

## ORIGINAL RESEARCH

# Experiences of undergraduate students from Portuguese-speaking countries during the COVID-19 pandemic

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## ABSTRACT

**Objective:** To explore the experiences of Portuguese-speaking undergraduate students during the COVID-19 pandemic.

**Methods:** This is a qualitative descriptive study carried out from August to December 2022 with 41 Portuguese-speaking undergraduate students. Virtual interviews were carried out with audio-records. The participants' speeches were transcribed and processed in IRAMUTEQ and analyzed using the Descending Hierarchical Classification.

**Results:** A total of 20,716 occurrences of words were observed, and six categories emerged: Media information and fear of risk of acquiring the disease; Negative effects of social isolation due to COVID-19; Reorganizing the routine during the pandemic period; Concerns about the shift from on-site teaching to online teaching; Impacts of the pandemic on future plans; Adaptation to changes and the new lifestyle to control COVID-19. The participant's speeches showed that the COVID-19 pandemic has strongly affected the academic life of Portuguese-speaking undergraduate students with negative repercussions on mental well-being, adaptation to social isolation, difficulty in maintaining a productive routine, experiencing episodes of anxiety and concerns regarding online teaching, insecurity and anguish due to changes in future plans and a new lifestyle.

**Conclusions:** Experiences of Portuguese-speaking undergraduate students during the COVID-19 pandemic have shown the impact of the emerging scenario on their mental health, life adaptation and academic routine. These results can subsidize the development of strategies to promote the mental health of undergraduate students, especially after the COVID-19 pandemic, aiming at improving students' quality of life, well-being, and equality in access to quality education.

**Key Words:** Undergraduate students, COVID-19 pandemic, Social isolation, Mental health

## 1. INTRODUCTION

The new coronavirus (COVID-19) caused a global crisis and had significant repercussions in health systems, economic activities, education, and leisure.<sup>[1-3]</sup> As a result of social

isolation measures, universities suspended on-site classes and started to adopt online teaching, given that these environments have the potential to become centrifugal centers of outbreaks due to the large population of undergraduate

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students and high levels of social contact. It is estimated that the closure of educational institutions affected more than 890 million students in 114 countries.<sup>[2,4]</sup>

However, studies have shown that the experience of social distancing and interruption of college routine from the closing of universities and home confinement can produce several psychological effects in undergraduate students such as anxiety, depression, impairment of academic performance, frustration, fear, miss of hope, and concern.<sup>[5-7]</sup>

Thus, it is reported that undergraduate students may have reduced motivation concerning studies, greater pressure to learn independently and abandonment of daily routines.<sup>[3]</sup> This reinforces the need for research that can understand the experiences, mechanisms and psychological reactions underlying such an atypical and challenging life span.<sup>[7,8]</sup>

However, to date, there are limited studies that have sought to understand the impact of COVID-19 on the experiences of undergraduate students from Portuguese-speaking countries. Therefore, studies are needed and can reflect the reality experienced by undergraduate students from different scenarios so that subjective aspects can be revealed, thus subsidizing actions to promote mental health and reduce the negative effects caused by this period of global emergency, directing future interventions in post COVID-19 period and new crisis to minimizing these negative impacts.<sup>[8,9]</sup> In this view, this study aimed to explore the experiences of Portuguese-speaking undergraduate students during the COVID-19 pandemic.

## 2. METHODS

### 2.1 Study design

This is an exploratory and descriptive study, with a qualitative approach, carried out in a virtual environment from August to December 2022. The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was used.

### 2.2 Population and sample

The target population was represented by students from a federal public college, whose campuses are located in the municipalities of Acarape and Redenção, in the state of Ceará, Brazil, and include undergraduate students from Brazilian and Portuguese-speaking African Countries (PALOP). The study sample was non-probabilistic for convenience, composed of 41 Portuguese-speaking undergraduate students.

### 2.3 Inclusion and exclusion criteria

Undergraduate students regularly enrolled at the institution and who had digital equipment (cell phone, tablet or notebook) with internet access were included. Undergraduate students who did not answer the video call after three at-

tempts or who gave up participating in the study before the scheduled meeting were excluded.

### 2.4 Approach method

First, each of the researchers identified, in their smartphone contact list, five people who had the desired profile to participate in the study. Then, sampling by virtual snowball was used,<sup>[10]</sup> which started with sending/presenting the access link to the invitation to participate in the study via virtual applications (WhatsApp<sup>®</sup> and Instagram<sup>®</sup>). By accessing the link on Google Forms<sup>®</sup>, undergraduate students could read an initial text that contemplated the objective of the study and the data collection process. In the message body, in addition to the presentation of the research, there was a request for the link to be shared with their network of contacts of Portuguese-speaking undergraduate students.

