Cogitare Enfermagem

ORIGINAL ARTICLE

Depression, anxiety and stress in university students and their relationship with sociodemographic and psychosocial factors post-COVID-19

HIGHLIGHTS

1. University students showed emotional vulnerability after the pandemic.
2. There was a high prevalence of depression, anxiety and stress among university students.
3. Sociodemographic and psychosocial factors influenced the variables studied.
4. It is important to implement strategies to mitigate mental disorders.

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ABSTRACT

Objective: to assess the prevalence and levels of depression, anxiety and stress in university students in the post-COVID-19 pandemic context and their relationship with sociodemographic and psychosocial characteristics. **Method:** a cross-sectional, multicenter study developed in four Brazilian public universities. Data were collected between October 2022 and April 2024, using a sociodemographic and psychosocial characterization questionnaire and the Depression, Anxiety and Stress Scale. Analysis was performed using Mann-Whitney, Kruskal-Wallis and Spearman correlation tests. **Results:** prevalence rates higher than 75% were identified for depression, anxiety and stress in university students. Sociodemographic and psychosocial factors were statistically associated with the levels of the constructs. There was an inversely proportional relationship between self-perceived physical health and levels of depression (-0.362), anxiety (-0.335) and stress (-0.315), as well as self-perceived mental health and depression (-0.581), anxiety (-0.517) and stress (-0.518), all with p-values <0.001. **Conclusion:** the emotional vulnerability of university students and the need to adopt coping strategies that can mitigate the disorders investigated were highlighted.

DESCRIPTORS: Students; Universities; COVID-19; Mental Health; Pandemics.

HOW TO REFERENCE THIS ARTICLE :
Rodrigues YM, Alves BO, Santana MCV, Lourenço BG, Chaves ECL, Chianca TCM, et al. Depression, anxiety and stress in university students and their relationship with sociodemographic and psychosocial factors post-COVID-19. Cogitare Enferm [Internet]. Ano [cited "insert year, month and day"];30. Available from: https://doi.org/10.1590/ce.v30i0.98437

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INTRODUCTION

Entering higher education is a transitional period marked by significant changes in students' lives, which can have an impact on their development. In this sense, vulnerability to mental distress is present throughout the academic trajectory and becomes a concern, since it can threaten psychological integrity and interfere with academic performance[1].

According to the World Health Organization, the COVID-19 pandemic was a public health emergency, constituting one of the greatest global health challenges of this century. In the academic context, students experienced moments of anguish and uncertainty due to the various changes in their academic routines during the two years of the pandemic[3].

This situation has increased the magnitude of emotional disorders, such as depression, anxiety and stress. In fact, a study carried out with the university population confirmed a significant increase in these disorders during the COVID-19 pandemic, when compared to the previous period[4]. It is believed that these effects have remained in the post-pandemic context.

Among the measurement scales designed to assess emotional disorders, the Depression, Anxiety and Stress Scale (DASS-21) stands out[5]. Designed to measure negative emotional states of depression, anxiety and stress, it acts not only as a measurement scale, but also promotes the process of defining and clinically meaningful understanding of these altered emotional states[5].

The COVID-19 pandemic and the drastic changes to university routines have negatively impacted university students' mental health[4]. However, there is little evidence in the post-pandemic context that links the prevalence of emotional disorders in students with sociodemographic and psychosocial characteristics. This information is important for planning health interventions aimed at this population.

This study aimed to assess the prevalence of depression, anxiety and stress in university students in the post-COVID-19 pandemic context and the relationship with sociodemographic and psychosocial characteristics.

METHOD

This is a cross-sectional, multicenter study, reported according to the STrengthening the Reporting of OBservational studies in Epidemiology[6], and developed, between October 2022 and April 2024, with students from four public universities in Minas Gerais, Brazil.

The population consisted of 67,110 students. The formula $n = (z^2.p(1-p)/e^2)/1+(z^2.p(1-p)/e^2N)$ was used to calculate the sample size, where: z = z score (for a 95% confidence level, z = 1.96); p = prevalence of cases with the characteristic studied; e = margin of error; N = population size. Considering a margin of error of 2% and a conservative prevalence of 50%, the estimated minimum sample size was 2,319 students.

