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Rodrigues, DDS and Cezar Da Cruz, DM and Nascimento, JS and Cid, MFB (2022) Prevalence of common mental disorders and associated factors in students of a Brazilian public university. *Cadernos Brasileiros de Terapia Ocupacional*, 30. ISSN 2526-8910 DOI: <https://doi.org/10.1590/2526-8910.ctoao252833052>

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Document Version:

Article (Published Version)

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Original Article

Prevalence of common mental disorders and associated factors in students of a Brazilian public university

Prevalência de transtornos mentais comuns e fatores associados em estudantes de uma universidade pública brasileira

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How to cite: Rodrigues, D. S., Cruz, D. M. C., Nascimento, J. S., & Cid, M. F. B. (2022). Prevalence of common mental disorders and associated factors in students of a Brazilian public university. *Cadernos Brasileiros de Terapia Ocupacional*, 30, e3305. <https://doi.org/10.1590/2526-8910.ctoAO252833052>

Abstract

Objective: Describe the profile of students in the health and exact undergraduate courses of a public university in the Midwest region of Brazil, determine the prevalence of Common Mental Disorders (CMD) among these students, and verify the sociodemographic and course-related factors associated with their occurrence. **Method:** A cross-sectional and relational study was carried out from May to September 2020 with a sample of 493 students who answered a survey on sociodemographic variables and the Self-reporting Questionnaire (SRQ 20). We conducted descriptive analyses of the variables and logistic regression, using the Statistical Package for Social Sciences (SPSS), version 21.0. A cutoff point ≥ 7 was adopted in the SRQ-20 for suspected CMD. **Results:** The prevalence of CMD in the sample was 66.1%. Comparison between the groups (with or without CMD) showed that the highest prevalence rates were linked to the female gender ($p < 0.001$) and undergoing health care treatment ($p < 0.001$). Regression analysis indicated significant predictors for CMD being female ($p < 0.001$) and being enrolled in exact science courses ($p = 0.050$). **Conclusion:** The high prevalence of CMD reinforces the need to invest in the creation of care spaces that pay special attention to women and exact sciences students, in addition to discussing student assistance policies aimed at promoting the health, well-being, and care of university students.

Keywords: Education Higher, Students, Mental Disorders, Mental Health Assistance.

Received on Apr. 18, 2022; 1st Revision on Apr. 27, 2022; Accepted on July 6, 2022.



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Cadernos Brasileiros de Terapia Ocupacional, 30, e3305, 2022 | <https://doi.org/10.1590/2526-8910.ctoAO252833052>

Resumo

Objetivo: Os objetivos deste estudo foram descrever o perfil dos estudantes das áreas da saúde e exatas de uma universidade pública da região Centro-Oeste, determinar a prevalência de Transtornos Mentais Comuns (TMC) entre estes estudantes e verificar os fatores sociodemográficos e relacionadas ao curso associados a sua ocorrência no contexto da pandemia. **Método:** Estudo transversal e de correlação realizado de maio a setembro de 2020 com uma amostra de 493 estudantes que responderam a um questionário eletrônico sobre as variáveis sociodemográficas e ao *Self Reporting Questionnaire* – SRQ 20. Foram realizadas análises descritivas das variáveis e de regressão logística por meio do *Statistical Package for Social Sciences* (SPSS), versão 21.0. Foi adotado ponto de corte ≥ 7 no SRQ-20 para suspeição de TMC. **Resultados:** A prevalência de TMC na população estudada foi de 66,1%. Na comparação entre os grupos (com ou sem TMC), as maiores taxas de prevalência estavam vinculadas ao sexo feminino ($p < 0,001$) e estar em acompanhamento de saúde ($p < 0,001$). A análise de regressão indicou como preditores significativos para TMC ser do sexo feminino ($p < 0,001$) e estar em algum curso da área de exatas ($p = 0,050$). **Conclusão:** A alta prevalência de TMC demonstra a importância de programas de prevenção do sofrimento psíquico centrados nas necessidades dos acadêmicos, considerando o seu contexto e realidade vivida, buscando à promoção de saúde, bem-estar e o cuidado dos estudantes universitários.