After acceptance, each student received a request for virtual agreement of the Informed Consent Form (ICF) from another form built on Google Forms<sup>®</sup>, with subsequent scheduling of the online interview on a day and time chosen by the college. After this, undergraduate students were instructed to identify a reserved and private place of their choice for the time of the interview. This orientation is because many undergraduate students returned to the family environment, in their cities of origin, through social isolation guidelines. Thus, a reserved place was relevant to collaborate with the concentration of participants during the interview, without interference from family members.

### 2.5 Data collection

The interviews were carried out by four researchers (one nurse and three nursing students), who were previously submitted to a four-hour online training with a doctor in nursing, experienced in qualitative research, to standardize the data collection method. Data collection was carried out by a primary source, directly with undergraduate students, by video call on Google Meet<sup>®</sup>, which allowed the audiovisual interaction between undergraduate students and researchers.

Each college student participated in only one interview, which lasted, on average, 20 minutes. For this moment, a semi-structured interview questionnaire composed of two parts was used: the first contained sociodemographic information (sex, age, marital status, nationality, course, and semester); the second part was represented by the triggering question "Talk about your experience in the COVID-19 pandemic".

### Recording and transcription

All interviews were audio-recorded with the consent of all undergraduate students on smartphones. After finishing each interview, the audios were sent for storage in a restricted

account on Google Drive<sup>®</sup>. During the interviews, the researchers allowed free speech. To complete the collection of audio-recorded interviews, the theoretical data saturation criterion was used.<sup>[11]</sup> Thus, when the interviews started to present repetitions in their content and the absence of new elements, the appointments were paralyzed. Then, the audio-recorded material was transcribed in full for further analysis of the testimonies.

## 2.6 Data analysis

For data processing, we used the software Interface de R pour l'Analyse Multidimensionnelle de Textes et de Questionnaires (IRAMUTEQ), version 0.7 Alpha 2.3.3.1. It is a free program, based on the R software, which allows processing and analysis of multivariate texts using the Descending Hierarchical Classification (DHC).<sup>[12]</sup>

In this analysis, the segments are grouped into classes, using the chi-square, so that the classes are composed of segments that have similarity and that differ from the segments that make up the other classes. The visual representation of the relationship between classes is presented by the software in the form of a dendrogram. Data processing was compatible with IRAMUTEQ, since the transcription of texts consisted of 579 segments, which were used for analysis of 80.14%.

## 2.7 Ethical considerations

The research followed all ethical standards present in Resolution 466/2012 of the Brazilian National Health Council and was approved by the research ethics committee. All participants were informed of the study's purpose and accepted and signed the ICF. Participant anonymity and content confidentiality were preserved by coding the recorded audio testimonies. The letters "BU" were used for Brazilian undergraduate students and "IU" for international undergraduate students, added by a sequential Arabic number at each interview.

## 3. RESULTS

Among the 41 undergraduate students who participated in the study, 25 were Brazilian and 16 were international from African countries such as Angola, Guiné-Bissau, Moçambique, São Tomé and Príncipe. Most were male (56%), single (100%), mean age of 23.09 years ( $\pm 0.9$ ) and nursing students (56%). The average monthly income of undergraduate students was 473.40 reais (about US\$85.26). During the public recommendations for social isolation, there was a predominance of undergraduate students who were accompanied by family or friends (87.8%).

Regarding the characterization of classes/categories, in the analysis of the corpus "Experiences of undergraduate stu-

dents during the COVID-19 pandemic", from the transcription of audio-recorded speeches, 20,716 occurrences of words were observed, with 2,651 different forms and 579 segments, with use of 80.14% of the text. Figure 1 shows the dendrogram that demonstrates the six classes/categories arising from the content partitions.

From the content analysis of the testimonies, six categories emerged: Media information and fear of acquiring the disease; Negative effects of social isolation due to COVID-19; Reorganizing the routine during the pandemic period; Concerns about the shift from on-site teaching to online teaching; Impacts of the pandemic on future plans; Adaptation to changes and the new lifestyle to control COVID-19.

### 3.1 Media information and fear of risk of acquiring the disease

The most representative words in this category were "disease", "risk", "family" and "fear". Insecurity in the face of something unknown and new, is reflected in the fear of undergraduate students acquiring the disease in a severe form (reported by the media) and transmitting it to family members:

*"At the beginning of the pandemic, the media put this disease as virulent. This made me very afraid of passing the virus on to my family" (BU4).*

*"That atmosphere of fear, frightening, prevailed a lot. Because we stay at home and if we go out, we are at great risk of catching this virus. I was afraid of getting sick with the severe form and transmitting it to someone" (BU10).*

*"We found in the media that a lot of people were dying from the virus, and we have family and friends who could catch the disease" (IU8).*

### 3.2 Negative effects of social isolation due to COVID-19

In the daily life of undergraduate students, it was common to spend the day outside the home environment due to academic activities, and in contact with other undergraduate students and professors. After the decree recommending social isolation, many Brazilian undergraduate students returned to their cities of origin and were secluded with family members, while many international undergraduate students, faced with the distance from their country of origin, were isolated alone or with colleagues who shared a home. Measures introduced to slow the spread of COVID-19 have significantly affected the daily lifestyle and mental well-being of undergraduate students:

