

# Are symptoms of depression and anxiety in nursing students associated with their sociodemographic characteristics?

*Sintomas de depressão e ansiedade em graduandos de enfermagem são associados as suas características sociodemográficas?*

*¿Los síntomas de depresión y ansiedad en estudiantes de enfermería están asociados a sus características sociodemográficas?*

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## ABSTRACT

**Objective:** to investigate symptoms of depression and anxiety and their association with the sociodemographic characteristics of undergraduate nursing students. **Methods:** a cross-sectional analytical study carried out with students from the Faculty of Nursing at Universidade Federal de Juiz de Fora from June to July 019. Data were collected through a sociodemographic questionnaire and the Beck Depression and Anxiety Inventories. **Results:** 192 students participated, with a mean age of 21.44 ( $\pm 3.56$ ) years. 85.93% of participants were female. The mean depression score was 22.40 ( $\pm 12.35$ ), and anxiety was 17.56 ( $\pm 11.98$ ). There was a difference in the mean of the scales for sex and psychotropic drugs ( $p < 0.05$ ). Women presented moderate and severe classification for both scales. Severe symptoms prevailed among students from the 6<sup>th</sup> to the 10<sup>th</sup> semester (18.22%). **Conclusion:** there was an association between depression and anxiety symptoms related to gender and psychotropic drugs.

**Descriptors:** Students, Nursing; Mental Health; Depression; Anxiety; Mental Disorders.

## RESUMO

**Objetivo:** investigar sintomas de depressão e ansiedade e sua associação com as características sociodemográficas de estudantes da graduação em enfermagem. **Métodos:** estudo transversal analítico, realizado com estudantes da Faculdade de Enfermagem da Universidade Federal de Juiz de Fora, de junho a julho de 2019. Os dados foram coletados por questionário sociodemográfico e pelos Inventários de Depressão e Ansiedade de Beck. **Resultados:** participaram 192 estudantes com idade média de 21,44 ( $\pm 3,56$ ) anos. O sexo feminino representou 85,93% dos participantes. A pontuação média de depressão foi 22,40 ( $\pm 12,35$ ), e ansiedade foi 17,56 ( $\pm 11,98$ ). Houve diferença na média das escalas para sexo e psicofármacos ( $p < 0,05$ ). Mulheres apresentaram classificação moderada e severa para as duas escalas. A sintomatologia severa prevaleceu entre alunos do 6º e 10º semestre (18,22%). **Conclusão:** houve associação entre sintomas de depressão e ansiedade relacionados às variáveis sexo e psicofármacos.

**Descritores:** Estudantes de Enfermagem; Saúde Mental; Depressão; Ansiedade; Transtornos Mentais.

## RESUMEN

**Objetivo:** investigar los síntomas de la depresión y ansiedad y su asociación con las características sociodemográficas de los estudiantes de licenciatura en enfermería. **Métodos:** estudio analítico transversal, realizado con estudiantes de la Facultad de Enfermería de la Universidade Federal de Juiz de Fora, de junio a julio de 2019. Los datos se recolectaron mediante un cuestionario sociodemográfico e Inventario de Depresión y Ansiedad de Beck. **Resultados:** participaron 192 estudiantes con una edad promedio de 21,44 ( $\pm 3,56$ ) años. El sexo femenino representó el 85,93% de los participantes. La puntuación media de depresión fue 22,40 ( $\pm 12,35$ ) y la ansiedad fue 17,56 ( $\pm 11,98$ ). Hubo diferencia en la media de las escalas de sexo y psicofármacos ( $p < 0,05$ ). Las mujeres presentaron clasificación moderada y grave para ambas escalas. Los síntomas severos prevalecieron entre los estudiantes de sexto y décimo semestre (18,22%). **Conclusión:** hubo asociación entre síntomas de depresión y ansiedad relacionada con las variables sexo y psicofármacos.