Palavras-chave: Ensino Superior, Estudantes, Transtornos Mentais, Assistência em Saúde Mental.

Introduction

Recent epidemiological data indicate a worrying scenario regarding the experience of intense psychic suffering by the world's young population (World Health Organization, 2016). About 10% to 20% of these people are suffering (World Health Organization, 2008, 2013), with common mental disorders (CMD) being the most prevalent.

CMDs are among the most frequent mental health problems in the general population. They manifest through multiple symptoms such as irritability, insomnia, difficulty concentrating, forgetfulness, somatic complaints, fatigue, anxiety, and depression. Although these symptoms are present to the point of compromising people's daily activities, impacting their productivity and performance capacity, they do not meet sufficient criteria for formal diagnoses according to the diagnostic manuals: Diagnostic and Statistical Manual of Mental Disorders - 5th edition (DSM-V) (American Psychiatric Association, 2014) and International Classification of Diseases - 11th revision (ICD-11). However, they are still a public health problem (Araújo et al., 2003, 2005; Moreira et al., 2011; Santos et al., 2019; Oliveira et al., 2020).

Studies also show an increase in the number of CMDs in university students (Duffy et al., 2019; Fórum Nacional de Pró-Reitores de Assuntos Comunitários e Estudantis, 2018; Patton et al., 2016). The transition to university coincides with

a critical and challenging period for the student, characterized by individualization and distancing from family and friends, the development of new social connections, and increased autonomy and responsibility (Patton et al., 2016).

Authors point out that higher education is marked by being a challenging moment in the lives of young students, considering the adaptation character (study rhythm, learning methodology, autonomy requirement) and the inexperience in the functioning of the academic environment, which requires these students to face multiple and complex tasks (Zbuinovicz & Mariotti, 2021; Padovani et al., 2014; Neves & Dalgalarondo, 2007). Also, this can be considered a period of intensely personal, cognitive, affective, and social changes, since it is composed of the diversity of academic experiences that are associated with the challenges arising from entering the university (Castro, 2017; Padovani et al., 2014).

Due to this scenario, there is a growing number of Higher Education Institutions (HEIs) concerned with the mental health of their students (Cerchiarri et al., 2005; Malajovich et al., 2017). Data from the V Report of the National Forum of Pro-Rectors of Student Community Affairs (Fórum Nacional de Pró-Reitores de Assuntos Comunitários e Estudantis, 2018), in a sample of 424,128 university students, distributed in 65 HEIs, indicated that 83.5% of students reported having experienced some emotional difficulty in the last 12 months, with feelings of anxiety (63.6%) and discouragement to perform their activities (45.6%).

This theme had a new prominence within the academic universe at the beginning of 2020, when the global health crisis was decreed due to the pandemic of the new coronavirus (Sars-CoV-2), COVID-19. According to the Pan American Health Organization (Organização Pan-Americana da Saúde, 2009), from the point of view of mental health, a pandemic can trigger psychosocial problems, especially due to the magnitude of the event and the degree of vulnerability in which the person is currently exceeding the ability of the affected population to cope. Studies conducted during this period have shown the impact of the pandemic on health and front-line workers, such as medical staff, nursing professionals, and essential services (Almeida et al., 2020; Chen et al., 2020). Regarding the mental health of university students during the COVID-19 outbreak, some research was carried out to understand the effects of social isolation and physical distancing on the health and well-being of these students.

A study carried out with approximately five hundred university health students at a Brazilian public university showed that most of them were distressed (89%) and worried (91.7%) about the context of the pandemic (Martins et al., 2020). National and international research has shown the high prevalence of CMD among university students, and studies have indicated an aggravation during the pandemic period (Oksanen et al., 2014; Tran et al., 2017; Alsaleem et al., 2021; Lopes et al., 2022), especially in health students (Santos et al., 2017; Grether et al., 2019; Tran et al., 2017; Gomes et al., 2020).