*"This social distance makes me miss and worry a lot" (BU4).*

*"My anxiety is associated with the fact that I spend a lot of time secluded at home, being limited, not being able to seek other experiences, with no way out" (BU6).*

“Isolation generated a feeling of sadness, of being stuck in-doors for 24 hours. Sometimes you want to have someone to talk to, but you can’t” (BU12).  
 “I feel bad for living this situation, this issue of distancing, with each passing day people are more distant from each

other” (IU1).  
 “It’s stressful to stay indoors” (IU4).  
 “I feel anxiety, stress, sadness, depression, loneliness” (IU14).

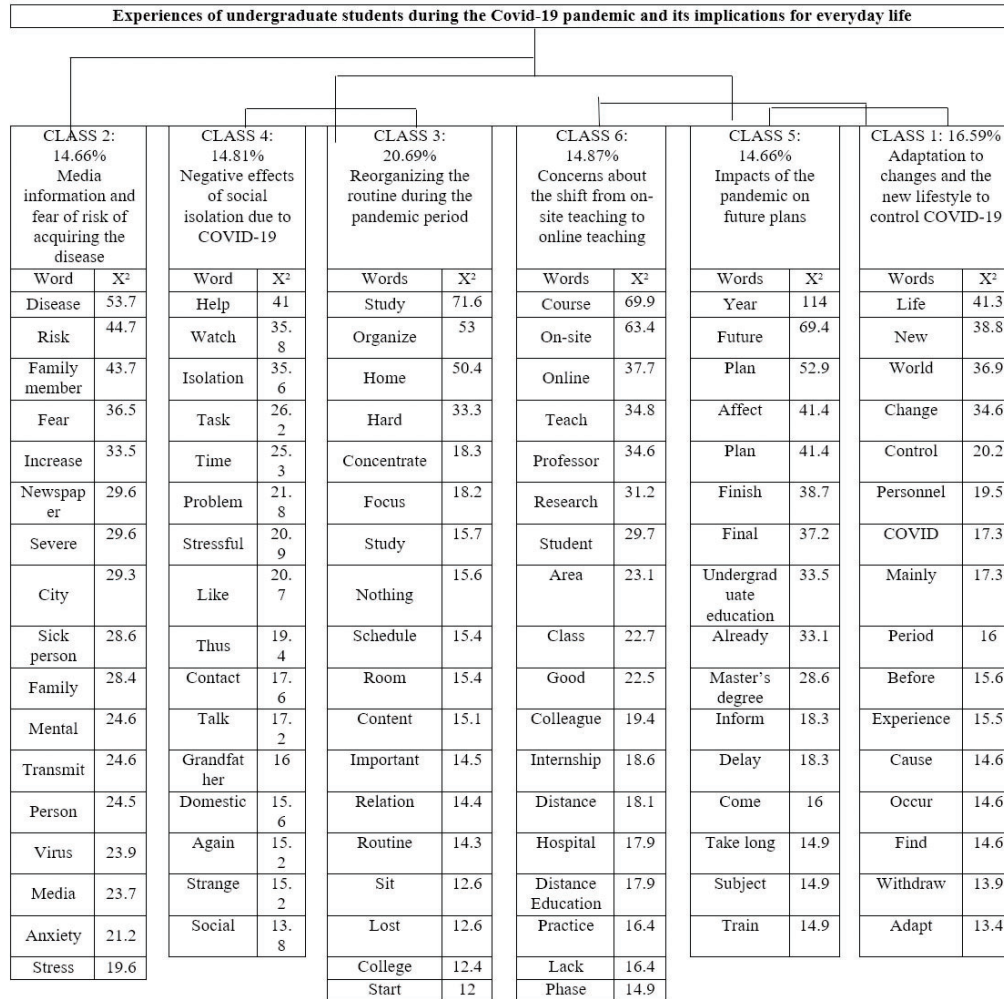


Figure 1. Dendrogram of words presented in classes, obtained from Descending Hierarchical Classification (DHC). Redenção, Ceará, Brazil, 2022

3.3 Reorganizing the routine during the pandemic period

It was possible to identify a demonstration of undergraduate students’ concern about the difficulty in maintaining a productive routine away from the physical space of the college and the faculty. There were difficulties in adapting to the home environment, which contained extra demands from family dynamics, more noise and interruptions:

“When I got home it was very messy, I didn’t have a place to study. I studied in the living room of my house, and there was always a movement of people. It is difficult to get out of the college’s previous routine” (BU3).

“I couldn’t organize myself in relation to my studies” (BU4).  
 “With the pandemic, it became more difficult to create a study routine” (BU6).  
 “I totally disconnected from things related to studies” (IU3).  
 “I try to organize myself for my studies, but it hasn’t been easy” (IU17).

