

Impacts of the Covid-19 andemic on higher education students in Bahia

Impactos da pandemia do Covid-19 nos estudantes de ensino superior na Bahia

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ABSTRACT

A cross-sectional analytical study was conducted to assess how a COVID-19 pandemic interfered with the mental health of students in higher education in Bahia and to check for the presence of anxious and depressive symptoms through a questionnaire. Students were adapted virtually to respond anonymously about sociodemographic characteristics, lifestyle, health-related aspects and a pandemic. To assess the symptoms of anxiety and depression, the Hospital Anxiety and Depression Scale (HAD) was used. The data were trained in SPSS. In total, 1,213 students were acquired. Most altered their health behavior with worsening sleep quality, increased use of medication to sleep, decreased frequency of physical activities. Anxious and depressive symptoms were present in 66.1% and 54.4% of undergraduate and graduate students, respectively, associated with social isolation, uncertainty about the future, difficulties in family relationships, financial loss, fear of being infected and of being infected. other people and loss of a family member

due to COVID - 19. In view of the evidence of psychological distress, it is necessary to develop measures so that students can adopt more positive behaviors and reduce much of the impacts left by this pandemic.

Keywords: pandemic, coronavirus, mental health, higher education students.

RESUMO

Foi realizado um estudo analítico transversal para avaliar como uma pandemia de COVID-19 interferiu com a saúde mental dos estudantes do ensino superior na Bahia e para verificar a presença de sintomas ansiosos e depressivos através de um questionário. Os estudantes foram adaptados virtualmente para responderem anonimamente sobre características sociodemográficas, estilo de vida, aspectos relacionados com a saúde e uma pandemia. Para avaliar os sintomas de ansiedade e depressão, foi utilizada a Escala de Ansiedade e Depressão Hospitalar (HAD). Os dados foram treinados em SPSS. No total, foram adquiridos 1.213 estudantes. A maioria alterou o seu comportamento de saúde com o agravamento da qualidade do sono, aumento do uso de medicamentos para dormir, diminuição da frequência de actividades físicas. Sintomas ansiosos e depressivos estavam presentes em 66,1% e 54,4% dos estudantes de graduação e pós-graduação, respectivamente, associados ao isolamento social, incerteza sobre o futuro, dificuldades nas relações familiares, perda financeira, medo de ser infectado e de ser infectado. outras pessoas e perda de um membro da família devido à COVID - 19. Tendo em conta a evidência do sofrimento psicológico, é necessário desenvolver medidas para que os estudantes possam adoptar comportamentos mais positivos e reduzir muito dos impactos deixados por esta pandemia.

Palavras-chave: pandemia, coronavírus, saúde mental, estudantes do ensino superior.

1 INTRODUCTION

The pandemic caused by COVID–19 emerged in China in late 2019 and quickly spread to countless countries around the world¹.

From the beginning, social isolation was the most important recommendation of health units in order to prevent the spread of the disease. The measure, however, imposed a radical change in lifestyle and caused many of the expectations, projects and forecasts to be questioned, generating uncertainty about the future².

The fear of being contaminated and, daily information about the growing number of infected persons and, deaths, as well as physical isolation, favored the appearance of anxious symptoms, sadness and a feeling of loneliness, compromising affective and interpersonal relationships. Over time, the economic and emotional losses resulting from contaminated family members have become significant for triggering depressive symptoms³.

University students have superior indicators of the presence of mental disorders when compared to the general population⁴. With the pandemic caused by COVID-19, there was a change in the flow of classes and new teaching modalities with the emergence of online classes, in addition to interruptions in academic activities or early vacations. All of this generated an enormous apprehension in relation to the academic and professional future, being for this specific group another triggering factor of psychological suffering⁵.

Thus, the aim of this study was to assess how the COVID-19 pandemic interfered with the mental health of higher education students in Bahia and, what resources were adopted to face the pandemic, as well as to check for the presence of anxious and depressive symptoms.

2 METHODS

A cross-sectional study with higher education, (undergraduate and graduate) students from the state of Bahia, Brazil, during June and July 2020 was undertaken. An online survey was carried out using the snowball sampling technique. This sampling technique consists of sending the survey to students and acquaintances, and asking them to encourage and transmit it to others.