Students regularly enrolled in any period of undergraduate courses at the four universities, aged 18 or over, and available to respond to the data collection instruments,

which were carried out online, were included in the study. Those who responded to the data collection instruments incompletely were excluded.

Students who agreed to participate in the study had access to the Informed Consent Form, the sociodemographic and psychosocial characterization questionnaire and the DASS-2[17], which were answered online.

For sociodemographic and psychosocial characterization, the following variables were obtained: sex; skin color; marital status; housing; work activity; student aid and/or research, extension and teaching scholarship; personal and family income in minimum wages; psychiatric and/or psychological monitoring; clinical diagnosis of changes in psychosocial adaptation or neurodevelopmental conditions; use of psychotropic medications and/or drugs related to emotional issues as well as the time of initiation of use; self-assessment of physical and mental health, graded between zero and 10 so that the higher the value, the better the self-perception.

The presence and levels of depression, anxiety and stress among participants were verified using DASS-2[17], which consists of a self-administered instrument with 21 questions, in which participants indicate the degree to which they experience each of the symptoms during the last week[7]. Scoring is described using a four-point Likert scale: 0 = did not apply at all; 1 = applied to some degree or for a short time; 2 = applied to a considerable degree or for a good part of the time; 3 = applied a lot or most of the time. Scores for depression, anxiety, and stress are determined by summing the scores of the 21 items, whose cut-off points for depression are: 0-9 (normal); 10-13 (mild); 14-20 (moderate); 15-19 (severe); and >20 (extremely severe). Cut-off points for anxiety are: 0-7 (normal); 8-9 (mild); 10-14 (moderate); 15-19 (severe); and >20 (extremely severe). And cut-off points for stress are: 0-14 (normal); 15-18 (mild); 19-25 (moderate); 26-33 (severe); and >33 (extremely severe)[7].

This instrument has been translated and validated for the Brazilian version. It has adequate psychometric properties, with a total Cronbach's alpha of 0.96, being, for the depression subscale, of 0.93, for anxiety, of 0.86, and for stress, of 0.917. In the present sample, the instrument's internal consistency was also adequate8, with a global Cronbach's alpha for DASS-21 of 0.944 (for the depression, anxiety and stress subscales, they were 0.901, 0.867 and 0.885, respectively).

Data analysis was performed using the Statistical Package for the Social Sciences® version 23.0. Absolute and relative frequencies were adopted to describe categorical variables. Continuous variables were represented by median and interquartile range. To verify the association between sociodemographic and clinical characteristics and levels of depression, anxiety and stress, the Mann-Whitney or Kruskal-Wallis tests were used at 5% significance. The associations between self-perception of physical and mental health and the levels of the constructs were obtained using the Spearman correlation test at 5% significance.

The study was approved by the Research Ethics Committee of the proposing institution, under Opinion 5,700,107/2022.

RESULTS

The study included 2,333 students, with a median age of 22.00 (20.00-24.00), of whom 1,764 (75.6%) were female. Of these, 1,127 (48.3%) were enrolled in courses in the biological and health sciences, 567 (24.3%) in the humanities, arts, and languages and literature, 501 (21.5%) in the exact and technological sciences, and 138 (5.9%) in the agricultural sciences. Table 1 presents the description of the sociodemographic variables according to participants' sex.

Table 1 – Sociodemographic characteristics of university students in the post-COVID-19 pandemic context according to sex. Viçosa, MG, Brazil, 2024 (n=2,333)

(continue)