3.4 Concerns about the shift from on-site teaching to online teaching

The long period of social isolation motivated universities to switch to online teaching. There was effort on the teaching experience and how college professors could start teach-

ing online. Although online teaching and learning are not entirely new, conducting online undergraduate courses generated concerns among undergraduate students, who did not feel prepared for this new teaching model:

*“It impacts me not to have on-site classes, for me, it is difficult because I like it when it is on-site, so I can be motivated” (BU1).*

*“I confess that at first, I was a little lost because since I was a child I only studied in person, I had never studied online” (BU8).*

*“At the moment the pandemic started, we started distance classes. But it didn’t work out very well, because I had many difficulties” (BU10).*

*“Online classes have not been easy” (IU4).*

It was also noticeable that many undergraduate students did not have enough technological apparatus to guarantee the success of the online teaching modality, such as access to quality internet and an exclusive computer to attend classes and carry out the tasks proposed by professors, mainly international undergraduate students, as identified in the following excerpts:

*“Here, at home, there is only one notebook, which I have to share with my sister. It is very difficult to adapt to studies during the pandemic in this online format” (BU2).*

*“My internet is by radio waves and when it is very windy or raining, the internet goes down, cuts all the connection, I miss several important parts of the class and this harms my learning” (BU3).*

*“It was difficult to organize my studies due to the lack of a computer” (IU1).*

*“Amidst the pandemic, I lost my computer and couldn’t get another one” (IU2).*

*“As for my studies, I had difficulty because I didn’t have a computer” (IU5).*

### 3.5 Impacts of the pandemic on future plans

There was a concern of undergraduate students with their future professional career and with issues related to studies, such as the interruption of internships due to the risk of contamination and the time to complete the undergraduate course, possibly being postponed:

*“I’m afraid that all this will interfere in my life, in my projects and plans” (BU4).*

*“We are behind a lot, basically two semesters and to come back later, recover everything again will be very complicated” (BU10).*

*“It is frustrating and very demotivating to change our plans” (BU17).*

*“It got in the way of our goals, and we feel frustrated” (BU24).*

*“Postponing graduation is disappointing, I felt very sad and apprehensive” (BU5).*

Some undergraduate students were already in the last semester and had plans to apply for residency, contest and master’s edicts, which will be postponed due to the impossibility of completing the graduation in the allotted time:

*“This will delay my work plans, do a specialization or master’s degree” (BU10).*

*“It would be the year (2020) that I would prepare myself more actively for competitions and residencies or master’s degrees” (BU13).*

*“As I knew it would end at the end of next year (2021), I was already planning to try contests, masters and other selections” (BU17).*

*“It was a year (2020) of many plans, aiming for a master’s degree in 2021, but graduation was delayed” (BU23).*

It was also noticeable the concern of international undergraduate students in managing their future plans regarding immigration and length of stay in Brazil:

*“I scheduled the undergraduate course in four years, with this delay I will not leave (from Brazil) in the time I planned” (IU5).*

*“I am African and here at the college everything is very busy, we came with an entry and exit plan (from Brazil)” (IU8).*

*“I am afraid of the future; the first thing is that you don’t know when this will end and I will end up staying here (in Brazil) longer than I expected” (IU16).*

### 3.6 Adaptation to changes and the new lifestyle to control COVID-19

Social restriction resulted in a new behavioral character, which implied lifestyle changes. It was noticeable that undergraduate students found it imperative to change their previous routine and adapt to the new format of classes, in a restricted environment and to use preventive measures when needing to leave home, such as a mask and gel alcohol:

*“We found ourselves obliged to adapt to this new world and everything we are experiencing. We really have to reinvent ourselves and adapt to this new lifestyle” (BU2).*

*“I had to readapt myself and create new routines, new schedules, so I wouldn’t get lost and be able to follow the college’s tasks” (BU8).*

*“Over time, an adaptation took place” (BU16).*

*“We will have to adapt to be able to deal with different situations, such as regular use of mask, use of gel alcohol and having more hygiene” (IU1).*

*“We have to adapt to the new challenges that the pandemic is offering, in terms of prevention” (IU2).*

## 4. DISCUSSION

This qualitative study evidenced that during COVID-19 pandemic, Portuguese-speaking undergraduate students faced the presence of fear of acquiring the disease and transmitting to family members, negative implications resulting from social isolation, difficulties in reorganizing the study routine, concerns and insecurity with online teaching and changes in future plans, in addition to the need to adapt to a new lifestyle.