Graduates and post-graduates from the State of Bahia were included, who were regularly enrolled from January 2020 and who were 18 years old or more in this period. Those individuals who did not complete the questionnaire and who during the COVID-19 pandemic period were residing in other federal states were excluded.

As the government of Brazil and the state of Bahia recommended to the public to minimize face-to-face interaction and isolate themselves at home, students were invited electronically to complete a questionnaire through an online survey platform Survey-Monkey.

The evaluation consisted of an online questionnaire about: sociodemographic and academic data, lifestyle data before and during the COVID-19 pandemic and also the Hospital Anxiety and Depression Scale (HAD). The HAD has 14 questions, 7 for anxiety and 7 for depression. Each answer ranges from 0 to 3 points, totaling the score from 0 to 21 points for anxiety and the same for depression. The cutoff points are eight for anxiety and nine for depression⁶.

The research was approved by the Research Ethics Committee of the Institute of Health Sciences of the Federal University of Bahia (opinion number: 4.105.713).

The Statistical Package for the Social Sciences, version 21.0 (SPSS Inc., Chicago, IL, USA) was used to analyze and tabulate the data. Categorical variables were expressed as absolute and relative frequencies, and continuous variables were expressed as means and standard deviations or medians and interquartile ranges. Values of $p < 0.05$ were considered statistically significant.

3 RESULTS

The survey was answered by 1,213 students aged between 17 and 65 years, with 81.5% undergraduates and 18.5% graduates. Table 1 shows the sociodemographic characteristics of the studied sample.

Table 1. Sociodemographic characteristics of the 1,213 students evaluated. Bahia, Brazil, June and July 2020.

Variables	Results
Age (years)*	23 (21 – 29)
Genre	
Female	918 (75.7%)
Male	289 (23.8%)
Not binary	6 (0.5%)
Sexual orientation	
Heterosexual	932 (76.8%)
Homosexual	110 (9.1%)
Bisexual	165 (13.6%)
Pansexual	6 (0.5%)
Race/Color	
Brown	505 (41.6%)
White	412 (34.0%)
Black	288 (23.7%)
Indigenous	8 (0.7%)
Family income	
Less than or equal to -1 minimum wage	201 (16.6%)
1 to 3 -minimum wages	472 (38.9%)
4 to 10 -minimum wages	324 (26.7%)
Greater than 11 -minimum wages	216 (17.8%)
Place of residence	
Salvador and metropolitan area	941 (77.6%)
Inland	272 (22.4%)
Housing condition	
I live with family	941 (77.6%)
I live with other people	154 (12.7%)
I live alone	118 (9.7%)
Religion-/spirituality	
I have spirituality but no religion	403 (33.2)
Protestantism	193 (15.9)
Catholicism	298 (24.6)
Afro-Brazilian (Umbanda, Candomblé)	47 (3.9)
Spiritism	217 (17.9)
Other	55 (4.5)

*Data in median and interquartile range.
Authors' elaboration.

As for the type of university to which they belonged, most of the interviewees studied at a public university (54.2%) and had their academic activities suspended (55.2%).

Table 2 shows how students and their families have experienced the pandemic period.

Table 2. Attitudes and consequences of the pandemic on students and their families in-Bahia, Brazil, evaluated June and July 2020.

Variables	n (%)
You are a professional or frontline worker	79 (6.5%)
Has fulfilled the quarantine	1.152 (95%)
You were diagnosed with COVID-19	47 (3.9%)
Some family member diagnosed with COVID-19	374 (30.8%)
Someone close diagnosed with COVID-19	997 (82.2%)
Death of someone close caused by COVID-19	187 (15.4%)
Loss of family income	710 (58.5%)

Authors' elaboration.

When asked about changes in lifestyle and health habits resulting from the pandemic, the results pointed to important changes, with a worsening in the quality of sleep, an increase in the use of sleeping medication and a decrease in the frequency of physical activities (Table 3).

Table 3. Evaluation of sleep and physical activity among university students in the state of Bahia, Brazil, June and July 2020.