**Descritores:** Estudiantes de Enfermería; Salud Mental; Depresión; Ansiedad; Trastornos Mentales.

## INTRODUCTION

The end of adolescence and early adulthood is a phase marked by important transformations that signal a new cycle of possibilities, professional choice, financial independence and accountability for the acts of civil life<sup>(1)</sup>.

For many young adults, a major event in this cycle is entry into higher education, where they will be able to acquire the skills and abilities necessary for future professional performance<sup>(1,2)</sup>. On the other hand, this new phase may represent distancing from the family environment, high hours of study, social and leisure absences, in addition to competitiveness and demands for performance. Thus, these changes can lead to high physical and emotional investments, often related to mental disorders such as anxiety and depression<sup>(3)</sup>.

Anxiety is characterized as an emotional state of self-protection oriented towards the future, with physiological and behavioral responses directed to threatening situations<sup>(3-4)</sup>. It becomes pathological when prolonged and disproportionate to the stimulus, and can manifest itself through signs and symptoms such as tachycardia, changes in appetite, insomnia, irritability, sadness, lack of concentration, among others<sup>(4)</sup>. Depression, on the other hand, is referred to as multifactorial mood disorder, manifested, among other characteristics, by prolonged sadness, displeasure, feelings of guilt, sleep and appetite disorders, fatigue, cognitive difficulties and recurring ideas of self-extermination<sup>(3)</sup>.

The scientific literature highlights that psychiatric disorder prevalence among undergraduate students can be up to four times higher than the rates found in the general population<sup>(4-5)</sup>. Compatible with this information, research conducted at a Brazilian public university identified a high rate of anxiety and depression among undergraduate students, with a prevalence of 62.9% and 30.2%, respectively<sup>(3)</sup>. Another investigation with nursing students from Brazil and Portugal highlighted that Brazilian undergraduate students were more prone to anxiety, depression and loss of emotional control<sup>(5)</sup>. The authors did not identify factors directly related to this difference; however, they emphasize that institutional, environmental, cultural aspects and even satisfaction with academic life can influence psychological well-being and emotional balance<sup>(5)</sup>.

However, mental disorders have become emerging problems in the academy, with emphasis on anxiety and depression, which have a direct and profound impact on students' performance, feedback on low self-esteem, insecurity, concern and other feelings<sup>(5)</sup>. In the health field, when compared to other courses, undergraduate nursing students are additionally exposed to emotional overload related to patient safety, as they deal with the disease and terminality<sup>(1,3,6)</sup>.

A systematic review<sup>(7)</sup> conducted to describe the triggering factors for psychological disorders in Brazilian undergraduate students in the health field, analyzed 18 investigations, of which only 22% addressed nursing students. Overall, dissatisfaction with the course, lack of emotional support, unsatisfactory performance, lack of leisure and course completion stood out as triggering factors<sup>(7)</sup>.

Thus, the knowledge gap that justifies the present investigation is related to the scarcity of publications related to symptoms of

anxiety and depression in Brazilian nursing students and possible relationships with sociodemographic characteristics.

Therefore, it is necessary to know the magnitude of these disorders in higher education institutions and their specificities, as a way to establish the profile of students and outline strategies for prevention and health promotion.

## OBJECTIVE

This study aimed to investigate symptoms of depression and anxiety and their association with the sociodemographic characteristics of undergraduate nursing students.

## METHODS

### Ethical aspects

This study met the ethical standards in research involving human beings. It was approved by the Research Ethics Committee with Human Beings at *Universidade Federal de Juiz de Fora* (UFJF).

### Design, place of study and period

This is cross-sectional and analytical research that was guided by The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE), aimed at cross-sectional investigations. The study was carried out at the Faculty of Nursing of UFJF, between June and July 2019.

### Population and sample: inclusion and exclusion criteria

In the 2019 academic year, there were 308 students enrolled between the 1<sup>st</sup> and 10<sup>th</sup> semester. All students were invited by the researchers, through social networks and in the classroom, to participate in the investigation, being able to opt for receiving the access link through Google Forms or providing printed forms.