In this context, a systematic review aimed at describing and analyzing scientific publications on the prevalence of CMD among Brazilian university students, considering the period before the Covid-19 outbreak and the pandemic context, showed that, in comparison with data on the prevalence of CMD among the general population and other specific groups, rates of CMD among university

students were the highest, ranging from 19 to 55.3% (Lopes et al., 2022). Another study, carried out during the pandemic in five public universities in different regions of Spain with approximately two thousand students, showed that women were more likely to develop CMD than men, with a prevalence rate of 23.1% (Ballester et al., 2020).

Son et al. (2020) interviewed about two hundred students from a large university system in Texas, United States, and found that 71% of participants indicated that their stress and anxiety increased due to the COVID-19 pandemic; 89% had difficulty concentrating on academic work; 54% reported that overall interactions with other people, such as friends, decreased significantly; and 44% mentioned that they were experiencing some depressive thoughts in the pandemic period.

However, the sign of the high prevalence of CMD among university students predates the period of the pandemic. According to the report of the World Health Organization (WMH-ICS) International University Students of World Mental Health (WMH) research project involves nineteen faculties in eight countries (Australia, Belgium, Germany, Mexico, Northern Ireland, South Africa, Spain, United States), there is a high percentage of CMD among these students (Auerbach et al., 2016).

Oksanen et al. (2014) surveyed more than 11,000 Finnish students, over the years 2000 to 2012, to explore changes in the prevalence of psychological distress and concomitant psychological symptoms among university students. The results showed an increase in the prevalence of psychological distress among university students over the years. Depression (from 13% to 15%) and anxiety (from 8% to 13%) had a predominance in women.

The literature also pointed out the existence of factors associated with the psychological distress of university students, such as female gender, age, low income, low social support, difficulties in relationships, and academic performance (Verger et al., 2009; Costa et al., 2010; Graner & Cerqueira, 2019; Ballester et al., 2020).

It should be noted that the discussion about the mental health and psychological suffering of university students dates back to the 1950s, reinforcing a constant concern with the health, well-being, and academic performance of these students. Therefore, we emphasize the need for studies in this field that can understand the problem of psychic suffering in this population, considering the context in which the person is inserted and the health and social determinants involved in the production of mental health (Rossi & Cid, 2019). This fact demonstrates, therefore, that investigations on CMD become essential as an indication of suffering prevention and health promotion of university students, justifying the need for studies that prioritize the screening of suffering in the academic environment (Petro et al., 2020; Cao et al., 2020).

Therefore, the health of the university population is influenced, directly or indirectly, by individual factors of the person and environmental factors, which may be elements of predisposition to CMD and, consequently, to suffering (World Health Organization, 2008). Given the above, the objectives of this study were to describe the profile of students in the areas of health and exact sciences at a public university in the Midwest region, determine the prevalence of CMD among these students and verify the

sociodemographic and course-related factors associated with their occurrence in the context of the pandemic.

Method

This study followed the guidelines and regulatory standards for research involving human beings of Resolution 466 of December 12, 2012, of the National Health Council, approved by the Research Ethics Committee (CAEE number: 24451619.3.0000.8093).

This is an analytical, observational, cross-sectional study carried out from May to September 2020 at a public university in the Brazilian Midwest.

The sample consisted of 493 students from courses in the areas of health (nursing, pharmacy, physiotherapy, speech therapy, collective health, and occupational therapy) and exact (aerospace engineering, automotive engineering, electronic engineering, energy engineering, and software engineering). This sample revealed an a priori statistical power greater than 99.0%. The Power Analysis and Sample Size (PASS) program, version 15.0, was used to estimate the power achieved.

The inclusion criteria were: being an undergraduate student in a health or exact science course at a public university in the Midwest region of Brazil, regardless of age group and gender. The exclusion criteria were students who were away from graduation due to health reasons and who had partially withdrawn from academic activities.