The analysis of the testimonies revealed the fear of undergraduate students in the face of the first information from the media about the virus' high infectivity. In this view, study reinforces that news feeds increased student's stress.<sup>[13,14]</sup> Thus, being faced with an unknown and health-threatening disease and its repercussions in social life can cause high levels of fear, anxiety, suffering, loneliness and sadness.<sup>[15-17]</sup> Furthermore, despite the social media can promote connections and contribute to face social isolation, their misuse can be increased by infodemic and misinformation, impacting student's mental health.<sup>[18,19]</sup>

Also noteworthy is the concern with transferring the disease to family members such as parents and grandparents. Similarly, studies realized in Iran, Israel, and the United States evidenced student's concerns with the health of their family and friends, and fear of contracting and transmitting the virus for them as a cause of stress.<sup>[13,20,21]</sup> Thus, it is worth noting that this finding may be related to the fact that COVID-19 has high infectivity with more severe and more lethal clinical manifestations in populations at risk, such as older adults and those with comorbidities.<sup>[22]</sup>

Undergraduate students also reported difficulties in the face of social isolation with repercussions on mental well-being. The impact of social isolation on international undergraduate students stands out, most of whom were isolated alone in college residences, financially unable to migrate to their country of origin during this period of public calamity and college closures.

Undergraduate students are increasingly recognized as a vulnerable population that suffer from higher levels of anxiety and depression compared to the general population. Therefore, when the nature of their educational experience changes radically, such as the change of scenery during the COVID-19 pandemic, the mental health burden of this vulnerable population is magnified. Studies carried out in different countries point to severe implications of social isolation on the mental well-being of undergraduate students, which has impacted physical health, quality of sleep, and stress.<sup>[13,23-26]</sup>

Thus, the fact that undergraduate students have greater nega-

tive implications for mental well-being is related to the fact that they represent the most active and dynamic age group of the population. Suddenly, with the COVID-19 pandemic, they were directly affected by the ban on attending universities, staying at home, not meeting friends, not going to gyms and not traveling.<sup>[27]</sup>

In this view, it is noteworthy that the class with greater expression in the study on screen refers to difficulties in reorganizing the routine, fear of unproductivity and difficulty adapting to the study in a home environment. These results corroborate another study from Brazil, which highlights that main causes of mental health impairment in Brazilian university students were associated with changes in routine and sleep changes.<sup>[28]</sup> Furthermore, a systematic review with metanalysis evidenced that the main concern of nursing students was the disruption of their classroom-based studies, the need to move to online form of education and the difficulty in participating in class, which became very difficult to manage academic matters. Thus, it was noticed that depression was associated with distance teaching, academic load, delay in completing work, and the risk of Internet connection failure during an exam or class interruption.<sup>[26]</sup>

Another study conducted with Portuguese students identified repercussions of social isolation in the COVID-19 pandemic on anxiety and learning, in which the students reported having so much impact on their academic performance.<sup>[29]</sup> This demonstrates the difficulty of undergraduate students in reorganizing themselves to study and manage their time away from the physical environment of the college and the faculty, which can influence frustration and withdrawal from continuing their studies.

Furthermore, in this study, participants also highlighted concerns with online teaching. This finding may be related to the uncertainty of many undergraduate students about the quality of education, mental pressures and decreased motivation. It is also worth noting the fact that many students report difficulties in obtaining the technological devices necessary for the success of online teaching, such as an exclusive computer for classes and quality internet access, especially by international undergraduate students from the African continent, which have lower purchasing power and depended exclusively on the college library to carry out academic work, view e-mails and research on the internet.

Similarly, study from Canada identified that students did not have a desk or a quiet place to study, and some of them had problems with internet connection, aspects that impact in quality of teaching and learning.<sup>[30]</sup> Other study carried out in the United States evidenced that students reported lower levels of learning, confidence, and engagement with

the online course materials when compared to face-to-face teaching, which is due to difficulties such as the quality of the internet.<sup>[31]</sup> This compromises student engagement and promotes dropout, given the difficulty in student cohesiveness, peer-to-peer, and interactions beyond the chat or video.<sup>[32]</sup>

It is important to note that many students still encountered technical problems with accessing virtual files, lack of skill on the part of some educators, few opportunities for questions and answers during virtual sessions, lack of infrastructure, inadequate facilities for recording lectures by professors, delivery of many activities in a short space of time and student fatigue due to the feeling of being overwhelmed in virtual teaching.<sup>[33,34]</sup> These aspects produce significant repercussions in the mental health and well-being of students, reinforcing the importance of educators considering student's mental health conditions in their teaching approaches.<sup>[30]</sup>

The COVID-19 pandemic has provided educational centers with the opportunity to use new teaching methods and then explore new technologies. However, the difficulty of accessing technology and quality internet for all undergraduate students is one of the points that contributed to the withdrawal of students from the training process.

While there are indisputable advantages of online teaching and learning in terms of access and reach, this potential is limited by structural and economic factors and this issue has a major impact on the ability of undergraduate students to engage with this form of education.<sup>[35,36]</sup> Thus, it is imperative to identify the conditions of undergraduate students regarding the technologies available for online teaching/learning to avoid harm and achieve inclusive and universal learning, especially in post-COVID-19 scenario, in which the technologies are increasingly incorporated in teaching.