It was established as an inclusion criterion: to be a graduate student in nursing at UFJF, Brazil, regularly enrolled. Students who did not complete the data collection instruments and those who were away from the course for any reason were excluded.

For the sample calculation, the formula  $n = N \cdot Z^2 \cdot p \cdot (1-p) / Z^2 \cdot p \cdot (1-p) + e^2 \cdot (N-1)$  was used. "N" is the calculated sample; "N" is population; "Z" is the standardized normal variable associated with confidence level; "P" is the true probability of the event; "E" is sampling error, using a sampling error of 5% and a 95% confidence level. A sample size of 172 students was obtained. However, the authors preferred to exceed the minimum sample size, 192 students selected for convenience.

### Study protocol

For data collection, the researchers used a sociodemographic questionnaire (with information on age, sex, race, income, religion, course period, leisure activities, alcohol and illicit drug use, psychotropic drug use) and the Beck Depression Inventory (BDI-II), Brazilian Portuguese version<sup>(8-9)</sup> and Beck's Anxiety Inventory (BAI)<sup>(9)</sup>.

BDI-II<sup>(8-9)</sup> contains 21 items, each with four answer options, among which participants choose the one most applicable to

them to describe how they have been feeling in the last two weeks. These items refer to symptoms of depression, in increasing gradation, classified as absent, mild, moderate, and severe. Considering the sample from a non-clinical population, scores up to 13 were considered "minimal depression"; from 14 to 19, "mild depression"; from 20 to 28, "moderate depression"; and from 29 to 63, "severe depression".

Likewise, BAI consists of 21 items, with four response options, among which participants choose the one most applicable to them to describe how they have been feeling in the last two weeks. These items refer to symptoms of anxiety, in increasing gradation, classified as minimal, mild, moderate, and severe. Considering the sample from a non-clinical population, scores up to 10 were considered "minimal anxiety"; scores from 11 to 19, "mild anxiety"; scores from 20 to 30, "moderate anxiety"; and scores from 31 to 63, "severe anxiety".

Considering that BDI-II and BAI questionnaires analyze complex psychic aspects, there was the participation of a professional psychologist who assisted in test acquisition, in interpretation of results and in management of serious cases with UFJF's psychology service.

### Analysis of results, and statistics

The data were tabulated in Microsoft Excel<sup>®</sup> and analyzed using the Stata software, version 15.0. A descriptive analysis of sociodemographic information included the calculation of frequency measures; and, for the scoring of the depression and anxiety scales, the measures of position and dispersion were calculated. The distribution normality of quantitative variables was verified by applying Shapiro-Wilk test. From the results, the difference of mean in the scales of depression and anxiety was verified by adopting Mann-Whitney test for dichotomous variables and the Kruskal-Wallis test for polytomous.

Based on framework<sup>(8-9)</sup>, the scores of the depression and anxiety scales were grouped into symptom levels. The presence of an association between these and participants' sociodemographic variables was verified by applying Fisher's exact test or Pearson's chi-square test. Throughout analysis, bilateral tests were adopted and 95% significance level.

### RESULTS

The study sample had 192 participants, whose mean age was 21.44 (± 3.56) years. Thus, 85.93% of participants were women. White race was predominant (56.77%), followed by mixed-race (25.52%). Of the total, most (52.1%) practiced physical exercise. Anxiolytic use was reported by 11.46%, and 81.77% did not use any psychotropic drug (Table 1).

The mean score on the depression scale was 22.40 (± 12.35), while on the anxiety scale it was 17.56 (± 11.98). As shown in Table 1, a statistically significant difference (p < 0.05) was identified in the mean of the depression and anxiety scale, between sexes and psychotropic drug use. For variable sex, the highest mean on the scales was related to sex female and for variable psychotropic drugs, despite the lower amount, to students using antidepressants and mood stabilizers.

On the depression scale, severe symptoms were the most frequent (30.73%), whereas on the anxiety scale, a minimal classification was predominant (30.21%). On both scales, there was a statistically significant difference (p < 0.001) for symptom levels (Table 2).