Variables	Sex	
	Male n (%)	Female n (%)
Skin color		
White	308 (54,1)	1035 (58,7)
Brown	179 (31,5)	494 (28,0)
Black	73 (12,8)	211 (12,0)
Yellow	9 (1,6)	18 (1,0)
Indigenous	0 (0,0)	6 (0,3)
Marital status		
Single	535 (94,0)	1653 (93,7)
Married/stable union	29 (5,1)	102 (5,8)
Divorced	5 (0,9)	8 (0,5)
Widowed	0 (0,0)	1 (0,1)
Housing		
With family	203 (35,7)	734 (41,6)
Republic	199 (35,0)	591 (33,5)
Alone	115 (20,2)	292 (16,6)
Student accommodation	38 (6,7)	105 (6,0)
Pension	14 (2,5)	42 (2,4)
Work activity	170 (29,9)	434 (24,6)
Student aid	149 (26,2)	466 (26,4)
Research, extension or teaching grant	120 (21,1)	353 (20,0)
Personal income in minimum wage†		
None	328 (57,6)	1141 (64,7)
1 to 1 and ½	179 (31,5)	524 (29,7)
2 to 3	36 (6,3)	80 (4,5)

Table 1 – Sociodemographic characteristics of university students in the post-COVID-19 pandemic context according to sex. Viçosa, MG, Brazil, 2024 (n=2,333)

(conclusion)

Variables	Sex	
	Male n (%)	Female n (%)
4 to 5	19 (3,3)	12 (0,7)
6 or more	7 (1,2)	7 (0,4)
Family income in minimum wage†		
1 to 1 and ½	144 (25,3)	465 (26,4)
2 to 3	167 (29,3)	595 (33,7)
4 to 5	125 (22,0)	406 (23,0)
6 or more	133 (23,4)	298 (16,9)

Legend: †minimum wage at the time of data collection: R$1,320.00.

Source: the authors (2024)

As for clinical characteristics, 1,218 (52.20%) of students contracted COVID-19. The median self-perception of physical health after the pandemic was 7.00 points (5.00-8.00), and of mental health, 5.00 points (4.00-6.00). Table 2 presents the psychosocial characteristics of students in the post-COVID-19 pandemic context by sex.

Table 2 –Psychosocial characteristics of university students in the post-COVID-19 pandemic context according to sex. Viçosa, MG, Brazil, 2024 (n=2,333)

(continue)

Variables	Sex	
	Male n (%)	Female n (%)
Follow-up with psychiatrist		
No	440 (77,3)	1187 (67,3)
Started during/after the pandemic	84 (14,8)	323 (18,3)
Already did it before the pandemic	45 (7,9)	254 (14,4)
Follow-up with psychologist		
No	338 (59,4)	908 (51,5)
Started during/after the pandemic	150 (26,4)	477 (27,0)
Already did it before the pandemic	81 (14,2)	379 (21,5)
Clinical diagnosis of psychosocial adaptation disorders		
Anxiety	167 (29,3)	751 (42,6)
Depression	98 (17,2)	385 (21,8)
Mood disorders	8 (1,4)	53 (3,0)
Sleep disorders	9 (1,6)	49 (2,8)
Panic syndrome	8 (1,4)	45 (2,6)

Table 2 –Psychosocial characteristics of university students in the post-COVID-19 pandemic context according to sex. Viçosa, MG, Brazil, 2024 (n=2,333)

(conclusion)

Variables	Sex	
	Male n (%)	Female n (%)
Burnout syndrome	7 (1,2)	27 (1,5)
Obsessive-compulsive disorder	2 (0,4)	22 (1,2)
Personality disorders	2 (0,4)	21 (1,2)
Compulsion/eating disorders	0 (0,0)	18 (1,0)
Phobias	1 (0,2)	15 (0,9)
Post-traumatic stress disorder	1 (0,2)	7 (0,4)
Psychotic disorders	0 (0,0)	4 (0,2)
Attempted self-extermination	0 (0,0)	4 (0,2)
Clinical diagnosis of neurodevelopmental conditions		
Attention deficit hyperactivity disorder	22 (36,9)	57 (3,2)
Autism spectrum disorder	3 (0,5)	8 (0,5)
Time of establishing the diagnosis		
Before the pandemic	128 (22,5)	489 (27,7)
During/after the pandemic	140 (24,6)	589 (33,4)
Use of psychotropic medications		
Antidepressant	130 (22,8)	538 (30,5)
Anxiolytic	112 (19,7)	491 (27,8)
Mood stabilizers	17 (3,0)	75 (4,3)
Antipsychotic	13 (2,3)	37 (2,1)
Non-benzodiazepine hypnotics	5 (0,9)	37 (2,1)
Other drugs related to emotional issues		
Homeopathic, phytotherapeutic, anthroposophic and/or floral	13 (2,3)	67 (3,8)
Amphetamines	11 (1,9)	43 (2,4)
Anticonvulsant	1 (0,2)	8 (0,5)
Muscle relaxant	0 (0,0)	3 (0,2)
Time to start using the medication		
Before the pandemic	60 (10,5)	277 (15,7)
During/after the pandemic	124 (21,8)	513 (29,1)

