Allana Allitsa da Costa Bento[1]
Monnik Helles Pereira Correia Higino[2]
Andréia Guedes Oliva Fernandes[3]
Talita de Cássia Raminelli da Silva[4]

Factors Related to Depressive Symptoms in University Students

Theme: Promotion and prevention.

Contribution to the subject: This study contributes to the Nursing and Health areas by enabling a reflection about depressive symptoms and their associated factors in university students. Consequently, it provides more grounds for Nursing care assistance regarding the development of strategies for health promotion and prevention.

ABSTRACT

Objective: To identify and discuss the frequency of depressive symptoms and their associated factors in university students. **Materials and method:** This is a cross-sectional and descriptive study with a quantitative approach, conducted in a Higher Education Institution. The study was developed with a convenience sample consisting of 571 undergraduate students from different areas. A questionnaire was used to collect sociodemographic/academic data, as well as depressive symptoms and their associations, life habits, emotional aspects, and possible eating disorders. For data analysis, descriptive statistics and Pearson's chi-square test were used for associations, with a significance level of 5 % (p-value $\leq$ 0.05). **Results:** The university students presented depressive symptoms such as sleep disorders (61.1 %) and reduced self-confidence (50.9 %). There was an association of depressive symptoms with the course, satisfaction with academic performance, obesity, consumption of sugars and sweets, and practice and frequency of physical activity. **Conclusions:** It is expected that the results of this research contribute to the population's critical and reflective thinking to expand visibility and scientific studies referring to the theme, as well as to increase resources for the management of mental health and reduce the stigmas generated.

KEYWORDS (Source: DeCS)

Depression; students; higher education; signs and symptoms; health behavior.

DOI: 10.5294/aqui.2021.21.3.5

To reference this article / Para citar este artigo / Para citar este artículo
Bento AAC, Higino MHPC, Fernandes AGO, Raminelli da Silva TC. Factors related to depressive symptoms in university students. Aquichan. 2021;21(3):e2135. DOI: https://doi.org/10.5294/aqui.2021.21.3.5

1 ✉ https://orcid.org/0000-0003-0908-7379. Centro Universitário Euro-americano, Brazil. allana35649@unieuro.com.br
2 http://orcid.org/0000-0002-6016-9647. Centro Universitário Euro-americano, Brazil. monnik36732@unieuro.com.br
3 https://orcid.org/0000-0001-5584-5658. Centro Universitário Euro-americano, Brazil. andreia003470@unieuro.com.br
4 https://orcid.org/0000-0002-9181-8478. Centro Universitário Euro-americano, Brazil. talita003788@unieuro.com.br

Received: 12/08/2020
Sent to peers: 07/09/2020
Approved by peers: 17/04/2021
Accepted: 02/08/2021

Factores relacionados con los síntomas depresivos en estudiantes universitarios

RESUMEN

Objetivo: identificar y discutir la frecuencia de los síntomas depresivos y sus factores asociados en estudiantes universitarios. **Materiales y método:** se trata de un estudio transversal, descriptivo con enfoque cuantitativo, realizado en una institución de educación superior. El estudio se desarrolló a partir de un muestreo de conveniencia con 571 estudiantes de diferentes facultades. Se utilizó cuestionario para recolectar los datos sociodemográficos/académicos, de la sintomatología depresiva y sus asociaciones, los hábitos de vida, los aspectos emocionales y los posibles disturbios alimenticios. Para el análisis de los datos, se emplearon la estadística descriptiva y la prueba de Qui-Cuadrado de Pearson para asociaciones, con nivel de significancia del 5 % (valor $p \leqq 0{,}05$). **Resultados:** los universitarios presentaron sintomatología depresiva como sueño perturbado (61,1 %) y autoconfianza reducida (50,9 %). Hubo asociación de la sintomatología depresiva con el grado, con la satisfacción del desempeño académico, con el sobrepeso, con el consumo de azúcares y dulces, con la práctica y la frecuencia de actividad física. **Conclusiones:** se espera que los resultados de la investigación puedan aportar al pensamiento crítico y reflexivo de la población, con el intuito de expandir la visibilidad y los estudios científicos sobre la temática, así como aumentar los recursos para la gestión de la salud mental y disminuir los estigmas generados.

PALABRA CLAVE (Fuente: DeCS)

Depresión; estudiantes; educación superior; signos y síntomas; conductas relacionadas con la salud.