Table 3 shows severe symptoms of depression being predominant (28.13%) among female students, while minimal was the most frequent (6.77%) in men. In students who were between the 1<sup>st</sup> and the 5<sup>th</sup> course's semester, minimal symptomatology was shown in most of them (16.67%); between the 6<sup>th</sup> and the 10<sup>th</sup> semester, severe became predominant (18.22%).

According to the symptoms identified in the anxiety scale, female students presented, in the majority, a moderate and severe classification (36.46%); and male, minimal and light (10.42%). Psychotropic drug use was associated with symptoms on this scale (p < 0.001).

**Table 1** – Distribution of the total score of the scales by sociodemographic variables

Variable	Participants (%)	Depression Scale		Anxiety Scale	
		Mean (SD)*	p value <sup>§</sup>	Mean (SD)*	p value <sup>§</sup>
Sex					
Female	165 (85.93)	23.06(12.19)	0.037 <sup>§</sup>	18.06(11.69)	0.049 <sup>§</sup>
Male	27 (14.07)	18.40(12.78)		14.51(13.51)	
Race					
Black	31 (16.15)	25.32(13.48)	0.384 <sup>  </sup>	19.35(12.07)	0.064 <sup>  </sup>
Mixed-race	49 (25.52)	22.91(12.59)		20.83(12.99)	
Asian	2 (1.04)	18.5(9.19)		3(4.24)	
Indigenous	1 (0.52)	35		4	
White	109 (56.77)	21.30(11.93)		15.97(11.16)	
City					
Different from family's city	74 (38.55)	23.25(12.83)	0.53 <sup>§</sup>	18.28(12)	0.471 <sup>§</sup>
Same family's city	118 (61.45)	21.87(12.06)		17.11(12.01)	
Course semester					
1st to 5th	98 (51.04)	20.80(11.43)	0.111 <sup>§</sup>	15.74(10.18)	0.091 <sup>§</sup>
6th to 10th	94 (48.96)	24.07(13.09)		19.45(13.41)	
Physical activity					
None	92 (47.92)	20.93(12.37)	0.149 <sup>  </sup>	15.94(11.15)	0.188 <sup>  </sup>
Once a week	67 (34.90)	22.91(11.76)		18.88(13.50)	
Twice or more a week	33 (17.18)	25.48(13.15)		19.39(10.62)	
Use					
Alcohol	53 (27.60)	22.16(11.94)	0.819 <sup>  </sup>	16.75(11.04)	0.336 <sup>  </sup>
Cigarette/nicotine	7 (3.65)	22.1(9.87)		21.3(12.90)	
Marijuana	2 (1.04)	25.5(6.36)		27(2.82)	
None	130 (67.71)	22.45(12.61)		17.73(12.39)	
Psychotropic drug					
Antidepressant	8 (4.17)	31.37(17.43)	0.036 <sup>  </sup>	29(13.84)	0.016 <sup>  </sup>
Anxiolytic	22 (11.46)	18.90(11.14)		13(9.07)	
Mood stabilizer	3 (1.56)	42.66(10.06)		38.33(22.47)	
None	157 (81.77)	22.13(11.80)		17.22(11.47)	
Other	2 (1.04)	16(14.14)		17.5(3.53)	

Note: \*Standard deviation; §Mann-Whitney test; ||Kruskal-Wallis test.

**Table 2** – Symptom level classification

Symptom levels	Depression		Anxiety	
	Participants (%)	p value <sup>§</sup>	Participants (%)	p value <sup>§</sup>
Minimal	57 (29.69)	<b>&lt; 0.001<sup>§</sup></b>	58 (30.21)	<b>&lt; 0.001<sup>§</sup></b>
Mild	31 (16.14)		57 (29.69)	
Moderate	45 (23.44)		51 (26.56)	
Severe	59 (30.73)		26 (13.54)	

Note: <sup>§</sup>Kruskal-Wallis test.

