1 ± 16.6	63.0 ± 21.3	67.0 ± 13.4	62.1 ± 15.0	70.9 ± 17.2	63.4 ± 14.5	45.8 ± 10.8
p-value	(<0.001*)	(<0.001*)	(<0.001*)	(<0.001*)	(<0.001*)	(0.013†)	(<0.001*)
Hypertension							
Yes	75.0 ± 0.0	50.0 ± 0.0	50.0 ± 5.0	56.2 ± 8.8	66.7 ± 23.6	67.2 ± 15.5	50.5 ± 3.5
No	73.8 ± 17.7	60.9 ± 22.6	65.6 ± 14.4	60.5 ± 16.2	69.5 ± 18.3	62.7 ± 14.8	46.7 ± 11.1
p-value	(0.958*)	(0.332*)	(0.073*)	(0.574*)	(0.836*)	(0.670†)	(0.545*)
Diabetes mellitus							
Yes	81.2 ± 12.5	50.0 ± 20.4	62.5 ± 10.7	66.7 ± 15.2	79.2 ± 19.8	65.6 ± 20.9	42.2 ± 7.2
No	73.8 ± 17.7	60.9 ± 22.6	65.6 ± 14.4	60.4 ± 16.2	69.4 ± 18.3	62.7 ± 14.7	46.8 ± 11.1
p-value	(0.400*)	(0.276*)	(0.603*)	(0.450*)	(0.406*)	(0.695†)	(0.352*)
Insomnia							
Yes	65.8 ± 14.7	48.7 ± 24.6	54.3 ± 14.0	47.2 ± 14.8	54.8 ± 18.9	57.4 ± 13.9	52.8 ± 9.3
No	74.8 ± 17.8	62.2 ± 21.9	66.8 ± 13.9	62.0 ± 15.6	71.2 ± 17.5	63.3 ± 14.7	46.1 ± 11.0
p-value	(0.001*)	(0.001*)	(<0.001*)	(<0.001*)	(<0.001*)	(0.018†)	(0.001*)
Medications for insomnia or anxiety							
Yes	69.9 ± 18.9	51.3 ± 23.7	57.6 ± 14.6	53.9 ± 18.1	65.2 ± 21.2	61.4 ± 15.4	51.2 ± 10.8
No	74.8 ± 17.2	63.2 ± 21.6	67.4 ± 13.6	62.1 ± 15.2	70.6 ± 17.4	63.1 ± 14.6	45.6 ± 10.8
p-value	(0.022*)	(<0.001*)	(<0.001*)	(0.001*)	(0.120*)	(0.398†)	(0.001*)

*Mann–Whitney U test; †Student's t-test; STAI: State-Trait Anxiety Inventory

The total STAI score showed significant negative correlations with all WHOQOL-Bref domains, indicating that higher levels of anxiety are associated with lower perceived quality of life. However, a strong correlation (ρ≥0.60) was observed in the psychological domain (ρ = -0.727; p<0.01) and the physical domain (ρ = -0.663; p<0.01), indicating that these constructs are highly related (Table 5).

Table 5 – Spearman correlations between STAI and WHOQOL-Bref scores among health students at a public university (n=372). Montes Claros, MG, Brazil, 2025

Variables	1	2	3	4	5	6	7
Overall perception of quality of life	1						
Satisfaction with health	0.478*	1					
Physical domain	0.443*	0.519*	1				
Psychological domain	0.494*	0.538*	0.640*	1			
Social domain	0.277*	0.283*	0.438*	0.524*	1		
Environmental domain	0.497*	0.321*	0.515*	0.498*	0.481*	1	
STAI (anxiety)	−0.418*	−0.441*	−0.663*	−0.727*	−0.455*	−0.508*	1

*The correlation is significant at the <0.01 level (two-tailed); STAI: State-Trait Anxiety Inventory

Discussion

At the national level, using the STAI to assess anxiety, prevalence has ranged from 43.4% to 76.4%[14-15]. When other instruments are used, the prevalence of anxiety is also considerable, around 38.4%[13]. Students with anxiety symptoms may be affected both physically and psychologically, impacting their daily academic life. The effects of these symptoms can result in low life satisfaction and reduced productivity in society. In addition, the decline in academic performance among university students, due to manifestations of anxiety, may lead to negative outcomes in quality of life. Negative emotions affect mental health and, consequently, quality of life[4,21].