Fatores relacionados à sintomatologia depressiva em universitários

RESUMO

Objetivo: identificar e discutir a frequência da sintomatologia depressiva e seus fatores associados em estudantes universitários. **Materiais e método:** trata-se de um estudo transversal, descritivo com abordagem quantitativa, realizado em uma instituição de ensino superior. O estudo foi desenvolvido por amostra de conveniência com 571 estudantes de graduação de diferentes áreas. Utilizou-se um questionário para a coleta de dados sociodemográficos/acadêmicos, da sintomatologia depressiva e suas associações, dos hábitos de vida, dos aspectos emocionais e dos possíveis distúrbios alimentares. Para a análise dos dados, utilizaram-se a estatística descritiva e o teste de Qui-Quadrado de Pearson para associações, com o nível de significância de 5 % (valor $p \leq 0,05$). **Resultados:** os universitários apresentaram sintomatologia depressiva como sono perturbado (61,1 %) e autoconfiança reduzida (50,9 %). Houve associação da sintomatologia depressiva com o curso, com a satisfação do rendimento acadêmico, com a obesidade, com o consumo de açúcares e doces, com a prática e a frequência de atividade física. **Conclusões:** espera-se que os resultados desta pesquisa possam contribuir para o pensamento crítico e reflexivo da população, a fim de expandir a visibilidade e os estudos científicos referentes à temática, bem como de aumentar os recursos para o manejo da saúde mental e diminuir os estigmas gerados.

PALAVRAS-CHAVE (Fonte: DeCS)

Depressão; estudantes; educação superior; sinais e sintomas; comportamentos relacionados com a saúde.

Introduction

Depression is a public health problem and one of the causes of disabilities in social life (1), where it affects approximately 322 million people worldwide (2). In Brazil, this figure is over 11.5 million individuals, and diverse evidence points out an increase in the prevalence of this pathological process in university students (3, 4).

Depression is understood as a multi-factorial pathological process, which encompasses biopsychosocial and spiritual aspects. This disease is characterized by losses in mood balance, a complete absence of interest, sleep alterations, anxiety, decreased concentration, excessive guilt, feelings of worthlessness and periodic thoughts of death and suicide, among other signs, and symptoms, which result in negative consequences in the process of professional training during undergraduate (1, 3, 5).

As a result of the significant academic overload and the increasingly competitive environment, these signs and symptoms are common in the university environment, which predisposes students to various stressors that can configure triggering factors for depression (6). After entering academic life, the following are emphasized as stressful elements that predispose this population: significant emotional instability, heavy study load, academic requirements, fears about future instability and change in the individual's daily routine, bad habits and unruly lifestyle, as well as carelessness in performing basic care with their own health (7-11).

Considering that depression is a public health problem on the rise, whose high prevalence in university students results in harm during undergraduate and life, such as social withdrawal, disinterest in curricular activities, and even dropping out of the course, it is relevant to explore the factors associated with this mental disorder in this population to expand scientific knowledge on the theme and to reflect on the importance of thinking about strategies to promote the students' mental health in the academic environment (1, 3, 12, 13). Given the above, this study has the following guiding question: "Which factors are related to depressive symptoms in university students of a Higher Education Institution (HEI) in the Federal District?". In addition to that, the objective is to identify and discuss the frequency of depressive symptoms and their associated factors in university students.

Materials and method

Study type or design

This is a descriptive and cross-sectional study with a quantitative approach.

Locus and period

The study was conducted in three units of an HEI in Brasília, Brazil. Data collection took place between April and May 2019.

Population

Undergraduate students. During the data collection period, the HEI had 5,507 university students enrolled in different undergraduate courses: Administration, Architecture and Urbanism, Accounting Sciences, Law, Physical Education, Nursing, Civil Engineering, Pharmacy, Physiotherapy, Environmental Management, Medicine, Nutrition, Dentistry, Gastronomy, Language and Linguistics, Information System, Public Management Technology, Human Resource Management Technology, Pedagogy, Financial Management Technology, Logistics Technology, Environmental Management Technology, Marketing Technology, Management Process Technology, Data Processing, and Psychology.

Selection criteria

As participants, students with a regular enrollment in the HEI and aged between 18 and 60 years old were included. University students diagnosed with depression and/or using an antidepressant, anxiolytic and psychotropic medications, in general, were excluded since the objective of the study was to identify the depressive symptoms and not the established disease, in which these medications could alter the signs and symptoms presented by the students, which could lead to biases in the study.

Participants

The participants were 571 undergraduate students from Administration, Architecture and Urbanism, Accounting Sciences, Law, Physical Education, Nursing, Civil Engineering, Pharmacy, Physiotherapy, Environmental Management, Medicine, Nutrition, Dentistry, and Psychology. It is emphasized that the sample was for convenience.

Study variables

Gender, occupation, affective relationship, course, semester, individual and family income, life habits, emotional factors and possible eating disorders were the variables studied to verify the association between them and depressive symptoms in the students.

Instruments used to collect the information

A questionnaire was used consisting of 22 questions corresponding to sociodemographic characteristics (age, gender, emotional relationship, occupation, individual and family income); life habits (eating habits, practice of physical activity, use of illicit and licit substances, water intake); emotional factors (level of satisfaction with affective relationships); possible eating disorders (bulimia, obesity, anorexia, underweight); academic factors (school, course, semester, level of satisfaction with academic performance) and depressive symptoms, as well as their associations (depressed mood, reduced concentration/attention, feeling of guilt, suicidal ideation, ideation of self-mutilation, loss of interest, feeling of worthlessness, reduced self-esteem, reduced self-confidence, pessimistic view of the future, sleep disorders, fatigue, and decreased appetite), according to the *Diagnostic and Statistical Manual of Mental Disorders* (1).