**Table 3** – Distribution of depression symptom levels by sociodemographic variables

Variable	Minimal (%)	Mild (%)	Moderate (%)	Severe (%)	p value <sup>§¶</sup>
<b>Depression</b>					
Sex					
Female	44 (22.92)	27 (14.07)	40 (20.83)	54 (28.13)	0.166 <sup>§</sup>
Male	13 (6.77)	4 (2.08)	5 (2.60)	5 (2.60)	
Race					
Black	7 (3.65)	4 (2.08)	7 (3.65)	13 (6.77)	0.826 <sup>§</sup>
Mixed-race	15 (7.81)	6 (3.13)	13 (6.77)	15 (7.81)	
Asian	1 (0.52)	0	1 (0.52)	0	
Indigenous	0	0	0	1 (0.52)	
White	34 (17.71)	21 (10.94)	24 (12.50)	30 (15.62)	
City					
Different from family's city	22 (11.46)	9 (4.69)	19 (9.90)	24 (12.50)	0.670 <sup>§</sup>
Same family's city	35 (18.23)	22 (11.46)	26 (13.54)	35 (18.22)	
Course's semester					
1st to 5th	32 (16.67)	19 (9.90)	23 (11.98)	24 (12.50)	0.218 <sup>§</sup>
6th to 10th	25 (13.02)	12 (6.25)	22 (11.46)	35 (18.22)	
Physical activity					
None	32 (16.67)	17 (8.85)	18 (9.38)	25 (13.02)	0.519 <sup>§</sup>
Once a week	18 (9.37)	10 (5.21)	16 (8.33)	23 (11.98)	
Twice and more a week	7 (3.65)	4 (2.08)	11 (5.73)	11 (5.73)	
Use					
Alcohol	16 (8.34)	7 (3.65)	15 (7.81)	15 (7.81)	0.824 <sup>§</sup>
Cigarette	0	3 (1.56)	2 (1.04)	2 (1.04)	
Marijuana	0	0	1 (0.52)	1 (0.52)	
none	41 (21.36)	22 (11.46)	27 (14.06)	40 (20.83)	
Psychotropic drug					
Antidepressant	2 (1.04)	1 (0.52)	1 (0.52)	4 (2.08)	0.205 <sup>§</sup>
Anxiolytic	10 (5.21)	1 (0.52)	7 (3.65)	4 (2.08)	
Mood stabilizer	0	0	0	3 (1.56)	
None	44 (22.92)	29 (15.11)	36 (18.75)	48 (25.00)	
Other	1 (0.52)	0	1 (0.52)	0	
<b>Anxiety</b>					
Sex					
Female	46 (23.96)	49 (25.52)	48 (25)	22 (11.46)	0.145 <sup>§</sup>
Male	12 (6.25)	8 (4.17)	3 (1.56)	4 (2.08)	
Race					
Black	8 (4.17)	7 (3.65)	11 (5.73)	5 (2.60)	0.572 <sup>§</sup>
Mixed-race	12 (6.25)	14 (7.29)	14 (7.29)	9 (4.69)	
Asian	2 (1.04)	0	0	0	
Indigenous	1 (0.52)	0	0	0	
White	35 (18.23)	36 (18.75)	26 (13.54)	12 (6.25)	
City					
Different from family's city	20 (10.42)	22 (11.46)	22 (11.46)	10 (5.21)	0.835 <sup>§</sup>
Same family's city	38 (19.79)	35 (18.23)	29 (15.10)	16 (8.33)	
Course's semester					
1st to 5th	32 (16.67)	31 (16.15)	25 (13.02)	10 (5.21)	0.497 <sup>§</sup>
6th to 10th	26 (13.54)	26 (13.54)	26 (13.54)	16 (8.33)	
Physical activity					
None	34 (17.71)	24 (12.50)	23 (11.98)	11 (5.73)	0.322 <sup>§</sup>
Once a week	17 (8.85)	24 (12.50)	15 (7.81)	11 (5.73)	
Twice or more a week	7 (3.65)	9 (4.69)	13 (6.77)	4 (2.08)	
Use					
Alcohol	15 (7.81)	19 (9.90)	11 (5.73)	8 (4.17)	0.442 <sup>§</sup>
Cigarette	2 (1.04)	3 (1.56)	2 (1.04)	0	
Marijuana	0	0	2 (1.04)	0	
None	41 (21.35)	35 (18.23)	37 (19.27)	17 (8.86)	
Psychotropic drug					
Antidepressant	1 (0.52)	1 (0.52)	2 (1.04)	4 (2.08)	0.033 <sup>§</sup>
Anxiolytic	1 (0.52)	8 (4.17)	4 (2.08)	1 (0.52)	
Mood stabilizer	0	1 (0.52)	0	2 (1.04)	
None	50 (26.05)	48 (25.00)	46 (23.96)	21 (10.94)	
Other	0	1 (0.52)	1 (0.52)	0	