Source: the authors (2024).

In relation to the levels of depression, anxiety and stress in the population studied, depression had a median of 20.00 (10.00-30.00), indicating a moderate level, anxiety, 16.00 (8.00-26.00), with a severe level, and stress, 24.00 (16.00-34.00), with a moderate level. It is worth noting that 1,802 (77.30%) students presented depression, 1,790 (76.80%), anxiety, and 1,803 (77.20%), stress.

Table 3 presents the association of sociodemographic and clinical characteristics with levels of depression, anxiety and stress. Being female, receiving student aid and undergoing psychiatric and psychological follow-ups were statistically and concomitantly associated with the investigated triad. Moreover, skin color was statistically associated with depression and anxiety (Table 3).

Table 3 – Associação entre características sociodemográficas e clínicas e os níveis de depressão, ansiedade e estresse. Viçosa, MG, Brasil, 2024 (n=2.333)

(continue)

	Depression Median (p25-p75)	**p-value**	**Anxiety Median (p25-p75)**	**p-value**	**Stress Median (p25-p75)**	**p-value**
Biological sex						
Female	20,00 (10,00-30,00)	0,001†	18,00 (10,00-28,00)	<0,001†	26,00 (18,00-34,00)	<0,001†
Male	18,00 (8,00-28,00)		12,00 (4,00-22,00)		20,00 (12,00-30,00)	
Skin color						
White	18,00 (10,00-28,00)	0,045†	16,00 (8,00-26,00)	0,007†	24,00 (16,00-32,00)	0,106
Yellow	20,00 (8,00-26,00)		18,00 (2,00-26,00)		28,00 (12,00-34,00)	
Brown	20,00 (10,00-30,00)		18,00 (8,00-28,00)		24,00 (16,00-34,00)	
Black	22,00 (10,00-30,00)		20,00 (8,00-30,00)		26,00 (18,00-36,00)	
Indigenous	24,00 (17,00-34,00)		27,00 (17,00-34,00)		29,00 (17,00-38,50)	
Course area						
Agricultural	18,00 (9,50-30,00)	0,781	17,00 (8,00-26,00)	0,529	24,00 (17,50-34,00)	0,434
Biological and health	20,00 (10,00-30,00)		18,00 (8,00-26,00)		26,00 (16,00-32,00)	
Exact and technological	20,00 (10,00-30,00)		18,00 (8,00-28,00)		26,00 (16,00-34,00)	
Humanities, arts and languages and literature	18,00 (10,00-28,00)		16,00 (8,00-26,00)		24,00 (16,00-32,00)	

Table 3 – Associação entre características sociodemográficas e clínicas e os níveis de depressão, ansiedade e estresse. Viçosa, MG, Brasil, 2024 (n=2.333)

(continue)