The questionnaires used in this research were a sociodemographic form, composed of the variables: gender, age, marital status, skin color, family income, housing, and academic and health information, such as course area, year in college, and whether they were undergoing psychiatric or psychotherapy. For CMD screening, the Self-Reporting Questionnaire (SRQ-20) was used, an instrument developed by the World Health Organization (WHO). The Brazilian version was validated by Mari & Williams (1986) and later by Gonçalves et al. (2008), consisting of a 20-item scale with alternative dichotomous answers (yes and no) for each of its questions. The score is obtained by the sum of the affirmative answers, with each item having a value of one point. Thus, we chose to use the criterion that considers the absence or not of symptoms of psychological distress, delimiting the SRQ-20 cutoff score to 7 for this study, that is, SRQ-20 scores <7 represent the absence of CMD, and SRQ-20 \geq 7 refers to suspected CMD, as pointed out in the literature (Santos et al., 2010; Silva et al., 2014; Paz de Lima, 2015).

Students were invited virtually (by institutional email and social networks most used by them) to respond online and voluntarily to the questionnaires, which were made available through the Google Form tool. After acceptance, an access link was sent that directed the participants to the research home page, which contained the objective, procedure, and explanations about the study. The Informed Consent Form (ICF) was available for reading and was signed virtually using a mandatory icon. The instruments were self-administered and anonymous.

Online data collection was carried out in the initial stage of lockdown in Brazil, which influenced the institutional design of universities in general, such as changing the

academic calendar, the curriculum of each course, modifying the conduct of disciplines and other academic activities, which began to be carried out in virtual environments remotely. The pandemic imposed a decrease in social contact, the experience of moments of insecurity and uncertainty in various aspects of daily life that marked this period and can reflect on the findings of this study.

For the analysis, we built an electronic spreadsheet in the Excel® program and the collected findings were checked. The database was imported into the Statistical Package for The Social Sciences (SPSS) software, version 21.0. Descriptive statistical analysis was performed using absolute and relative frequencies for categorical variables. The prevalence rate was calculated, and obtained according to the formula:

$$\text{Coefficient of population} = \frac{\text{number of cases of a given disease in a given place and period}}{\text{prevalence of the same place and period}} \times 10^n \quad (1)$$

To compare the categorical variables (gender, age group, marital status, housing arrangement, academic, and health information) with or without CMD (outcome), a bivariate analysis was performed using the prevalence ratio (PR) and prevalence odds ratio (PCR). To analyze the predictor variables, the logistic regression model was used, having as an outcome the occurrence or not of CMD. In this last analysis, the variables age, income, and semester were considered numerical. This study considered a confidence interval of 95% and a significance level of 5% ($p < 0.05$).

Results

A total of 493 students from courses in the areas of health and exact sciences participated in the study. The average age of students was 21.2 years old, ranging from 20 to 24 years old (65.9%). Most of them were single (95.1%), female (66.5%), with a family income of 4 up to 10 minimum wages (32.5%) and up to 2 minimum wages (31.0%), self-declared black/brown (52.5%) and lived with their parents or relatives (88.2%).

Regarding access to university, 47.5% entered through the Serial Assessment Program (PAS- *Programa de Avaliação Seriada*)¹, with a higher proportion of students in health courses (72.2%), respectively in occupational therapy courses (19.1%) and public health (13.8%), and studying between the second and fourth year of college (46.7%). We identified that 79.5% of the students did not follow up on their health. Of the total of 350 students in the health area, 277 were women and 73 men, and of the 134 students in the exact area, 51 were women and 83 men. Among the students who were undergoing treatment, 42.6% were undergoing psychotherapy, 29.7% were undergoing psychiatric follow-up and 27.7% were undergoing both care interventions.

¹ The Serial Assessment Program (PAS) is a way of entering the university carried out in three consecutive stages at the end of each year of high school. In the first two, the student is evaluated for their knowledge through multiple-choice tests. And the third step, the score of the Enem is adopted.

The prevalence of CMD, assessed using the SRQ-20 instrument, was 66.1% (n=326). Based on the analysis of the SRQ-20, on average, the students had around 10 symptoms (± 4.7), ranging from zero to 19. There was also a greater proportion of affirmative answers to the following questions: “Do you feel nervous, tense, or worried?”; “Do you find it difficult to carry out your daily activities with satisfaction?”; “Do you have difficulty making decisions?” and “Do you get tired easily?”