Note: <sup>§</sup>Fisher's exact test; <sup>¶</sup>Pearson's chi-square test.

## DISCUSSION

Stimuli or events related to anxiety or depression symptoms in nursing students may or may not be linked to the academic environment<sup>(5)</sup>. Symptom manifestations involve cognitive, behavioral, physiological and emotional reactions that require individual assessment by a specialized professional<sup>(10)</sup>.

A statistically significant difference was identified in the mean of the scores for signs of depression and anxiety between the sexes and for people using psychotropic drugs. The scientific literature has described that, in addition to adaptive factors, the competitive educational environment and dealing with sick people, women are exposed to a greater proportion to specific variables that favor the development of disorders, such as cultural, social and hormonal fluctuations<sup>(10-13)</sup>. In this regard, a meta-analysis<sup>(14)</sup> highlighted the prevalence of psychiatric disorders among female students in the undergraduate nursing program, without, however, identifying the directly related variables, in addition to cultural and biological aspects. Therefore, more comparative studies are needed to examine the difference between the sexes and investigate the presence of specific factors and possible triggers of psychological disorders in this population<sup>(14)</sup>.

Concerning psychotropic drugs, although they act in changes in behavior, mood or other mental functions to improve or stabilize disorders, signs of depression and anxiety were found in people who use these medications, with emphasis on mood stabilizers and antidepressants. Even though there is no clear explanation in the context of this population, studies have described the high prevalence of self-medication in the health field, linked to incorrect medication use or inadequate dose for the alleged psychological changes<sup>(12,15-16)</sup>. On the other hand, an investigation identified that nursing students preferred to consult people close to them to seek specialized help for symptoms of mental disorders<sup>(17)</sup>. The belief in spontaneous resolution of the problem or the search for unskilled help

increases the risk of underestimating important symptoms and worsening of the condition<sup>(17-19)</sup>.

With regards to other psychoactive substance consumption, there was a prevalence of alcohol, followed by nicotine and marijuana. However, the frequencies were lower than a similar study carried out with psychology students from northeastern Brazil, which identified alcohol consumption in 43.97% of participants, followed by marijuana and cigarettes with 18.6% and 9.48%, respectively<sup>(20)</sup>. A Spanish multicenter study carried out with 4381 nursing students identified that 29.7% were smokers, 11.5% used marijuana and men were more likely to use cigarettes and/or marijuana than women<sup>(21)</sup>. Despite the variation presented in the studies, the literature has highlighted the prevalence of high alcohol, nicotine and marijuana consumption among undergraduate students, but the socio-cultural, climatic or economic differences may be related to this variation<sup>(17, 22-23)</sup>. An investigation carried out with 182 Brazilian nursing students identified that 56.6% had used alcohol in the last 30 days preceding the research, 11% were smokers, 54.5% had a mean level of nicotine dependence and 10.4% had already tried some illicit drug<sup>(19)</sup>.