It is noteworthy that this questionnaire was developed by the researchers based on the *Diagnostic and Statistical Manual of Mental Disorders* (1) and on the Patient Health Questionnaire-9 (PHQ9), an instrument validated and adapted in Brazil (14-16) and used in one of the stages of the larger research project to which the current study belongs.

Data collection

The questionnaires were applied by duly trained undergraduate female students, from the research team, linked to a scientific initiation project of the HEI. Data collection took place at the institution's premises, in places with the greatest circulation of students, such as food court, library, corridors, parking lot and classrooms, through an active search and in agreement with the professor, when performed in a classroom. The questionnaire was self-administered, and the meantime for its completion was 20 minutes.

Data treatment and analysis

The descriptive data analysis was performed in the Statistical Package for the Social Sciences (SPSS) software, version 21.0, to identify the frequency, median and interquartile range, as well as the valid percentage of the variables. To associate the sociodemographic, emotional, academic and life habits variables with the presence of depressive symptoms, the Pearson's Chi-Square test was used, with a statistical significance level of $p < 0.05$.

Ethical aspects

Data collection took place upon approval by the Research Ethics Committee, under Certificate of Presentation for Ethical Appreciation protocol number 08598819.4.0000.505, following with the ethical precepts stipulated in Resolution 466/2012 (17) and the necessary institutional authorizations. The Free and Informed Consent Form (FICF) was handed into all the study participants for them to read: such document informed them about the study topic, objective and justification, the responsible researchers, the benefits of the project (contributing to knowledge about depressive symptoms and their associated factors in the population of students and thus stimulate awareness-raising in society about the prevention, promotion and restoration of mental health in this population), as well as the risks of this research (feeling of possible discomfort, embarrassment or fatigue in the participant when answering the questionnaire), as well as how such risks could be minimized. The participants could answer the questionnaire in their own time, sitting comfortably and, if they presented any discomfort, they could stop participating, and the researchers would be available to talk to and, if necessary, guide the participants to seek professional help, according to their possibilities. This document was elaborated in two copies: one to be kept by the researcher in charge and the other, by the research volunteer.

The FICF requested permission to use the data provided by the participant and ensured confidentiality of the information, in addition to the freedom to refuse to answer any question in the questionnaire and/or instrument that would cause them embarrassment or to withdraw at any time during the study. Data collection was initiated immediately after signature by the participants, when accepting to participate in the study.

Results

A total of 571 students participated in the research, with predominance of the female gender, 66.5 % (n = 356; p* = 0.38), and a median age of 21 years old (from 18 to 58 years old). The university students were mostly single, 49.3 % (n = 267; p* = 0.19); students, 70.7 % (n = 384; p* = 0.14); had no individual monthly income, 47.7 % (n = 255; p* = 0.31); and 36.8 % (n = 196; p* = 0.55) indicated a monthly family income of one to three minimum wages.

Regarding the course, 27.7 % (n = 157) of the students were enrolled in Nursing; 20.5 % (n = 116), in Law; 12.3 % (n = 70), in Dentistry; 9.2 % (n = 52), in Physical Therapy; 8.3 % (n = 47), in Physical Education; 4.8 % (n = 27), in Pharmacy; 4.1 % (n = 23), in Architecture and Urbanism; 3.9 % (n = 22), in Civil Engineering; 3.4 % (n = 19), in Psychology; and 3.2 % (n = 18), in Nutrition. The undergraduate courses in Administration, Accounting Sciences and Medicine presented a percentage of 0.9 % (n = 5 each) and the value for Environmental Management was 0.2 % (n = 1).

As for the semester, 23.5 % (n = 125) of the university students reported being in the third undergraduation semester; 18.9 % (n = 101), in the first semester; 14.1 % (n = 75), in the seventh semester; 12.9 % (n = 69), in the ninth semester; 8.4 % (n = 45), in the fifth semester; 7.9 % (n = 42), in the eighth semester; 5.1 % (n = 27), in the sixth semester; 3.4 % (n = 18), in the second; 3.2 % (n = 17), in the tenth; and 2.6 % (n = 14), in the fourth semester.

In relation to the life habits, it was observed that most of the students, 59 % (n = 319; p* = 0.23), stated following a partially healthy diet, but 43.7 % (n = 237) reported frequent consumption of sugars and sweets. It was evidenced that 89.8 % (n = 434) of the participants denied obesity, that 64.9 % (n = 326; p* = 0.30) reported no eating disorders during their lifetime, and that 53.5 % (n = 272; p* = 0.58) of the participants denied using chemical substances. Regarding practice of physical activity, 50.7 % (n = 274) of the participants stated adherence, although with low frequency, with 35.8 % (n = 191).