In turn, anxiety may contribute to the maintenance of insomnia by producing increased brain excitability, alterations in circadian rhythm, and changes in the endocrine pattern of the hypothalamic–pituitary–adrenal axis, thereby hindering the relaxation necessary for the onset and maintenance of sleep. This process may also interfere with quality of life, as inadequate sleep can act as a mediator in attention, memory, and mood disturbances, increasing irritability, fatigue, reduced motivation, altered emotional regulation, and impaired physical recovery, ultimately leading to increased anxiety[13-15,22-23].

Regarding quality of life, WHOQOL-Bref mean scores were above 60 in all domains, indicating an overall positive perception of quality of life. Medical students at a public university in southern Brazil, using the same instrument, showed similar results, with an overall quality of life score of 62.5 and domain means ranging from 58.3 to 66.7[16]. At a medical university in Lebanon, where students live in an environment marked by significant political and social instability and recurrent armed conflicts, domain scores ranged between 55 and 64[24].

Family income showed a significant association with anxiety and with WHOQOL-Bref domains, except for the social domain. This finding suggests that the economic context may be related to the perception of physical, psychological, and environmental well-being, as well as interpersonal relationships. These results are consistent with recent studies indicating an association between lower income and poorer indicators of quality of life and mental health[25-26]. In this sense, income may be linked to different aspects of daily life, such as access to leisure, adequate nutrition, and self-care practices, which together may influence overall quality of life[11], without necessarily establishing a causal relationship.

On the other hand, the absence of a significant association with the social domain suggests that in-

terpersonal support networks, such as family, friends, and peers, may remain relatively preserved regardless of students' economic conditions. Social support has the greatest positive impact on quality of life, as emotional support, particularly from the family environment, acts as a protective factor against stressors, contributing to the prevention of mental comorbidities such as anxiety[25,27-28].

Regarding the presence of comorbidities, participants diagnosed with depression, insomnia, and anxiety had significantly lower scores across WHOQOL-Bref domains. In Brazil, depressive and anxiety symptoms have shown an inverse association with all quality of life domains, with a marked reduction in scores, thereby compromising academic performance, interpersonal relationships, and mental health, in addition to increasing the risk of suicide[4,12].

Furthermore, attending a public university, as observed among the participants in this study, may be associated with conditions that potentially increase vulnerability to mental disorders. Compared with private institutions, some public universities may present specific challenges, such as occasional delays in the academic calendar, stricter evaluation criteria, and structural and technological limitations[29]. These aspects should be interpreted as contextual factors that may be related to students' mental health, without necessarily implying a direct causal relationship.

Correlation analysis revealed a strong negative association between anxiety and the psychological and physical domains of quality of life. These findings indicate that higher levels of anxiety are associated with poorer perceptions of psychological well-being and physical health. Academic overload, performance pressure, and fear of failure are recurring factors that may explain this correlation[11]. Internationally, among students, the psychological domain is the most sensitive to fluctuations in anxiety, as it directly reflects cognitive changes (rumination, difficulty concentrating), subjective distress, and negative perceptions of one's own functioning[29]. Moreover, the strong negative correlation with the physical domain highlights the somatic component of anxiety (fatigue, muscle tension, sleep disturbances), which impairs functional capacity and contributes to the perception of poorer physical health.

Study limitations

Among the limitations of this study, the cross-sectional design stands out, as it does not allow the establishment of causal relationships between the variables investigated. Another point is the use of self-report instruments, which are subject to individual perception bias. In addition, the study was conducted at a single public institution, which may limit the generalizability of the findings. However, the study demonstrates methodological rigor and a significant sample size.

Contributions to practice

The results may provide support for the implementation of institutional strategies aimed at promoting mental health and strengthening emotional support among students. These findings reinforce the need for institutional actions focused on promoting mental health and improving the quality of life of university students, with preventive strategies, accessible psychological support, and welcoming policies aimed at reducing emotional and academic overload.

Conclusion

The findings indicate that, among university students in the health field, most presented a moderate level of anxiety and an overall positive perception of quality of life. A significant negative correlation was observed between anxiety and the physical and psychological domains of the WHOQOL-Bref.

The association between sociodemographic and clinical factors showed that family income exerts a direct influence on anxiety and quality of life, especially in the physical, psychological, and environmen-

tal domains, reinforcing the relevance of the socioeconomic context in the academic experience. In contrast, the social domain appeared to be preserved. In addition, the presence of comorbidities such as anxiety, depression, and insomnia was associated with higher levels of anxiety and lower quality of life scores.