Table 1 shows the distribution of these findings, considering the absolute and relative values for the “yes” and “no” answers.

Table 1. Answers to university students' SRQ-20 instrument questions (n=493).

Instrument questions	Yes		No	
	n	%	n	%
1. Do you have frequent headaches?	220	44.6%	273	55.4%
2. Do you have a lack of appetite?	126	25.6%	367	74.4%
3. Do you sleep badly?	290	58.8%	203	41.2%
4. Are you easily scared?	187	37.9%	306	62.1%
5. Do you have hand tremors?	148	30.0%	345	70.0%
6. Do you feel nervous, tense, or worried	431	87.4%	62	12.6%
7. Do you have bad digestion?	163	33.1%	330	66.9%
8. Do you have trouble thinking clearly?	233	47.3%	260	52.7%
9. Have you been feeling sad lately?	293	59.4%	200	40.6%
10. Have you been crying more than usual?	170	34.5%	323	65.5%
11. Do you find it difficult to carry out your daily activities with satisfaction?	342	69.4%	151	30.6%
12. Do you have difficulty making decisions?	334	67.7%	159	32.3%
13. Do you have difficulties at university (your activity is painful, and causes suffering)?	235	47.7%	258	52.3%
14. Are you unable to play a useful role in your life?	125	25.4%	368	74.6%
15. Have you lost interest in things?	280	56.8%	213	43.2%
16. Do you feel like a useless person?	199	40.4%	294	59.6%
17. Have you had ideas for ending your life?	71	14.4%	422	85.6%
18. Do you feel tired all the time?	275	55.8%	218	44.2%
19. Do you have unpleasant sensations in your stomach?	200	40.6%	293	59.4%
20. Do you get tired easily?	299	60.6%	194	39.4%

Source: Research data.

In the comparison between the groups, with and without CMD, most of the students were female ($p < 0.001$) and underwent health monitoring ($p < 0.001$) (Table 2).

Table 2. Association between CMD and sociodemographic variables of university students (n=493).

Variables	Common mental disorders		PR*	PCR†	p‡
	Yes n (%)	No n (%)			
Gender					
Female	241(73.5%)	87(26.5%)	1.45(1.22-1.71)	2.70(1.81-4.02)	0.001
Male	79(50.6%)	77(49.4%)			
Age group					
15-19 years old	84(63.6%)	48(36.4%)	1.05(0.90-1.22)	1.16(0.76-1.76)	0.480
≥20	242(67%)	119(33%)			
Marital status					
Married	17(70.8%)	7(29.2%)	1.07(0.82-1.40)	1.25(0.51-3.09)	0.617
Single	309(65.9%)	160(34.1%)			
Skin color					
White	147(64.8%)	80(35.2%)	1.03(0.91-1.17)	1.11(0.76-1.62)	0.517
Brown or black	174(67.2%)	85(32.8%)			
Income (minimum wage)					
≤4 wages	188(67.9%)	89(32.1%)	1.06(0.93-1.20)	1.19(0.82-1.73)	0.354
>4 wages	138(63.9%)	78(36.1%)			
Live with					
Alone/friends/colleagues	43(74.1%)	15(25.9%)	1.14(0.96-1.34)	1.54(0.82-2.86)	0.170
With parents or relatives	283(65.1%)	152(34.9%)			
Course area					
Health	237(66.6%)	119(33.4%)	1.02(0.88-1.18)	1.07(0.71-1.62)	0.735
Exact Sciences	89(65%)	48(35%)			
Years in college					
1 st to 2 nd year	129(66.8%)	64(33.2%)	1.01(0.89-1.15)	1.05(0.71-1.54)	0.788
2 nd year or more	197(65.7%)	103(34.3%)			
Health monitoring					
Yes (psychiatry/psychotherapy)	89(88.1%)	12(11.9%)	1.45(1.30-1.62)	4.85(2.56-9.16)	0.001
No	237(60.5%)	155(39.5%)			

Source: Research data. * PR: Prevalence Ratio; †PCR: Prevalence Odds Ratio; ‡ Significance level ($p < 0.05$).