Concerning satisfaction in interpersonal relationships, 51.2 % (n = 274; p* = 0.79) of the students indicated satisfaction with their friends; 41.8 % (n = 225; p* = 0.36), with their family members, and 38.1 % (n = 199; p* = 0.64), with their affective relationships. In relation to the academic setting, 47 % (n = 255) reported little satisfaction. Of the university students who stated having some professional/employment contract, 33.9 % (n = 133; p* = 0.97) reported satisfaction with the work environment.

Table 1 presents the frequency of depressive symptoms among university students.

Table 1. Frequency of depressive symptoms among university students. Brasília, Distrito Federal, Brazil, 2020

Depressive symptoms	N (%)
Depressed mood	
Yes	217 (40 %)
No	325 (60 %)
Loss of interest	
Yes	211 (38,9 %)
No	331 (61,1 %)
Fatigue	
Yes	263 (48,5 %)
No	279 (51,5 %)
Reduced concentration/attention	
Yes	195 (36 %)
No	347 (64 %)
Reduced self-esteem	
Yes	226 (41,7 %)
No	316 (58,3 %)
Reduced self-confidence	
Yes	276 (50,9 %)
No	266 (49,1 %)
Feeling of guilt	
Yes	268 (49,4 %)
No	274 (50,6 %)
Feeling of worthlessness	
Yes	229 (42,3 %)
No	313 (57,7 %)

Depressive symptoms	N (%)
Pessimistic view about the future	
Yes	196 (36,2 %)
No	346 (63,8 %)
Suicidal ideation	
Yes	33 (6,1 %)
No	509 (93,9 %)
Sleep disorders	
Yes	331 (61,1 %)
No	211 (38,9 %)
Reduced appetite	
Yes	85 (15,7 %)
No	457 (84,3 %)
Ideation of self-mutilation	
Yes	09 (1,7 %)
No	533 (98,3 %)

Source: Own elaboration.

Regarding the depressive symptoms, 59.7 % (n = 323; p* = 0.41) and 55.0 % (n = 295) of the university students stated the influence of the semester and the course, respectively, on the negative feelings. With the analysis of Pearson's Chi-square test, it was possible to notice an association between depressive symptoms and some of the variables under study, which are presented in Table 2.

Table 2. Association between the academic and health variables and depressive symptoms in university students. Brasília, Distrito Federal, Brazil, 2020

Variable	p*
Course	0.01
Obesity	0.02
Consumption of sugars and sweets	0.02
Frequency of physical activity	0.02
Physical activity	0.05
Satisfaction with academic performance	0.05

p* = Pearson's Chi-square test
Source: Own elaboration.

As for the interest in participating in activities aimed at mental health, 84.3 % (n = 451; p* = 0.67) of the students showed interest if such activities were offered by the institution and 81.4 % (n = 438; p* = 0.91) of the participants agreed that promoting mental health in the university environment would be beneficial for their quality of life.

Discussion

In agreement with the results presented in the current study about the predominance of females in terms of depressive symptoms, Flesch et al. (18) carried out a cross-sectional study with 1,825 students, aiming to assess the prevalence of major depressive episodes in students, and reported that 55.1 % (n = 1005) of the participants were women. Other studies also point out such similarity (3, 5, 19, 20).

In the Brazilian context, the insertion of women in the academic setting, concerning men, is a recent episode in history and, in the 2000s, a reversal was evidenced as to the number of students, in which 60 % of the university graduates were women (21, 22). Such situation can elucidate the frequency of the female gender in the study.

Although this study does not show any significance between the gender variable and depressive symptoms, it is noted that, generally, the number of women affected by the depressive process is higher than in men. Such phenomenon can be explained due to women's vulnerability, by their own physiologicals issue (mood swings due to hormonal interference) and by their role in countless social roles (maternal, professional, marital), which can often be stressful and contributing factors to the depressive process (12, 23).

About depressive symptoms, sleep disorders and reduced self-confidence were the symptoms most frequently mentioned by the participants, resulting in complications in their lives. Such result is similar to other scientific evidence (3, 5, 24, 25).

A cross-sectional study carried out in an HEI from Ceará with 649 students attending health courses and to evaluate the prevalence and factors associated with depression and anxiety identified, among the results, the participants' dissatisfaction with sleep quality and a high tendency for the onset of the depressive process among them (5). Galvão et al. (26) indicate that sleep dis-

orders can result in impaired concentration and attention, fatigue and other pathologies.

As for reduced self-confidence, understood as an individual's limited perception of their ability to believe in the success of their actions (27), there are similarities with results presented by other studies (28, 29). A descriptive study carried out in an HEI from the Federal District with a sample of 91 Nursing students related to fear of dealing with patients with the practical teaching-learning process experienced by the university students, as well as situations of insecurity in their professional activity (29).

In addition, the quantitative study by Nogueira (28), carried out in an HEI from Belo Horizonte with 70 university students attending courses in the areas of Humanities and Social Sciences, associated the students' feelings of vulnerability and insecurity with the uncertainties about the professional market and with social ascension. According to Menezes et al. (30), the development of critical and reflective thinking in the academic environment allows influencing the improvement of the transition from theoretical to practical knowledge, to ensure self-confidence in the professional performance.