The pandemic also impacted the future plans of undergraduate students. The testimonies portrayed the concern with graduation and participation in graduate competitions and selections. The level of concern of international undergraduate students during the interviews is strongly highlighted, as they will need to request authorization from the competent bodies to increase length of stay in Brazilian territory.

It is worth emphasizing that with the COVID-19 pandemic scenario, it was not only on-site classes that were suspended, but graduation ceremonies and field research were also canceled and internships, internships and exchanges, defenses of course conclusion works, competitions and graduate notices were postponed, strongly harming undergraduate students' life plans.<sup>[37,38]</sup> These impacts have been observed in universities around the world.<sup>[15,39]</sup>

Considering the above, it is noteworthy that the pandemic

caused deleterious effects on undergraduate students' mental health and their academic experiences. It is imperative, therefore, to implement measures by higher education institutions, to mitigate the impacts of COVID-19 on undergraduate students' lives. There must be the creation or improvement of psychosocial support centers for undergraduate students, with easy access so that they can take care of their mental health until the return of on-site classes.<sup>[37,40]</sup>

It is also relevant to highlight the importance of continuing to investigate the topic, with the development of studies including students from different countries, to understand the mechanisms and psychological reactions underlying experiences of undergraduate students, facing such an atypical and challenging period of life.

The present study is online qualitative research, therefore, there is a possibility of reporting bias. In addition, convenience sampling stands out as a limitation of the study, which may have compromised the representativeness of the population. A longitudinal study with personal interviews may reveal even more in-depth information.

## 5. CONCLUSION

Experiences of Portuguese-speaking undergraduate students during the COVID-19 pandemic proved to be marked by damage to academic life with negative repercussions on mental well-being, negative adaptation to social isolation, difficulty in maintaining a productive routine in the home environment, experiencing episodes of anxiety and concerns regarding online teaching, insecurity and anguish due to changes in future plans and having to adapt to the new lifestyle to control COVID-19.

Therefore, it is recommended that universities develop permanent strategies to promote the mental health of undergraduate students, especially after the COVID-19 pandemic, aiming at improving students' quality of life and well-being, and equality in access to quality education, especially with remote teaching approaches.

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## AUTHORS CONTRIBUTIONS

MGAB, LMB were responsible for study design and revising. MGAB was responsible for data collection. MGAB, FMLC, NMHN, LMB contributed to data analysis. MGAB, FMLC, AGJ, AAOS, KGMO, ODB, NMHN, LMB drafted the manuscript and revised it. All authors read and approved the final manuscript.

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**DATA SHARING STATEMENT**

No additional data are available.