To verify the factors associated with CMD among students, the variables gender, age group, housing arrangement, race/skin color, income, course, and college semester were considered predictors of this event. These variables were defined by consulting Table 3, the scientific literature, and respecting the temporality in the occurrence of CMD. The statistically significant predictors for the presence of CMD were being female ($p < 0.001$) and being from some exact science course ($p = 0.050$). It is noteworthy that the greatest predictor of CMD was the female variable ($WCR = 3.10$) (Table 3).

Table 3. Final binomial logistic regression model for variables associated with the occurrence of CMD in university students (n=493).

Variables		PCR*	CI 95%†	p‡
Gender	Male	–	–	–
	Female	3.10	1.97 – 4.87	<0.001
Age group (years old)		1.00	0.94 – 1.08	0.810
Race/skin color	Black or brown	1.18	0.79 – 1.76	0.419
	White	–	–	–
Live with	With parents or relatives	–	–	–
	Alone/friends/colleagues	1.42	0.69 – 2.90	0.332
Income (in wages)		0.98	0.90 – 1.07	0.737
Course	Health	–	–	–
	Exact Science	1.63	0.98 – 2.71	0.050
Semesters		1.03	0.94 – 1.12	0.471

Source: Research data. *PCR: Prevalence Odds Ratio; † Confidence interval; ‡ Significance level (p<0.05).

Discussion

The results of this study showed mostly a population of young students aged between 20 and 24 years old, with an average of 21.2 years old, which corroborates the Fonaprace report (Fórum Nacional de Pró-Reitores de Assuntos Comunitários e Estudantis, 2018), whose results show that the group of students aged 20 years or older their participation in higher education has increased.

There was also a predominance of females (66.5%), which coincides with data from the Fonaprace report (Fórum Nacional de Pró-Reitores de Assuntos Comunitários e Estudantis, 2018), which showed a growing trend in the participation of women in higher education, 51.4% and 54, 6% in 1996 and 2018, respectively.

In this research, the highest proportion of female students was graduating in the health area, while the exact science courses showed a greater number of male students. The literature points out that the predominance of females is characteristic of courses in the health area (Oliveira et al., 2020; Vieira et al., 2019) due to the understanding that they are assistants and care professionals. Therefore, it is associated with the public female justifying that women would be more apt for such activities (Hirata & Kergoat, 2007; Souza & Guedes, 2016). The research by Haddad et al. (2010) on the training of professionals in the area of health, carried out from the databases of the Ministry of Education, showed that women were the majority in all courses, except in physical education and among those who completed medical courses. Among speech-language therapy, social work, occupational therapy, and nutrition courses, women represented more than 90% of students. These findings show gender issues imposed by a traditional society, so that women fit within a pre-established pattern, despite the verification of advances and changes in terms of social recognition, especially due to their insertion in different professional spaces.

Another finding of this study is that most participants self-declare as black or brown, low-income, and entering the PAS. As of Law n° 12,711, of August 29, 2012 (Brasil, 2012), there is an expansion of admission to higher education, which includes even more young black, indigenous, and disabled students from public schools and in

socioeconomic vulnerability in universities (Brasil, 2008). Social permeability in higher education was possible due to the transformations that expanded access to the university, such as the University for All Program – ProUni (*Programa Universidade para Todos*), the National High School Exam (Enem- *Exame Nacional de Ensino Médio*) and, in addition, the Unified Selection System (Sisu- *Sistema de Seleção Unificada*) associated with affirmative policies, expanding to include other social strata, in an attempt to democratize access for minority segments (Almeida, 2017).

However, there are many challenges imposed on the permanence and completion of the course of these students in higher education resulting from the lack of effective policies and institutional support that, due to the insufficiency of support to academics, they have processes of evasion of low-income students in situations of vulnerability, gender, who work, among others (Gilioli, 2016).

Thus, this result is explained by the advance in quota policies, which, despite having barriers and confrontations in access to higher education, represent the right to education, especially equal opportunities and the recognition of diversity in our country, which allow the engagement of students to circumvent the problems faced as a situation of discrimination and prejudice in the university environment.