It is understood that a way to minimize these feelings of vulnerability and insecurity in the university students would be the use of active methodologies in undergraduate courses, as proposed in the National Curriculum Guidelines for the Nursing course (31). The active methodology allows the students to act as protagonists in the development of their training since, by getting involved in the teaching-learning process, instead of being mere receivers of knowledge, they acquire cognitive, procedural and attitudinal skills for the development of critical and reflective thinking (32, 33).

This study indicated the course as a significant factor for the development of depressive symptoms in university students. In a quantitative and analytical study carried out in a public institution from Brasília with 203 Nursing students and to measure the levels of depressive symptoms among the students, in addition to evaluating their association with academic life factors, Facioli et al. (34) evidenced certain depressive predisposition with the course, due to the significant dedication to the workload by the students, in addition to being associated with a limitation of the time available to perform physical and leisure activities.

Another descriptive study by Victoria et al. (35), conducted in a public university from Rio de Janeiro with a sample of 637 students and referring to courses in the areas of Biomedical Sciences, Social Sciences, Education and Humanities, Technologies and Science, identified depressive rates in the students attending the courses in the aforementioned areas, with high levels in students from the Language and Linguistics course. Diverse scientific evidence also point to depressive predisposition associated with the course, with an emphasis on academic overload, mainly in the health area courses; for example, during the internships, when the students are faced with the health-disease process and address the life and death duality (20, 24, 35).

Regarding satisfaction with academic performance, this study presents significant values similar to the study by Flesch et al. (18), which evidenced an association between academic performance ($p^* = < 0.001$) and depressive symptoms. According to Victoria (35), academic performance can be impaired due to the demands, along with the strong emotional strain and the intense academic routines.

The results of the study by Bresolin et al. (20) corroborate those of the present study, regarding the association between academic performance and the prevalence of depressive symptoms, which can compromise daily and personal issues. In addition to that, these researchers indicate that the possibility of developing a pessimistic and negative outlook in university students can cause them distress and contribute to the onset of depression.

The practice and frequency of physical activity were also factors that presented significance concerning depression, according to what is pointed out in diverse scientific evidence (5, 20, 36). A quantitative and observational study, carried out through an online questionnaire and applied in a social network with students from the Physical Education course, with a sample of 155 participants, revealed an association of depressive symptoms with low frequency of physical activity and showed that students who exercise for more than 150 minutes per week were less likely to develop depressive symptoms (37).

It is revealed that the practice of physical activity has a direct effect on the individuals' life cycle because, due to the production of endorphin and serotonin, neurotransmitters responsible for the feeling of pleasure and well-being, it interferes with sleep quality, promotes physical and psychological well-being, guarantees an increase in self-esteem, and helps maintain homeostasis and

prevent complications. In addition to that, the practice of physical activity is understood as an opportunity for social mingling and works as a therapeutic agent against depression (5).

In relation to the consumption of sugars and sweets by university students, diverse scientific evidence has pointed, as in this study, to an association between depression and high-energy foods, classified as emotional eating, as they are probably eaten compulsively during the manifestation of depressive symptoms. An observational cohort study (Nutri-Net-Santé), carried out in France and which monitored 30,240 participants, revealed a strong relationship between emotional eating and depressive symptoms in women, for foods such as cakes, cookies, sweets and artificially sweetened chocolates, among others (38).

It is noteworthy that excessive consumption of these foods judged as comforting can lead to serious health problems, such as the development of chronic diseases like systemic arterial hypertension, diabetes *mellitus* and obesity (1, 39, 40). This study revealed an association between obesity and depressive symptoms, following others found in the literature. In a cross-sectional research study carried out in the Netherlands with 2,809 participants to examine the association between depressive disorders, anxiety, obesity, physical activity and social activity, Wit et al. (41) highlighted bilaterality between obesity and depression, that is, obesity contributes to the development of the depressive process and vice versa.

Santos et al. (42) suggest that body weight and compulsive eating in unfavorable situations can be associated, in addition to generating negative feelings. Obesity leads to complications in brain structures such as the hypothalamus, responsible for satiety, the hippocampus, related to memory and learning, and the prefrontal cortex, associated with the reward system. Such disorders in these structures can favor the emergence of cognitive and mental problems, such as depression (43).

It is understood that health promotion strategies are fundamental to prevent cognitive and mental problems such as depression (19). In this study, for example, the university students stated their interest in participating in activities aimed at mental health, offered by the school, in addition to asserting the importance of health promotion in the university environment.

Such results disclosed in this study can contribute for students and other members of the academic population to reflect on the importance of the existence of health promotion and prevention actions in the academic environment, as well as to encourage them to participate in existing programs and/or even create health strategies within the educational institutions to which they are linked.

The literature emphasized that the use of strategies for health promotion and prevention in the university setting exerts a positive influence on the students' mental health. After applying these strategies, improvements are noticed in social relationships, balance in the daily activities, and reduction in the risk behavior among the students (44, 45).