	Depression Median (p25-p75)	p-value	Anxiety Median (p25-p75)	p-value	Stress Median (p25-p75)	p-value
Housing						
Alone	18,00 (10,00-30,00)	0,100	16,00 (6,00-28,00)	0,122	24,00 (16,00-34,00)	0,819
With family	20,00 (10,00-30,00)		16,00 (8,00-26,00)		24,00 (16,00-34,00)	
Pension	19,00 (10,50-28,00)		20,00 (10,00-29,50)		24,00 (16,50-33,50)	
Republic	18,00 (10,00-28,00)		16,00 (8,00-26,00)		25,00 (16,00-32,00)	
Student accommodation	24,00 (14,00-30,00)		20,00 (12,00-28,00)		26,00 (18,00-34,00)	
Scholarship						
No	20,00 (10,00-30,00)	0,408	16,00 (8,00-26,00)	0,644	24,00 (16,00-32,00)	0,130
Yes	20,00 (10,00-30,00)		18,00 (6,00-26,00)		26,00 (18,00-34,00)	
Student aid						
No	18,00 (10,00-28,00)	0,001†	16,00 (7,50-26,00)	<0,001†	24,00 (16,00-32,50)	0,030†
Yes	22,00 (12,00-30,00)		18,00 (10,00-28,00)		26,00 (18,00-34,00)	
Positive diagnosis for COVID-19						
No	18,00 (10,00-28,00)	0,070	16,00 (8,00-26,00)	0,355	24,00 (16,00-34,00)	0,184
Yes	20,00 (10,00-30,00)		16,00 (8,00-28,00)		26,00 (16,00-34,00)	
Psychiatric follow-up						
No	16,00 (8,00-26,00)	<0,001†	14,00 (6,00-24,00)	<0,001†	22,00 (14,00-32,00)	<0,001†
Already did it before the pandemic	26,00 (16,00-32,00)		24,00 (14,00-32,00)		30,00 (22,00-36,00)	
Started doing it during/after the pandemic	24,00 (16,00-34,00)		24,00 (14,00-30,00)		30,00 (22,00-36,00)	
Psychological follow-up						

Table 3 – Associação entre características sociodemográficas e clínicas e os níveis de depressão, ansiedade e estresse. Viçosa, MG, Brasil, 2024 (n=2.333) (conclusion)

	Depression Median (p25-p75)	p-value	Anxiety Median (p25-p75)	p-value	Stress Median (p25-p75)	p-value
No	18,00 (8,00-28,00)	<0,001†	14,00 (6,00-24,00)	<0,001†	22,00 (14,00-32,00)	<0,001†
Already did it before the pandemic	22,00 (12,00-32,00)		22,00 (12,00-30,00)		28,00 (20,00-36,00)	
Started doing it during/after the pandemic	20,00 (12,00-30,00)		18,00 (10,00-28,00)		26,00 (20,00-34,00)	

Legend: † p<0.005.

Source: the authors (2024.

A negative, statistically significant and weak correlation was observed between physical health, depression, anxiety and stress, and a moderate correlation between mental health and these three constructs (Table 4), which means that the higher the levels of mental disorders, the worse the self-perceptions of physical and mental health.

Table 4 – Correlation between self-perception of physical and mental health and levels of depression, anxiety and stress. Viçosa, MG, Brazil, 2024 (n=2,333)

	Depression	Anxiety	Stress
Physical health			
r	-0,362	-0,335	-0,315
p-value	<0,001†	<0,001†	<0,001†
Mental health			
r	-0,581	-0,517	-0,518
p-value	<0,001†	<0,001†	<0,001†

Legend: † p<0.005

Source: the authors (2024).

DISCUSSION

This study showed that students had significant prevalences of depression, anxiety and stress in the post-COVID-19 pandemic context, in addition to moderate levels of depression and stress, and severe anxiety. During the pandemic, the prevalence of emotional disorders was consolidated in a worrying way in the university population[9], and remained high in the post-pandemic context[10-11], as evidenced in this study. It is also important to highlight that the levels of the investigated triad were observed in greater magnitude in the sample studied than in other international studies in the post-pandemic context[12-13], which denotes great emotional distress among Brazilian students.

In fact, students, when inserted in academic environments, are faced with external demands that make them susceptible to emotional imbalance, such as excessive demands;

physical overload; financial difficulties; mental exhaustion; insufficient time for leisure and recreation; social and structural issues, such as unemployment, insufficient income and inequality of opportunity, inherent to this moment1. The pandemic context was a great booster of this imbalance, with remnants in the post-COVID-19 era. Therefore, the findings of the present study highlight the need for greater attention to university students' mental health, especially in the post-pandemic context.