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**REFERENCES**

- [1] Cavalcante F, Oliveira I, Costa M, et al. Intervenções para promoção da saúde mental durante a Pandemia da COVID-19. *Psicologia, Saúde & Doenças*. 2020; 21(3): 582-593. <http://dx.doi.org/10.15309/20psd210304>
- [2] Silva ASCP, Furtado LAC, Tofani LFN, et al. Arranjos e inovações para o cuidado em saúde mental no enfrentamento da COVID-19: revisão integrativa. *Ciênc Saúde Coletiva*. 2024; 29(8): e06532023. PMID:39140548 <https://doi.org/10.1590/1413-81232024298.06532023>
- [3] Lee J. Mental health effects of school closures during COVID-19. *Lancet Child Adolesc Health*. 2020; 4(6): 421. PMID:32302537 [https://doi.org/10.1016/S2352-4642\(20\)30109-7](https://doi.org/10.1016/S2352-4642(20)30109-7)
- [4] Organização das Nações Unidas para a Educação (UNESCO). *Disrupção e resposta educacional COVID 19*. [Internet] UNESCO, 2020. [citado 2021 Oct 01]. Available from: <https://en.unesco.org/themes/education-emergencies/coronavirus-school-closures>
- [5] Oliveira EN, Vasconcelos MIO, Almeida PC, et al. Covid-19: repercussões na saúde mental de estudantes do ensino superior. *Saúde debate*. 2022; 46: 206-20. <https://doi.org/10.1590/0103-11042022e114p>
- [6] Rehman M, Khalid F, Sheth U, et al. Quarantining from professional identity: how did COVID-19 Impact Professional Identity formation in undergraduate medical education? *Perspect Med Educ*. 2024; 13(1): 130-140. PMID:38406652 <https://doi.org/10.5334/pme.1308>
- [7] Lira JCG Neto, Sáber AJG, Roza MP, et al. Impacto da pandemia da COVID-19 na educação e saúde de universitários. *Rev enferm UFPI*. [internet] 2024 [citado em: dia mês abreviado ano]; 13: e5016.
- [8] Grubic N, Badovinac S, Johri AM. Student mental health in the midst of the COVID-19 pandemic: a call for further research and immediate solutions. *Int J Soc Psychiatry*. 2020; 66(5): 517-518. PMID:32364039 <https://doi.org/10.1177/0020764020925108>
- [9] Oliveira EN, Vasconcelos MIO, Almeida PC, et al. COVID-19 and social isolation: implications for undergraduate nursing students' mental health. *Rev Eletr Enferm*. 2023; 25: 74440. <https://doi.org/10.5216/ree.v25.74440>
- [10] Leighton K, Kardong-Edgren S, Schneidereith T, et al. Using Social Media and Snowball Sampling as an Alternative Recruitment Strategy for Research. *Clin Simul Nurs*; 2021; 55: 37-42. <https://doi.org/10.1016/j.ecns.2021.03.006>
- [11] Nascimento LCN, Souza TV, Oliveira ICS, et al. Theoretical saturation in qualitative research: an experience report in interview with schoolchildren. *Rev Bras Enferm*. 2018; 71(1): 228-33. PMID:29324967 <https://doi.org/10.1590/0034-7167-2016-0616>
- [12] Carvalho DNR, Aguiar VFF, Apolinário DB, et al. A glance at the use of IRaMuTeQ® software in scientific research: a bibliometric study. *Rev Enferm UFPI* 2024; 13: e4280. <https://doi.org/10.26694/reufpi.v13i1.4280>
- [13] Farsi Z, Sajadi SA, Afaghi E, et al. Explaining the experiences of nursing administrators, educators, and students about education process in the COVID-19 pandemic: a qualitative study. *BMC Nurs*. 2021; 20(1): 1-13. PMID:34416886 <https://doi.org/10.1186/s12912-021-00666-4>
- [14] Hwang J, Ding Y, Wang C, et al. Asian American University Students' Experiences during the COVID-19 Pandemic: A Qualitative Study. *Behav Sci (Basel)*. 2024; 14(1): 34. PMID:38247686 <https://doi.org/10.3390/bs14010034>
- [15] Gundim VA, Encarnação JP, Santos FC, et al. Saúde mental de estudantes universitários durante a pandemia de COVID-19. *Rev baiana enferm*. 2021; 35 (1): 1-14. <https://doi.org/10.18471/rbe.v35.37293>
- [16] Santos BM, Ratier LN. Mental health of university students in times of pandemic restriction. *Interações (Campo Grande)*. 2023; 24(3): 817-28. <https://doi.org/10.20435/inter.v24i3.3967>
- [17] Wood CI, Yu Z, Sealy DA, et al. Mental health impacts of the COVID-19 pandemic on college students. *J Am Coll Health*. 2024; 72(2): 463-