Author contributions

Conception and design or analysis and interpretation of data; drafting of the manuscript or critical revision for important intellectual content; final approval of the version to be published; and responsibility for all aspects of the work in ensuring the accuracy and integrity of any part of the manuscript: **Martins BG, Silva DVA, Souza VCF, D'Angelis TEB, Barbosa HA, Torres JPRV, Araújo DD**.

Data availability

The authors declare that the data are fully available within the body of the article.

References

1. Asif S, Muddassar A, Shahzad TZ, Raouf M, Pervaiz T. Frequency of depression, anxiety and stress among university students. Pak J Med Sci. 2020;36(5):971-6. doi: http://doi.org/10.12669/pjms.36.5.1873
2. World Health Organization. World mental health report: transforming mental health for all – executive summary [Internet]. 2022 [cited Feb 25, 2026]. Available from: https://iris.who.int/server/api/core/bitstreams/40e5a13a-fe50-4efa-b56d-6e8cf00d5bfa/content
3. Heather HT, Kamitsuru S, Lopes CT. Diagnósticos de enfermagem da NANDA-I. Porto Alegre: Artmed; 2024.
4. Freitas PHB, Meireles AL, Ribeiro IKS, Abreu MNS, Paula W, Cardoso CS. Symptoms of depression, anxiety and stress in health students and Impact on quality of life. Rev Latino-Am Enfermagem. 2023;31:e3884. doi: https://dx.doi.org/10.1590/1518-8345.6315.3884
5. Mota AAS, Pimentel SM, Mota MRS. Expressions of psychological distress among students at the Federal University of Tocantins. Educ Pesqui. 2023;49:e254990. doi: https://doi.org/10.1590/S1678-4634202349254990
6. Yang BW, Zou P, Chen Q, Sun L, Ling X, Yang H, et al. Lifestyle-related risk factors correlated with mental health problems: a longitudinal observational study among 686 male college students in Chongqing, China. Front Public Health. 2022;10:1040410. doi: https://doi.org/10.3389/fpubh.2022.1040410
7. Paixão JT, Macêdo AC, Melo GC, Silva YS, Silva MA, Rezende NS, et al. Prevalence of anxious and depressive symptoms in health students. Enferm Foco. 2021;12(4):780-6. doi: http://doi.org/10.21675/2357-707X.2021.v12.n4.4595
8. World Health Organization. The World Health Organization Quality of Life Assessment (WHOQOL): position paper. Soc Sci Med. 1995;41(10):403-9. doi: https://dx.doi.org/10.1016/0277-9536(95)00112-K
9. Miranda DL, Gomes PR, Silva L, Martins AC, Neiva-Silva L, Dumith SC. Determinantes sociais da qualidade de vida entre estudantes de graduação e associação com risco de suicídio. Sci Med (Porto Alegre). 2023;33(1):e44860. doi: https://dx.doi.org/10.15448/1980-6108.2023.1.44860
10. Dias Júnior SA, Soares EA, Resck ZMR, Nogueira DA, Monteiro CAS, Terra FS. Anxiety in nursing and medicine academics at a public university: cross-sectional study. Rev Port Enferm Saúde Ment. 2022;(27):81-94. doi: https://doi.org/10.19131/rpesm.326
11. Oliveira JC, Neves VR, Céspedes JG, D'Almeida V, Okuno MFP, Figueiredo LL, et al. Predisposing factors for symptoms of anxiety, depression, and insomnia in university students. Rev Bras Enferm. 2024;77(6):e20230387. doi: https://dx.doi.org/10.1590/0034-7167-2023-0387
12. Alves BO, Chaves ECL, Paiva EMC, Chaves RL, Lourenço BG, Oliveira MDN, et al. Stress, anxiety and depression and association with quality of life, sex and use of psychotropic drugs in university students: a cross-sectional study. Rev Psicol Saúde. 2025;16(2):e16342495. doi: https://dx.doi.org/10.20435/pssa.v16i1.2495

13. Bessa ACN, Oliveira-Silva APD, Sales IMM, Braga IV, Guedes YOA, Macedo MTS, et al. Mental health in university students during the COVID-19 pandemic. Rev Bras Qual Vida. 2022;14:e14996. doi: http://dx.doi.org/10.3895/rbqv.v14n0.14996

14. Jardim MGL, Castro TS, Ferreira-Rodrigues CF. Depressive symptomatology, stress and anxiety in university students. Psico-USF. 2020;25(4):645-57. doi: http://doi.org/10.1590/1413/82712020250405