Variables	Before the pandemic n (%)	After the pandemic n (%)
Sleep quality		
Very good	276 (22.8)	103 (8.5)
Good	714 (58.9)	439 (36.2)
Bad	223 (18.4)	431 (35.5)
Very bad	-	240 (19.8)
Sleep medication use		
Never	928 (76.5)	852 (70.2)
Less than 1 time a week	174 (14.3)	159 (13.1)
1 to 2 times a week	48 (4.0)	82 (6.8)
3 or more times a week	63 (5.2)	120 (9.9)
Frequency of physical activity		
Never	241 (19.9)	492 (40.6)
Less than 1 time a week	169 (13.9)	270 (22.3)
1 to 2 times a week	307 (25.3)	195 (16.1)
3 or more times a week	496 (40.9)	256 (21.1)

Authors' elaboration.

When assessing the impact of COVID-19 on the sample of university students, the results reveal that, during the pandemic period, there were increases in the use of alcoholic beverages, illicit drugs, medications to calm down and herbal medicines. The

vast majority of students were concerned with the economic situation in Brazil and with the delays in their undergraduate course due to the suspension of class activities. In the psychic evaluation, was observed that a large part of the sample of students showed symptoms of anxiety and depression.

Table 4. Assessment of consumption habits, concerns and psychological symptoms of students during the COVID-19 pandemic in the state of Bahia, Brazil, assessed in June and July 2020.

Variables	n (%)
Increased consumption of alcoholic beverages	
Yes	277 (22.8)
No	546 (45.0)
No consumption	390 (32.2)
Increased consumption of illicit drugs	
Yes	31 (2.6)
No	377 (31.1)
No consumption	805 (66.4)
Increased consumption of tranquilizers	
Yes	273 (22.5)
No	370 (30.5)
No consumption	570 (47.0)
Concerned about the country's economic situation	1.157 (95.4)
Worried about delays courses	1,038 (85.6)
Presence of anxious symptoms	802 (66.1)
Presence of depressive symptoms	660 (54.4)

Authors' elaboration.

Table 5: Factors associated with signs and symptoms of depression and anxiety in the evaluated students. Salvador, Bahia, Brazil, June and July 2020.

Variables	Presence of depressive symptoms		P (P adjusted)	Presence of anxious symptoms		P P adjusted
	Yes	No		Yes	No	
	660 (54.4%)	553 (45.6%)		802 (66.1%)	411 (33.9%)	
Age (years)	23 (21– 28)	24 (21 – 30)	0.004 (0.042)	23 (21 – 28)	24 (21 – 32)	0.005 (< 0.001)
Gender			0.014 (0.009)			< 0.001 (0.001)
Female	517 (78.8%)	401 (72.8%)		631 (79.3%)	287 (69.8%)	
Male	139 (21.2%)	150 (27.2%)		165 (20.7%)	124 (30.2%)	
Type -of university			0.024 (0.059)			0.075 (0.170)
Public	377 (57.1%)	280 (50.6%)		449 (56.0%)	208 (50.6%)	
Private	283 (42.9%)	273 (49.4%)		353 (44.0%)	203 (49.4%)	

Academic activity maintained	288 (42.7%)	261 (47.2%)	0.119 (0.392)	350 (43.6%)	193 (47.0%)	0.271
Type of student			0.122 (0.834)			0.171 (0.178)
Graduate	548 (83.0%)	440 (79.6%)		662 (82.5%)	326 (79.3%)	
Undergraduate	112 (17.0%)	113 (20.4%)		140 (17.5%)	85 (20.7%)	
Concern about course delay	588 (89.1%)	450 (81.4%)	< 0.001 (0.002)	719 (89.7%)	319 (77.6%)	< 0.001 (<0.001)
Family income			0.016 (0.238)			0.001 (0.068)
Up to 3 minimum wages	387 (58.6%)	286 (51.7%)		473 (59.0%)	200 (48.7%)	
Four or more	273 (41.4%)	267 (48.3%)		329 (41.0%)	211 (51.3%)	
Housing conditions			0.635 -			0.204 -
Lives with family	509 (77.1%)	432 (78.1%)		617 (76.9%)	324 (78.8%)	
Lives with other people	82 (12.4%)	72 (13.0%)		111 (13.8%)	43 (10.5%)	
Lives alone	69 (10.5%)	49 (8.9%)		74 (9.2%)	44 (10.7%)	
Religion/spirituality	422 (63.9%)	395 (71.4%)	0.006 (0.011)	533 (66.5%)	284 (69.1%)	0.353 -
Work on the front-line of COVID-19	38 (5.8%)	41 (7.4%)	0.244 -	47 (5.9%)	32 (7.8%)	0.198 (0.652)
Compliance with quarantine	629 (95.3%)	523 (94.6%)	0.563 -	764 (95.3%)	388 (94.4%)	0.518 -
Have had COVID-19	33 (5.0%)	14 (2.5%)	0.027 (0.015)	34 (4.2%)	13 (3.2%)	0.358 -
Family with COVID-19	210 (31.8%)	164 (29.7%)	0.417 -	259 (32.3%)	115 (28.0%)	0.124 -
Someone close with COVID-19	557 (84.4%)	440 (79.6%)	0.029 -	671 (83.7%)	326 (79.3%)	0.061 -