In synthesis, it is observed that this study attained the objective proposed. As described, the results can contribute to advances in scientific knowledge in the Health and Nursing areas, considering that data generation and their interpretation by researchers is the basis for the creation of strategies for the promotion, prevention, treatment and recovery of the population's health.

Although there are references in the literature about depressive symptoms, such as reduced self-confidence and the association found between the consumption of sugars and sweets and depression, they are outdated. Consequently, it is recommended to intensify studies on the theme addressed.

It is emphasized that the limitations of this research were as follows: the non-probabilistic sampling field, by convenience, and the difficulty accessing university students attending the last semester who were in the internship periods of their courses and, therefore, were not in the places where data collection was conducted.

Conclusions

Characterized as a multi-factorial pathological process, it is considered that depression can trigger negative interferences in the academic training process. According to what has been described, the university students presented a high frequency of depressive symptoms, such as sleep disorders (61.1 %) and reduced self-confidence (50.9 %).

It was verified that the depressive symptoms presented by the students are associated with academic factors due to academic overload and to the tensions experienced at the university, as well as to the life habits regarding binge/emotional eating and the reduction of the time available for physical activities. Variables such as the course, satisfaction with academic performance, obesity,

consumption of sugars and sweets, and the practice and frequency of physical activity influenced the emergence and exacerbation of depressive symptoms in students in the current study.

It is expected that the results of this research may contribute to the critical and reflective thinking of the population in general, specifically, the studied population (health professionals and researchers), to increase visibility and promote scientific research studies about this disease, as well as to increase resources for the management of mental health and reduce the stigma generated.

Conflict of interests: None declared.

References

1. American Psychiatric Association Diagnostic and statistical manual of mental disorders: DSM-IVTR. 4ª ed. Washington, DC: American Psychiatric Association; 2000.
2. World Health Organization (WHO). Depression and other common mental disorders — Global health estimates; 2017. Available from: http://apps.who.int/iris/bitstream/10665/254610/1/WHO-MSD-MER-2017.2-eng.pdf?ua = 1
3. Fernandes MA, Vieira FER, Silva JS, Avelino FVSD, Santos JDM. Prevalence of anxious and depressive symptoms in college students of a public institution. Rev Bras Enferm. 2018;71(5):2198-2304 DOI: https://doi.org/10.1590/0034-7167-2017-0752
4. Gonçalves AMCG, Teixeira MTB, Gama JRA, Lopes CS, Silva GA *et al.* Prevalence of depression and associated factors in women covered by Family Health Strategy, Jornal Brasileiro de Psiquiatria. 2018;67(2):102-9. DOI: https://doi.org/10.1590/0047-2085000000192
5. Leão MA, Gomes IP, Ferreira MJM, Cavalcanti LPG. Prevalence and factors associated with depression and anxiety among university students in the field of health in a large urban center in the Northeast of Brazil. Revista Brasileira de Educação Médica [internet]. 2018; 42(4):55-65. DOI: https://doi.org/10.1590/1981-52712015v42n4rb20180092
6. Lamis DA, Ballard ED, Maio AM, Dvorak RD. Depressive symptoms and suicidal ideation in college students: The mediating and moderating roles of hopelessness, alcohol problems, and social support. J Clin Psychol [internet]. 2016;72(9):919-32. DOI: https://doi.org/10.1002/jclp.22295
7. Bolsoni-Silva AT, Loureiro SR. The Impact of social skills on depression of university students. Psic.: Teor. e Pesq. 2017;32(4):1-8. DOI: https://doi.org/10.1590/0102.3772e324212
8. Chatterjee S, Saha I, Mukhopadhyay S, Misra R, Chakraborty A, Bhattacharya A. Depression among nursing students in an Indian government college. Ir. J Nurs [internet]. 2014;23(6):316-20. DOI: https://doi.org/10.12968/bjon.2014.23.6.316
9. Cavestro JM, Rocha FL. Depression prevalence among university students. J. bras. Psiquiatr. 2006;55(4):264-7. DOI: https://doi.org/10.1590/S0047-20852006000400001
10. Brondani MA, Hollerbach MD, Silva GP, Pinto ER, Corrêa AS. Depression in undergraduate students: The connection of risk factors and protective measures in the university environment. Disciplinarum Scientia. Série: Ciências da Saúde. 2019;20(1):137-49. Avaliable from: https://periodicos.ufn.edu.br/index.php/disciplinarumS/article/view/2629/2385
11. Gomes LSA, Souza MA. Avaliação dos fatores de risco para condições crônicas nos estudantes de enfermagem do Centro acadêmico de Vitória de Santo Antão-PE. Rev. Cienc. Saúde Nova Esperança. [internet]. 2017;15(2):40-9. Disponível em: https://revista.facene.com.br/index.php/revistane/article/view/43/52
12. Brandtner M, Bardagi M. Depression and anxiety symptomatology in students from a private university from Rio Grande do Sul. Gerais: Rev. Interinst. Psicol. [internet]. 2009; 2(2):81-91. Available from: http://pepsic.bvsalud.org/scielo.php?script = sci_arttext&pid = S1983-82202009000200004&lng = pt
13. Paula AJ, Borges AMFS, Bezerra RA, Parente HV, Paula RCA *et al.* Prevalence and factors associated with depression in medical students. Rev Bras de Crescimento e Desenvolvimento humano. 2014;24(3):274-81. DOI: https://doi.org/10.7322/jhdg.88911