15. Malheiros PC, Vanderlei AD, Brum EHM. Meditation for stress and anxiety relief in undergraduate students: a randomized clinical trial. Rev Bras Educ Med. 2023;47(1):e025. doi: https://doi.org/10.1590/1981-5271v47.1-20220021.ING

16. Castro AF, Mello HS, Silva BFP, Bayer VML, Almeida LC, Lobato MAO, et al. Quality of life of medical students is low and associated with different factors. Cad Saúde Coletiva. 2024;32(2):e32020040. doi:https://dx.doi.org/10.1590/1414-462X202432020040

17. Loreto QQ, Teixeira WS, Barbosa HA, Torres JDRV, Carrasco V, Corrêa HP, et al. Auriculotherapy associated with Baduanjin Qigong on anxiety and quality of life in university students: a quasi-experimental study. Rev Cuid. 2025;16(2):e4728. doi: https://doi.org/10.15649/cuidarte.4728

18. Biaggio AMB, Natalício L, Spielberger CD. Desenvolvimento da forma experimental em português do Inventário de Ansiedade Traço-Estado (IDATE). Arq Bras Psicol Apl [Internet]. 1977 [cited Feb 25, 2026];29(3):31-44. Available from: https://periodicos.fgv.br/abpa/article/view/17827/16571

19. World Health Organization. WHOQOL-BREF: introduction, administration, scoring and generic version of the assessment: field trial version, December 1996. Geneva: World Health Organization [Internet]. 1996 [cited Feb 25, 2026]. Available from: https://iris.who.int/items/8c5cd31a-77df--4d46-ad55-fc449fafe431

20. Martins BG, Araújo DD, Torres J. Ansiedade e qualidade de vida em estudantes universitários da área da saúde. Mendeley Data. 2025;1. doi: https://doi.org/10.17632/n8r4s9wjym.1

21. Wen LY, Shi LX, Zhu LJ, Zhou MJ, Hua L, Jin YL, et al. Associations between Chinese college students' anxiety and depression: a chain mediation analysis. PLoS One. 2022;17(6):e0268773. doi: https://doi.org/10.1371/journal.pone.0268773

22. Teixeira CNG, Rodrigues MIQ, Silva RADA, Silva PGB, Barros MMAF. Qualidade de vida em estudantes de odontologia na pandemia de COVID-19: estudo multicêntrico. Saúde Pesqui. 2021;14(2):247-59. doi: https://doi.org/10.17765/2176-9206.2021v14n2e9009

23. Mendes SS, Martino MMFD. Stress factors of nursing students in their final year. Rev Esc Enferm USP. 2020;54:e03593. doi: https://doi.org/10.1590/S1980-220X2018053903593

24. Akiki Z, Yazbeck VK, Salame W, Asmar NE. Burnout and quality of life among medical students in a conflict-affected region: a cross-sectional study. BMC Med Educ. 2025;25(1):1337. doi: https://doi.org/10.1186/s12909-025-07942-w

25. Arar FC, Chaves TF, Turci MA, Moura EP. Quality of life and mental health of medical students in the Covid-19 pandemic. Rev Bras Educ Med. 2023;47(1):e040. doi: https://doi.org/10.1590/1981-5271v47.1-20220200

26. Santos NM, Guedes-Granzotti RB, Cruz PJA, Dória GAA, Dornelas R, César CPHAR, et al. Quality of life and metamemory in higher education students during the COVID-19 pandemic. Rev CEFAC. 2024;26(2):e8023. doi: https://doi.org/10.1590/1982-0216/20242628023

27. Ifroh RH, Gai X, Rabiautsani MA, Han X. The social support, healthy lifestyle, subjective well-being, and health-related quality of life among university students. J Educ Health Promot. 2024;13:427. doi: https://doi.org/10.4103/jehp.jehp_1988_23

28. Teixeira LAC, Costa RA, Mattos RMPR, Pimentel D. Brazilian medical students' mental health during Coronavirus disease 2019 pandemic. J Bras Psiquiatr. 2021;70(1):21-9. doi: https://doi.org/10.1590/0047-2085000000315

29. Aveiro-Róbalo TR, Garlisi-Torales LD, Chumán--Sánchez M, Pereira-Victorio CJ, Huaman-Garcia M, Failoc-Rojas VE, et al. Prevalence and associated factors of depression, anxiety and stress in university students in Paraguay during the COVID-19 pandemic. Int J Environ Res Public Health. 2022;19(19):12930. doi: http://doi.org/10.3390/ijerph191912930