Furthermore, it was possible to verify that sociodemographic characteristics, such as female sex ($p<0.001$ for the three constructs), self-referring to skin color as black or indigenous ($p=0.045$ for depression and $p=0.007$ for anxiety), receiving student aid ($p=0.001$ for depression and anxiety and $p=0.030$ for stress) and undergoing psychological ($p<0.001$ for the three constructs) and psychiatric ($p<0.001$ for the three constructs) follow-up, exerted influence on the levels of depression, anxiety and stress. These findings demonstrate the importance of investing in coping strategies that take into account modifiable factors that can mitigate such disorders, such as student aid and follow-up with specialists.

Some sociodemographic variables demonstrated statistical significance in relation to depression, anxiety and stress. In the present study, higher levels of these three disorders were found in female students, with a statistically significant association ($p<0.001$). This finding shows greater susceptibility of women in the academic environment to such disorders, in line with findings in international research on the subject[12,14].

Several factors are associated with women's high vulnerability to these comorbidities, influenced by historical and cultural elements related to their social role, including emotional overload, accumulation of tasks and greater exposure to gender-based violence. It is also worth highlighting physiological issues and intrinsic hormonal fluctuations as contributors to mood swings in this population[15]. Furthermore, this finding may be related to the higher rate of self-care and seeking professional help, compared to men[12].

Skin color also emerged as a factor correlated with the occurrence of depression ($p=0.045$) and anxiety ($p=0.007$) in the sample investigated, with participants who self-declared as "black" or "indigenous" presenting higher rates of these conditions. Discussions, from the perspective of race/skin color, present divergence in the literature, due to the difficulty in relating mental disorders with the different ways of categorizing the variable in the available studies, since both the dichotomy of white or non-white and the description of colors can be adopted[16]. However, there are some studies that establish a connection between mental disorders and skin color both in the general population and in the academic environment[16-18], although it is not possible to affirm a concrete relationship.

A study that sought to investigate how university students' mental health was affected before and during the pandemic showed an increasing level of depression in black students compared to white students[19]. Similarly, this study identified statistical significance in relation to students' self-reported skin color, since, despite the predominance of white students in the sample, the presence of depression was more significant among those of black and indigenous skin color. These findings highlight racial disparity as a crucial aspect to be considered when assessing mental health in the academic environment.

The findings found in the present study in relation to anxiety in black and indigenous university students also support the trend described in the literature in relation to depression[19], of greater exposure in this group. In fact, the non-white population is the most impacted in several contexts, especially due to the historical context of Brazil, permeated by patterns of racism and dehumanization. Therefore, it is necessary to carry out more robust studies to analyze the association of these variables in the academic environment, aiming at the

implementation of specific health actions, since the pandemic has exacerbated pre-existing inequities, making these population segments even more vulnerable[20].

Regarding student aid, there was a significant association in relation to the three constructs investigated. The implementation of policies aimed at providing basic conditions for students to remain in public higher education is aligned with the Brazilian National Student Aid Program, established in 2010[21]. The greater psychological distress among students receiving assistance may be related to socioeconomic disadvantages, housing and food insecurity, as well as financial stress, which highlights the need for discussions about student retention in Brazilian universities[22].

The "student aid" factor and its impact on the aforementioned emotional disorders in students are still a limitedly discussed approach. A study conducted with university students assisted by student retention policies at a Brazilian university highlighted the importance of focusing on strategies to maintain this group's mental health, which has been shown to be weakened due to contextual factors of adaptation and continuity in the academic reality[23]. From this perspective, the innovative nature of the present research lies, since this association has not previously been observed in depth in the studies found, especially in the post-pandemic context.

Significant levels of depression, anxiety and stress were also found in students who underwent psychological or psychiatric follow-up before, during and after the pandemic. As a general rule, preserving mental health is linked to maintaining good quality of life and general health status, as outlined by a study carried out in Malaysia with the general population over 18 years of age, in which those with the most vulnerable health status were more likely to report negative impacts compared to those who had a satisfactory health status during the pandemic context[24].