14. Kroenke K, Spitzer RL, Williams JBW. The PHQ-9: Validity of a brief depression severity measure. Patient Health Questionnaire (PHQ) Screeners. 2001;16:611-3. DOI: https://doi.org/10.1046/j.1525-1497.2001.016009606.x

15. Araujo TCCF *et al*. Avaliação de ansiedade e depressão em pacientes oncológicos: comparação psicométrica. Universidade de São Francisco, Programa de Pós-Graduação *Stricto Sensu* em Psicologia-Psico-USF. Bragança Paulista; 2014;19(2):187-97. DOI: https://doi.org/10.1590/1413-82712014019002004

16. Almeida LSP *et al*. Sensibilidade e especificidade do Patient Health Questionnaire-9 (PHQ-9) entre adultos da população geral. Caderno saúde pública Rio de Janeiro. 2013; 29(8):1533-43. DOI: https://doi.org/10.1590/S0102-311X2013001200006

17. Ministério da Saúde do Brasil. Resolução n.º 466, de 12 de dezembro de 2012. Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html

18. Flesch BD, Houvèssou GM, Munhoz TN, Fassa AG. Major depressive episode among university students in Southern Brazil. Rev Saúde Pública. 2020;54:11. DOI: https://doi.org/10.11606/s1518-8787.2020054001540

19. Maltoni J, Palma PC, Neufeld CB. Anxiety and depressive symptoms in Brazilian college students. Psico Porto Alegre. 2019;50(1):2-10. DOI: https://doi.org/10.15448/1980-8623.2019.1.29213

20. Bresolin JZ, Dalmolin GL, Vasconcellos SJL, Barlem ELD, Andolhe R, Magnago TSBS. Depressive symptoms among healthcare undergraduate students. Rev. Latino-Am. Enfermagem. 2020;28:1-10. DOI: https://doi.org/10.1590/1518-8345.3210.3239

21. Barroso CLM, Mello GN. O acesso da mulher ao ensino superior brasileiro. Cadernos de pesquisa. 1975;(15):47-77. Disponível em: http://publicacoes.fcc.org.br/ojs/index.php/cp/article/view/1813/1786

22. Guedes MC. Women's presence in undergraduate and graduate courses: Deconstructing the idea of university as a male domain. História, Ciências, Saúde-Manguinhos. 2008;15:117-32. DOI: https://doi.org/10.1590/S0104-59702008000500006

23. Rombaldi AJ, Silva MC, Gazalle FK, Azevedo MR, Hallal PC. Prevalência e fatores associados a sintomas depressivos em adultos do sul do Brasil: estudo transversal de base populacional. Rev Bras Epidemiol. 2010;13(4):620-9. DOI: https://doi.org/10.1590/S1415-790X2010000400007

24. Mesquita AM, Lemes AG, Carrijo MVN, Moura AAM, Couto DS, Rocha EM *et al*. Depression among students of health courses at a university in Mato Grosso. Journal Health NPEPS [internet]. 2016;1(2):218-30. Available from: https://periodicos.unemat.br/index.php/jhnpeps/article/view/1433/1503

25. Aquino DR, Cardoso RA, Pinho L. Symptoms of depression in medical university students. Boletim-Academia Paulista de Psicologia. 2019;39(95):81-95. Available from: http://pepsic.bvsalud.org/scielo.php?script = sci_arttext&pid = S1415-711X2019000100009

26. Galvão A, Pinheiro M, Gomes MJ, Ala S. Ansiedade, stress e depressão relacionados com perturbações do sono-vigília e consumo de álcool. Revista Portuguesa de Enfermagem de Saúde Mental. 2017;(spe. 5):8-12. DOI: https://doi.org/10.19131/rpesm.0160

27. Formiga NS, Fleury LFO, Souza MA, Souza MAF. Verification of the factorial structure the scale of professional self-concept in the employees of different Brazilian companies. Actualidades en psicología. 2015;29(118):47-55. DOI: https://doi.org/10.15517/ap.v29i118.17109

28. Nogueira TG. O teste de Pfister na avaliação de depressão e ansiedade em universitários: evidências preliminares. Boletim de Psicologia. 2013;63(133):11-21. Disponível em: http://pepsic.bvsalud.org/scielo.php?script = sci_arttext&pid = S0006-59432013000100003

29. Camargo RM, Sousa CO, Oliveira MLC. Prevalence of cases of depression in nursing students in an institution of higher education in Brasilia. Rev. Min. Enferm. 2014;18(2):392-7. DOI: https://doi.org/10.5935/1415-2762.20140030