Researches<sup>(23-24)</sup> have considered undergraduate students as a risk group for psychoactive substance use, considering that they produce transient relief effects in the symptoms of psychological disorders. In undergraduate nursing, illicit substance use has been linked to the search for relaxation, fun and pleasure<sup>(25)</sup>. On the other hand, the chronic use of these substances, especially alcohol, has been related to withdrawal syndromes, lack of concentration, reduced academic performance and exacerbation of symptoms of anxiety and depression<sup>(18-23, 25)</sup>. Although there are few specific investigations for nursing students, psychoactive substances induce tolerance and dependence on increasing doses to achieve desired effects<sup>(19)</sup>.

The mean of signs of depression identified in the general population of undergraduate students has reached rates of 35% to 39%, while anxiety reaches 18% to 24%<sup>(26-27)</sup>. When analyzing the frequency of severe signs of depression and anxiety in relation to the semesters of the course, students who were between the 6<sup>th</sup> and 10<sup>th</sup> semester were the most affected. The frequency of minimal signs of depression and anxiety was more common among students from the 1<sup>st</sup> to the 5<sup>th</sup> semester. These data contrast with studies that describe a higher frequency of signs of severe psychological disorders in students of the first semesters, considering that adaptive and problem management strategies are more common to undergraduate students<sup>(6)</sup>.

When analyzing the frequency of severe signs of depression and anxiety in relation to the semesters of the course, students who were between the 6<sup>th</sup> and 10<sup>th</sup> semester were the most affected. The frequency of minimal signs of depression and anxiety was more common among students from the 1<sup>st</sup> to the 5<sup>th</sup> semester. These data contrast with studies that describe a higher frequency of signs of severe psychological disorders in students of the first semesters, considering that adaptive and problem management strategies are more common to undergraduate students<sup>(3, 6, 26-27)</sup>. On the other hand, when approaching the end of the course, the nursing student assumes greater responsibilities, clinical and managerial demands, based on which a gradual acquisition of autonomy is expected<sup>(28-29)</sup>. A research carried out with medical

students states that the transitional process for professional life can also contribute to the increase of signs and symptoms of anxiety and depression<sup>(11)</sup>. A study developed with 1,538 Chinese nursing students reported high levels of stress and psychological morbidity in graduates of the course. The signs and symptoms were linked to late exposure to the clinical environment, combined with academic responsibilities and future professional expectations<sup>(30)</sup>.

Faced with tension processes and signs of psychological disorders, factors considered protective, such as leisure activities, physical exercise, support networks are important in emotional management<sup>(5, 7, 24, 26)</sup>. It is worth mentioning that most research participants practiced physical exercises once or more during the week and reported living in the same city as the family. Investigations<sup>(29, 31-32)</sup> have described a higher prevalence of signs of depression and anxiety in undergraduate students who do not exercise, as well as those who have a precarious support network. Therefore, students who engage in regular physical exercise programs have shown higher levels of psychological well-being, relaxation, positive emotions and a lower incidence of severe anxiety and depression<sup>(17, 33)</sup>. In this regard, universities play an important role in preventing depression, anxiety and other disorders by offering physical activity, social and psychological support programs.

### Study limitations

The limitation of this research is the punctual assessment of symptoms of anxiety and depression, without monitoring the possible variations throughout the course. Moreover, the investigation focused on a single undergraduate nursing course.

### Contributions to nursing and health

This study contributes with data that support new research, coping strategies and support for undergraduate students, as it signals vulnerabilities responsible for the symptoms of depression and anxiety. Among the strategies for promotion and prevention at universities, the offer of physical activity, social and psychological support programs stand out.

### CONCLUSION

It was possible to identify that the symptoms of depression and anxiety in nursing students were associated with female gender and psychotropic drug use. We identified symptoms of anxiety and depression in both sexes; however, for female students, severe symptoms of depression were predominant; in those of males, minimal was the most frequent. In students between the 6<sup>th</sup> and 10<sup>th</sup> semester, severe symptoms figured prominently.

We highlight the importance of longitudinal studies that allow to deepen the understanding of the signs of depression and anxiety throughout nursing graduation as well as systematic reviews that summarize the evidence in this field.

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