This scenario of changing the profile of newcomers highlights a new institutional challenge, especially in understanding the social, environmental, and personal factors of students in poverty, inequalities, health, and culture, which can make it difficult for these students to remain in the university, revealed in rates of evasion, abandonment, suspensions, illness, especially the CMD. In this study, the prevalence of CMD was 66.1% (n=326), indicating in the bivariate analysis the association between females ($p < 0.001$) and students in health monitoring ($p < 0.001$) and as statistically significant predictors (regression model), female ($p < 0.001$) and being in some exact science course ($p = 0.005$). These data are discussed below.

The prevalence of CMD in the studied sample is a worrying fact, especially because they are higher percentages than those presented in previous national and international studies carried out with the same target population.

As an example, there is a broad integrative review of the literature carried out between 2006 and 2016 by Graner & Cerqueira (2019), in which the authors showed that investigations on CMD were predominantly in the population of health students and that the prevalence of psychological distress, based on the SRQ-20 instrument, ranged from 33.7 to 49.1%. This review highlights that most studies are aimed at students in the health area, especially medicine. These findings differ from the results of this research, which showed a significantly higher prevalence rate of suffering, which can be explained by the context of the pandemic.

This research was carried out during the beginning of the pandemic period, when the university's academic calendar was suspended and affected the entire university community, with significant changes in daily routines and impacts on the mental health and well-being of people. This corroborates the guidelines of the Inter-Agency Standing Committee (2007), which point out that health emergencies can potentiate risks at the individual, family, community, and social levels and trigger, in certain groups, psychological and/or social problems in women, the elderly, and people in vulnerable situations.

In this direction, some international studies carried out in the period of the COVID-19 pandemic with university students, although showing differences in the rates of CMD identified, corroborate the predominance of psychological distress in the female audience. A study of more than 2,500 Ethiopian students during the pandemic period revealed that 50.8% reported depressive symptoms, 58% reported anxiety symptoms, and 34.1% had stress levels, predominantly women (Lemma et al., 2012). Naser et al. (2020) identified, during social isolation due to COVID-19, in a sample of more than 1,000 Jordanian university students, a CMD prevalence rate of 21.5%, and showed that women were at greater risk of psychological distress when compared to men.

The analysis of the binomial logistic regression model of this study reinforced these findings, pointing out that the probability of developing CMD was associated with the variables of female gender and being in some exact science course. Sharing these findings, some studies have shown that the female variable has a positive influence on triggering the disorder in health students and, consequently, on psychological distress (Costa et al., 2014; Oliveira et al., 2020). Considering the context of a pandemic, suffering can be influenced by the overlapping of occupational roles that the woman obtained during this period. Some studies point out that women assume more tasks and responsibilities in the family, playing different occupational roles, such as caregiver, mother, wife, and domestic service. Therefore, the decrease in social support for caring for the family, children, and professional tasks becomes factors that influence women's participation in academic demands (Arias et al., 2019; Aquino et al., 2021).

On the other hand, approaching the results of our research, Rocha et al. (2020) identified, in a pandemic period, using the same instrument of this study, a prevalence of 82.9% in the suspicion of CMD among medical students from a private institution. The study carried out at the University of Marshall, United States of America, during the pandemic, with 150 students, identified that most participants had symptoms of anxiety (60.7%) and depression (76.7%) (Lowe et al., 2020).

A possible reason for the high prevalence of psychological distress in the university environment could be the pressure caused by changes in roles, study tasks, interpersonal relationships, and adaptability, which can affect health, academic performance, and lifestyle (Padovani et al., 2014; Liu et al., 2019). These factors were aggravated during the period of physical distancing and suspension of in-person academic activities. Other aspects of student life were affected during this pandemic context such as the university experience, the proximity between people and building bonds, the lack of feeling of belonging to the academic community, and experiences that reaffirm the personal and social identity of the university students. Feelings of hopelessness aroused during the pandemic period - not only because of the health crisis but also because of what it impacted political and socioeconomic aspects, especially in Brazil, generating uncertainties about prospects, high unemployment rates, which reached 29.8% of the population, about 4.1 million among the youngest (Instituto de Pesquisa Econômica Aplicada, 2021). They can interfere not only with routine but also with coping with socioeconomic adversities and, consequently, future planning of young people, which can harm people's health and quality of life (Fisher et al., 2022).