Other research shows that the presence of at least one mental health disorder and reduced access to routine healthcare are associated with a higher risk of high levels of depression in the global population[9,25-26]. This phenomenon can be attributed to greater seclusion and the difficulties faced in adapting healthcare services in the face of the health crisis, as well as the sudden change in academics' lifestyle, increased concern in the face of the unstable scenario, in addition to readaptation to daily activities. Thus, participants in the present study who were undergoing follow-up for some emotional disorder during the pandemic, whether with psychiatrists or psychologists, presented more relevant indices of the investigated triad.

This study also assessed the association between students' self-perception of physical and mental health and levels of depression, anxiety and stress. From this perspective, an inversely proportional correlation was found between the variables so that the higher the level of the constructs investigated, the worse the students' perception of their physical and mental health.

The reduction in recreational activities and physical inactivity have a significant impact on students' disposition and mental overload, since one of the main health measures adopted to contain the spread of COVID-19 during the pandemic, social distancing, culminated in the adoption of the remote teaching system and the suspension of face-to-face tasks[27]. This is based, in part, on the fact that physical exercise can be used as an adjunctive treatment for a variety of disorders, with acute effects in reducing anxiety and depression[9]. In this sense, there is evidence of an increase in sedentary lifestyle, depression and anxiety in students during the pandemic, since there were changes related to lifestyle and a reduction in physical activities carried out during this period[28].

In the present study, mental health was perceived as impaired, precisely due to the presence of depression, anxiety and stress. It is known that these variables are closely and dynamically related, since people with some pre-existing mental disorder were more vulnerable to the worsening of their clinical situation during the pandemic[29], which corroborates the worsening of their mental health status. Furthermore, some of the adaptations made to control the spread of the COVID-19 virus, such as adapting to virtual teaching-learning methodologies, fear of contamination, social isolation and uncertainties regarding the academic and health future, interfered with students' psychological well-being[30].

Given the above, it is clear that emotional disorders are made up of complex interfaces that are intertwined with various sociodemographic and psychosocial aspects. Furthermore, the pandemic has proven to be a catalyst for depression, anxiety and stress in university students.

Thus, the management of these conditions encompasses several social sectors, with the Brazilian Health System as the main agent, which must be responsible for creating strategies that are effective in the face of the impacts of the COVID-19 pandemic on this population. It is also worth highlighting the potentially significant role of Higher Education Institutions in acting as promoters and guarantors of academics' well-being, in coordination with the services provided by the health network, carrying out the follow-up and treatment of students.

Among the limitations of this study, we highlighted the observation of manifestations of mental disorders at a single point in time, which made it impossible to establish cause-and-effect relationships between variables. It is also worth noting that data collection, carried out online, increased the risk of selection bias.

CONCLUSION

There was a high prevalence of depression, anxiety and stress among university students in the post-COVID-19 pandemic context at significant levels. It was also found that being female, having black or indigenous skin color, receiving student aid and undergoing psychological and psychiatric follow-ups are associated with higher levels of depression, anxiety and stress. These findings demonstrate the need to adopt coping strategies that can mitigate such disorders, acting, above all, on modifiable factors.

It is believed that the results obtained may represent an advance in the investigation of mental health among university students in the post-COVID-19 pandemic context, since it included data from students from different institutions and areas of knowledge.

Therefore, this study can contribute to alerting and providing visibility regarding the occurrence of mental disorders in university students as well as assist in the formulation of strategies aimed at preventing and maintaining these individuals' mental health.

For future research, longitudinal studies are suggested in order to monitor the behavior of variables over time. Moreover, it is necessary to explore the magnitude with which they occur in the groups most affected by the COVID-19 pandemic.

ACKNOWLEDGMENTS

To the Minas Gerais Research Support Foundation (FAPEMIG - *Fundação de Amparo à Pesquisa do Estado de Minas Gerais*) (APQ-03370-22) and to the Brazilian National Council for Scientific and Technological Development (CNPq - *Conselho Nacional de Desenvolvimento Científico e Tecnológico*) (Process 402216/2023-7).

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Received: 21/07/2024
Approved: 13/01/2025
Associate editor: Dr. Gilberto Tadeu Reis da Silva

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ISSN 2176-9133