30. Menezes SSC, Corrêa CG, Silva RCG, Cruz DAML. Clinical reasoning in undergraduate nursing education: A scoping review. Rev Esc Enferm USP. 2015;49(6):1037-44. DOI: https://doi.org/10.1590/S0080-623420150000600021

31. Ministério da Educação e Cultura do Brasil. Resolução CNE/CES n.º 1 de 3 de abril de 2001. Brasília. Disponível em: http://portal.mec.gov.br/cne/arquivos/pdf/CES03.pdf

32. Souza EFD, Silva AG, Silva AILF. Active methodologies for graduation in nursing: Focus on the health care of older adults. Rev Bras Enferm [internet]. 2018;71(suppl 2):920-4. [Thematic issue: health of the elderly]. DOI: https://doi.org/10.1590/0034-7167-2017-0150

33. Berbel NAN. Active methodologies and the nurturing of students' autonomy. Semina: Ciênc Soc Hum [internet]. 2012;32(1):25-40. DOI: https://doi.org/10.5433/1679-0383.2011v32n1p25

34. Facioli AM, Barros AB, Melo MC, Ogliari ICM, Custódio RJM. Depression among nursing students and its association with academic life. Rev Bras Enferm. 2020;73(1):1-6. DOI: https://doi.org/10.1590/0034-7167-2018-0173

35. Victoria MS, Bravo A, Felix AK, Neves BG, Rodrigues CB, Ribeiro CCP *et al*. Níveis de ansiedade e depressão em graduandos da Universidade do Estado do Rio de Janeiro (UERJ). Encontro. [internet]. 2015;16(25):163-75. Disponível em: https://www.researchgate.net/publication/327121216_Niveis_de_ansiedade_e_depressao_em_graduandos_da_Universidade_do_Estado_do_Rio_de_Janeiro_UERJ

36. Gil I, Maluf EC, Souza TSC, Silva JYF, Pinto MCS. Análise transversal de sintomas depressivos em estudantes de medicina: prevalência no primeiro ano de graduação. Revista PsicoFAE [internet]. 2018;7(2):99-118. Disponível em: https://revistapsicofae.fae.edu/psico/article/view/188/124

37. Toti TG, Bastos FA, Rodrigues P. Factors associated with anxiety and depression in university students of the physical education course. Rev. Saúde Física e Mental. 2018;6(2): 21-30. Available from: https://revista.uniabeu.edu.br/index.php/SFM/article/view/3488/2456

38. Camilleri GM, Méjean C, Kesse-Guyot E, Andreeva VA, Bellisle F, Hercberg S *et al*. The associations between emotional eating and consumption of energy-dense snack foods are modified by sex and depressive symptomatology. The Journal of Nutrition Nutritional Epidemiology. 2014;144:1264-73. DOI: https://doi.org/10.3945/jn.114.193177

39. Shabbir F, Patel A, Mattison C, Bose S, Krishnamohan R, Sweeney E *et al*. Effect of diet on serotonergic neurotransmission in depression. Neurochemistry International. 2013;62(3):324-9. DOI: https://doi.org/10.1016/j.neuint.2012.12.014

40. Castilho F, Francis F, Wylie-Rosett J, Isasi CR. Depressive symptoms are associated with excess weight and unhealthier lifestyle behaviors in urban adolescents. Child Obes. 2014;10(5):400-7. DOI: https://doi.org/10.1089/chi.2014.0042

41. Wit LMMS, Fokkema MMS, Straten AVPHD, Lamers FPHD, Cuijpers PHD *et al*. Depressive and anxiety disorders and the association with obesity, physical, and social activities. Research Article. 2010;27:1057-65. DOI: https://doi.org/10.1002/da.20738

42. Santos RAF, Sardinha LS, Errante PR, Rodrigues FSM, Ferraz RRN, Lemos VQ. Relationships between physical exercise, obesity and depressive symptoms. Rev. UNILUS Ensino e Pesquisa [internet]. 2019;16(43):152-8. Available from: http://revista.lusiada.br/index.php/ruep/article/view/1134/u2019v16n43e1134

43. Mazon JN, Trevisol FS, Niero AC, Oliveira M, Dias WS, Turatti CR *et al*. Desempenho cognitivo e transtornos mentais em indivíduos obesos do sul de Santa Catarina. Revista Brasileira de Obesidade, Nutrição e Emagrecimento [internet]. 2019;13(78):211-8. Disponível em: https://dialnet.unirioja.es/servlet/articulo?codigo = 6987866

44. Ferreira FMPB, Brito IM, Santos MR. Health promotion programs in higher education: Integrative literature review. Rev Bras Enferm. [internet]. 2018. Available from: https://www.scielo.br/pdf/reben/v71s4/pt_0034-7167-reben-71-s4-1714.pdf

45. Cortez EA, Braga ALS, Oliveira AGS, Ribas BF, Mattos MMGR *et al*. Promotion of mental health for university students. Rev Pró UniverSUS. [internet]. 2017. Available from: http://editora.universidadedevassouras.edu.br/index.php/RPU/article/view/896