Death of someone close with COVID-19	116 (17.6%)	71 (12.8%)	0.023 (0.020)	140 (17.5%)	47 (11.4%)	0.006 (0.002)
Loss of family income	412 (62.4%)	298 (53.9%)	0.003 (0.005)	498 (62.1%)	212 (51.6%)	< 0.001 (0002)

Authors' elaboration.

4 DISCUSSION

The findings of our study showed that the COVID-19 pandemic interfered with the mental health of higher education students in Bahia, revealing that anxious and depressive symptoms are more frequent in younger and female students, who are very concerned about course delays, in addition to those who had someone close die due to COVID-19 and who had a loss of family income during the pandemic period. The results show that having religion-/-spirituality seems to be a protective factor for the onset of depressive symptoms.

Researchers around the world point to the psychological suffering caused by the coronavirus. As it is a public health emergency, it has imposed rapid changes in lifestyle, which have repercussions on the appearance of numerous psychological and psychiatric features⁷.

The sociodemographic profile of the students evaluated in this study reveals similarity with other studies by university students regarding age, female gender, living in the state capital and living with the family⁵. The presence of religion-/-spirituality in this sample reveals facing the pandemic. This finding is in dialogue with the literature, which states that spiritual skills serve to relieve stress and psychological suffering⁸.

In this study, it was identified that more than half of the students evaluated had low family income and are self-declared black, considering blacks and brown individuals, with most of these students in undergraduate education at public universities. This finding reflects the profile of students who are in public institutions in our country. According to research conducted by the Federal Institutions of Higher Education (-IFES) in 2018, there is a growing increase in female students and black people. This data is the result of the adoption of affirmative action policies at federal universities, which began to be implemented in 2005 and after the creation of the Support Program for Federal University Restructuring and Expansion Plans (Reuni), in 2007, and the creation of a mandatory federal affirmative action program through Law No. 12,711 of 2012. From 2003 to 2018, brown individuals increased their participation among students and the participation

among black individuals more than doubled. When analyzing per capita income, this report points out that the majority of students in the Northeast have a gross monthly family income “up to 3 minimum wages”⁹.

It is a population exposed to social determinants marked by the precariousness that situates them as a vulnerable population, given the risks related to racism, violence and poverty, in addition to precarious housing with many inhabitants per household. Scholars point out that the impact generated by an epidemic in groups of greater vulnerability, favors more psychopathological responses and significant aggravations of illness due to social, environmental, health, and economic conditions, generating greater physical and mental suffering¹⁰.

The Health Surveillance of the Ministry of Health of Brazil determined social isolation was a protective measure to control the pandemic in March 2020. From then on, all public education activities that had always taken place in person in the country were suspended. As Brazil is a developing country that faces numerous economic and social difficulties, online education and wide access to high-quality technologies are not very feasible. In most of the subjects investigated, this reflects their concerns with the country’s economic situation and with the delays in their undergraduate courses due to the COVID–19 pandemic. Federal universities started to study measures to expand access to students and enable the resumption of activities in the online modality, which only happened in September of this year, however, social vulnerability shows the difficulty of part of this population in having access to quality Internet networks. Public universities in Brazil are recognized as highly regarded for teaching, research and extension, in addition to the growing social commitment¹¹.