468. PMID:35298363 <https://doi.org/10.1080/07448481.2022.2040515>
- [18] Dadaczynski K, Okan O, Messer M, et al. Digital health literacy and web-based information-seeking behaviors of university students in Germany during the COVID-19 Pandemic: Cross-sectional Survey Study. *J Med Internet Res.* 2021; 23(1): e24097. PMID:33395396 <https://doi.org/10.2196/24097>
- [19] Nazari A, Hosseinnia M, Torkian S, et al. Social media and mental health in students: a cross-sectional study during the Covid-19 pandemic. *BMC Psychiatry.* 2023; 23(1): 458. PMID:37349682 <https://doi.org/10.1186/s12888-023-04859-w>
- [20] Wang X, Hegde S, Son C, et al. Investigating mental health of US College students during the COVID-19 Pandemic: Cross-Sectional Survey Study. *J Med Internet Res.* 2020; 22(9): e22817. PMID:32897868 <https://doi.org/10.2196/22817>
- [21] Drach-Zahavy A, Goldblatt H, Admi H, et al. A multi-level examination of nursing students' resilience in the face of the COVID-19 outbreak: A cross-sectional design. *J Adv Nurs.* 2022 Jan; 78(1): 109-120. PMID:34212420 <https://doi.org/10.1111/jan.14951>
- [22] Pereira MD, Pereira MD, Tavares Costa CFT, Santos CKA, Dantas EHM. Aspectos epidemiológicos, clínicos e terapêuticos da COVID-19. *J. Health Biol Sci.* 2020; 8(1): 1-8. <https://doi.org/10.12662/2317-3076jhbs.v8i1.3297.p1-8.2020>
- [23] Lukowski AF, Karayianis KA, Kamliot DZ, et al. Undergraduate Student Stress, Sleep, and Health Before and during the COVID-19 Pandemic. *Behav Med.* 2024 Jan-Mar; 50(1): 1-15. PMID:35765146 <https://doi.org/10.1080/08964289.2022.2085651>
- [24] García-Hernández Y, García-Rojas JA, Martínez-García MD. Estudio comparativo del estrés académico en estudiantes de ingeniería en Gestión Empresarial durante la pandemia covid-19. *RIDE. Rev. Iberoam. Investig. Desarro. Educ.* 2024; 14(28): e593. <https://doi.org/10.23913/ride.v14i28.1756>
- [25] Almeida M, Costa D, Carvalho L, et al. Impactos da COVID-19 na saúde mental entre universitários da saúde. *Psic., Saúde & Doenças.* 2023; 24(1): 80-92. <https://doi.org/10.15309/23psd240107>
- [26] Quesada-Puga C, Cañadas GR, Gómez-Urquiza JL, et al. Depression in nursing students during the COVID-19 pandemic: Systematic review and meta-analysis. *PLoS One.* 2024 Jul 24; 19(7): e0304900. PMID:39047023 <https://doi.org/10.1371/journal.pone.0304900>
- [27] Ghazawy ER, Ewis AA, Mahfouz EM, et al. Psychological impacts of COVID-19 pandemic on the university students in Egypt. *Health Promot Int.* 2021; 36(4): 1116-1125. PMID:33367587 <https://doi.org/10.1093/heapro/daaa147>
- [28] Gemma SFB, Mata AS, Lima FT. Mental health and the covid-19 pandemic: a study with higher education students. *Avaliação (Campinas).* 2024; 29: e024014. <https://doi.org/10.1590/1982-57652024v29id262014>
- [29] Augusto C, Machado MM, Novais R, et al. O impacto do isolamento devido à COVID-19 em estudantes de enfermagem. *Rev Enf Ref.* 2023; serVI(2Suppl 1): e22041. <https://doi.org/10.12707/rvi22041>
- [30] Griscti O, Sammut R, Camilleri L, et al. The impact of COVID-19 on nursing students' lives and online learning: A cross-sectional survey. *J Adv Nurs.* 2024 Jun; 80(6): 2566-2576. PMID:38012833 <https://doi.org/10.1111/jan.15979>
- [31] Wilhelm J, Mattingly S, Gonzalez VH. Perceptions, satisfactions, and performance of undergraduate students during Covid-19 emergency remote teaching. *Anat Sci Educ.* 2022 Jan; 15(1): 42-56. PMID:34859608 <https://doi.org/10.1002/ase.2161>
- [32] Kumi R, Quartey J, Kwakye SK, et al. Students' perceptions and experiences of remote learning amid covid-19 pandemic in Ghana. *Hong Kong Physiother J.* 2024 Dec; 44(2): 103-118. PMID:38510159 <https://doi.org/10.1142/S1013702524500070>
- [33] Ross AJ. Learning in a time of crises: The learning experiences of 5th year medical students at the University of KwaZulu-Natal during the COVID-19 pandemic in 2020. *Afr J Prim Health Care Fam Med.* 2021 Sep 6; 13(1): e1-e8. PMID:34636601 <https://doi.org/10.4102/phcfm.v13i1.3002>
- [34] Wallace S, Schuler MS, Kaulback M, et al. Nursing student experiences of remote learning during the COVID-19 pandemic. *Nurs Forum.* 2021 Jul; 56(3): 612-618. PMID:33728660 <https://doi.org/10.1111/nuf.12568>
- [35] Tondin CF, Barbosa DR, Araújo EP, et al. Educação básica na pandemia de Covid-19: críticas ao ensino remoto *Educ Pesqui.* 2024; 50: e264928. <https://doi.org/10.1590/S1678-4634202450264928por>
- [36] Coelho ICMM, Silva MX e, Brandão AB de F, et al. Adaptação dos acadêmicos de Medicina em currículo PBL e tradicional ao ensino remoto na pandemia. *Rev Bras Educ Med.* 2024; 48(2): e049. <https://doi.org/10.1590/1981-5271v48.2-2023-0052>
- [37] Rodrigues BB, Cardoso RR de J, Peres CHR, et al. Aprendendo com o Imprevisível: Saúde Mental dos Universitários e Educação Médica na Pandemia de Covid-19. *Rev Bras Educ Med.* 2020; 44: e149. <https://doi.org/10.1590/1981-5271v44.sup1.1-20200404>
- [38] Khan KS, Mamun MA, Griffiths MD, et al. The Mental Health Impact of the COVID-19 Pandemic Across Different Cohorts. *I Int J Environ Res Public Health.* 2020; 1(1): 1-7.
- [39] Aristovnik A, Keržič D, Ravšelj D, et al. Impacts of the COVID-19 Pandemic on Life of Higher Education Students: A Global Perspective. *Sustainability.* 2020; 12(8438): 1-34. <https://doi.org/10.3390/su12208438>
- [40] Freitas PHB, Meireles AL, Abreu MNS, et al. Assessment of the quality of life and mental health of healthcare students during the COVID-19 pandemic. *Rev Bras Enferm.* 2023; 76(Suppl 1): e20230068. PMID:38055432 <https://doi.org/10.1590/0034-7167-2023-0068>