Another significant finding was the association of CMD with the variable being under health monitoring. Silva (2021) conducted a study with students of exact sciences courses during the COVID-19 outbreak and found 72.9% positive screening for CMD

using the same instrument of this research, with a significant association for being a cisgender woman, reporting difficulties in staying at the university and being in health monitoring. According to Silva, students undergoing health monitoring have an odds ratio of 5.12 more times of developing psychological distress than those not undergoing treatment.

Regarding the binomial logistic regression model, this study pointed out that the probability of developing CMD is associated with the variables of female gender and being in a course in the area of the exact sciences. Sharing these findings, some studies have shown that the female variable has a positive influence on triggering CMD in health students and, consequently, on psychological distress (Costa et al., 2014; Oliveira et al., 2020). Considering the pandemic context, suffering can be influenced by the overlapping of occupational roles that women experienced during this period.

However, diverging from the data of this research and considering the pandemic period, a study carried out with 300 Chinese students in six different universities did not show a positive association with the gender variable but the multivariate regression model showed that self-rated health, blood pressure of study and social support were significant predictors of psychological distress (Lei et al., 2021).

Although this study points to an audience mostly of female students, from courses in the health area, we found it as a predictor for CMD to be in graduation in exact areas. One hypothesis is that the university environment is still marked by hierarchical relationships, prejudices, conservative ideas, power relations, and gender discrimination (Oikawa, 2019). Specifically for female students, there is a social requirement for them to comply with an established standard, especially for engaging in specific professions and for demands that fall on females (Zanello et al., 2015; Miguel, 2017; Vieira et al., 2019), situations caused by gender inequality and that can generate suffering. On the other hand, courses in the exact sciences have few disciplines or spaces for care, listening, and sharing of suffering, as often happens in courses in the health area, due to professional training.

Conclusion

For the participants in this research, the predictors for the occurrence of CMD were related to gender and being in some exact science course. Despite this, it is not disregarded that other variables may influence psychic suffering, such as consumption of alcohol and other drugs, sleep, ethnicity, and factors of the academic environment, among others.

The prevalence in the studied sample is significantly higher compared to studies with the same population in courses in the health area, and we can conclude that the psychological suffering of these university students worsened during the COVID-19 pandemic period.

The recognition of the existence of CMD and its associated factors in the university environment can allow the development of health promotion actions and suffering prevention strategies. Also, the articulation with care channels and spaces offered by the university can provide assistance and reception to students, in addition to seeking support in the health network for the continuity of care.

The findings of this study need to be considered in the context of some limitations: i) the sample does not allow the expansion of the results for students from other universities in the country, but allows epidemiological screening, contributing to future investigations on the psychological distress of university students; ii) cross-sectional studies cannot establish a cause-effect relationship, and the bias related to the moment of data collection, during the pandemic period.

In this sense, we suggest further research with the same screening instrument to detect symptoms related to CMD such as anxiety and depression, for students in both the exact and health areas, in the post-pandemic period, to compare the findings. In addition, a longitudinal study would make it possible to determine the main predictors of psychological distress during the undergraduate period.

In summary, this study reinforces the need to invest in the creation of care spaces that pay special attention to women and also to those in exact science courses. Such spaces are essential for strengthening bonds, coexistence, and communication, and also as support in the prevention of psychic suffering, as well as discussions on student assistance policies aimed at promoting the health of the academic community.

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Author's Contributions

Daniela da Silva Rodrigues: She elaborated the research, data collection and analysis, organization of results, discussion and writing of the article. Daniel Marinho Cezar da Cruz: He contributed to the relevant critical review of the article. Janaína Santos Nascimento: She contributed to the treatment and analysis of the data and relevant critical review of the article. Maria Fernanda Barboza Cid: Guidance for all stages of the study and relevant critical review.

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