Many students also reported financial loss from their families due to the pandemic. This data corroborates the panorama of economic losses resulting from COVID–19 in many countries around the world. The World Health Organization requested that all affected countries take measures to close borders and, prohibit local trade and, travel, among many other measures that directly affect the life, survival and economy of the countries involved. Thousands of people-lost their jobs, and there was an unbridled quest to develop strategies to obtain some resources to meet their basic needs^{12,13}. In Brazil, the government implemented emergency financial assistance, with delay and a high level of complexity, for those in greater situations of social vulnerability, which led to agglomeration and queuing at banks to withdraw this subsidy, with a consequent increase in exposure to the virus.

As the majority of the students evaluated do not carry out work activities on the front lines of the fight against COVID-19 and have complied with the sanitary determination of social isolation, few were contaminated with the virus. Despite this, a large part of our sample revealed that they had someone close to them who had been diagnosed with COVID-19, few had the death of someone close to them, and a small part referred to the illnesses of their family members, until the moment of the research. These findings seem to be supported by a systematic review with a meta-analysis carried out with the aim of investigating the effects of physical distance, face masks and eye protection on the transmission of the virus in healthcare environments and communities. This review was carried out on 21 databases and resources from the beginning until May 3, 2020, without language restriction and, for studies of any design, and found 172 observational studies in care and non-care settings in 16 countries and 6 continents. Of these, 44 comparative studies were included in a meta-analysis, including 25.697 patients with COVID-19, SARS or MERS. The results showed that, despite the physical distance of at least 1 m being strongly associated with protection, distances of up to 2 m can be more effective. Although it presents limited direct evidence, the use of face masks, in particular N95, in healthcare settings and surgical or cotton masks in the community are protective measures depending on contextual factors, requiring action at all levels for better evidence, and points to eye protection as providing additional benefits¹⁴.

Some parameters were used to verify health behaviors before and after the COVID-19 pandemic. The findings revealed that university students had changes in sleep patterns, increased use of sleeping medication, decreased frequency of physical activity, and increased consumption of alcoholic beverages and other psychoactive substances, in addition to the increased use of tranquilizers and herbal medicines. These findings were also found in an Australian study that sought to investigate the association between psychological distress and behavioral changes since the beginning of the pandemic and revealed that, for 1,491 investigated subjects, mostly women, there was a negative change in physical activity, sleep, alcohol intake and smoking in this period, worsening for people with lower economic income, aged between 18 and 45 years and who had some chronic disease¹⁵.

When assessing psychological distress in university students, the presence of symptoms of anxiety and depression were also found to be highly prevalent in other studies. Studies show that these symptoms are associated with social isolation, uncertainty about the academic and professional future, difficulties in living and family

relationships, insecurity and financial loss, fear of being infected and of infecting others, loss of a relative due to COVID–19, and anxiety about the future¹⁶⁻²⁰.

The results show that having religion-/–spirituality seems to be a protective factor for the onset of depressive symptoms. This data corroborates with other studies that show that students who feel supported by their beliefs have greater emotional and mental well-being²¹⁻²³.

It is necessary that universities encourage the creation of health promotion strategies to favor more positive behaviors to minimize the psychological impacts caused by COVID–19. We highlight the effects of social vulnerability as an important source of mental illness, risk of contamination, and increased poverty, especially of the black population and women. It also identified the need for actions that expand the remote access of this university population in a condition of social vulnerability, with a view to building the possibility of academic inclusion and remote care for the mental health of students. For this, a continuous and careful look with frequent evaluations on the changes resulting from the pandemic process, not only can provide that university students use resources to face the lived experiences, but also adaptive resources for the new academic realities.

5 CONCLUSION

The COVID-19 pandemic had an impact on the mental health of university students by showing the presence of anxious and depressive symptoms. These symptoms are related to the isolation of social activities, fear of the future, difficulties in affective and family relationships, fear of being infected and of contaminating others, and loss of a family member due to COVID–19.

CONFLICTS OF INTEREST

There is no conflict of interest.

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