

Mental health of dentistry students in pernambuco related to the COVID-19 pandemic

Saúde mental de estudantes de odontologia em pernambuco relacionada à pandemia da COVID-19

Salud mental de los estudiantes de odontología de pernambuco relacionada con la pandemia COVID-19

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Livia Larissa Primo Candido

Bachelor in Dentistry

Institution: Universidade Federal de Pernambuco

Address: Recife, Pernambuco, Brazil

E-mail: livialarissaprimo@gmail.com

Fernanda Suely Barros Dantas

Doctorate in Dentistry

Institution: Universidade Federal de Pernambuco

Address: Recife, Pernambuco, Brazil

E-mail: fernanda.bdantas@ufpe.br

Katarina Haluli Janô da Veiga Pessôa

Doctorate in Dentistry

Institution: Universidade Federal de Pernambuco

Address: Recife, Pernambuco, Brazil

E-mail: katarina.haluli@ufpe.br

Luis Henrique Guedes de Andrade

Master in Dentistry

Institution: Universidade Federal de Pernambuco

Address: Recife, Pernambuco, Brazil

E-mail: luis.guedes@ufpe.br

Jefferson Jorge Moraes de Souza

Bachelor in Dentistry

Institution: Universidade Federal de Pernambuco

Address: Recife, Pernambuco, Brazil

E-mail: jefferson.msouza@ufpe.br

Tácio Fragoso Pereira

Doctorate in Dentistry

Institution: Universidade Federal de Pernambuco

Address: Recife, Pernambuco, Brazil

E-mail: tacio.fragoso@ufpe.br

Jair Carneiro Leão

Doctor in Dentistry

Institution: Universidade Federal de Pernambuco

Address: Recife, Pernambuco, Brazil

E-mail: jair.leao@ufpe.br

Alessandra de Albuquerque Tavares Carvalho

Doctor in Dentistry

Institution: Universidade Federal de Pernambuco

Address: Recife, Pernambuco, Brazil

E-mail: alessandra.tcarvalho@ufpe.br

ABSTRACT

Introduction: The adaptation of control measures such as social distancing and isolation during the fight against the novel coronavirus disease (COVID-19) has caused dentistry students to experience emotional vulnerability and psychological distress. **Objective:** To investigate the factors affecting the mental health of dentistry students in Pernambuco, Brazil during social isolation, and to identify possible injuries and mitigating factors. **Methodology:** A cross-sectional survey was conducted in public and private institutions in Pernambuco using an electronic questionnaire. The study included 261 dentistry students of both genders from the first to the tenth period (over 18 years old). **Results:** The impact of the COVID-19 pandemic on the lifestyles, academic situation, and mental health of dentistry students participating in the survey affirmed the predominance of anxiety, stress, and negative thinking. **Conclusion:** The COVID-19 pandemic significantly affected the quality of life, academic progress, and mental health of dentistry students. Prevention and management strategies are necessary to minimize the impacts of psychological suffering.

Keywords: mental health, dentistry students, COVID-19.

RESUMO

Introdução: A adaptação de medidas de controle como distanciamento e isolamento social durante o combate à doença do novo coronavírus (COVID-19) tem feito com que estudantes de odontologia vivenciem vulnerabilidade emocional e sofrimento psicológico. **Objetivo:** Investigar os fatores que afetam a saúde mental dos estudantes de odontologia de Pernambuco, Brasil durante o isolamento social, e identificar possíveis agravos e fatores atenuantes. **Metodologia:** Foi realizada uma pesquisa transversal em instituições públicas e privadas de Pernambuco por meio de questionário eletrônico. Participaram do estudo 261 estudantes de Odontologia de ambos os sexos do primeiro ao décimo período (maiores de 18 anos). **Resultados:** O impacto da pandemia de COVID-19 no estilo de vida, na situação acadêmica e na saúde mental dos estudantes de odontologia participantes da pesquisa afirmou o predomínio de ansiedade, estresse e pensamento negativo. **Conclusão:** A pandemia de COVID-19 afetou significativamente a qualidade de vida, o progresso acadêmico e a saúde mental dos estudantes de odontologia. Estratégias de prevenção e manejo são necessárias para minimizar os impactos do sofrimento psicológico.

Palavras-chave: saúde mental, estudantes de odontologia, COVID-19.

RESUMEN

Introducción: La adaptación de medidas de control como el distanciamiento social y el aislamiento durante la lucha contra la enfermedad del nuevo coronavirus (COVID-19) ha

provocado que los estudiantes de odontología experimenten vulnerabilidad emocional y malestar psicológico. Objetivo: Investigar los factores que afectan la salud mental de estudiantes de odontología en Pernambuco, Brasil, durante el aislamiento social, e identificar posibles lesiones y factores atenuantes. Metodología: Se realizó una encuesta transversal en instituciones públicas y privadas de Pernambuco mediante cuestionario electrónico. El estudio incluyó a 261 estudiantes de odontología de ambos sexos del primero al décimo período (mayores de 18 años). Resultados: El impacto de la pandemia de COVID-19 en los estilos de vida, situación académica y salud mental de los estudiantes de odontología participantes en la encuesta afirmó el predominio de la ansiedad, el estrés y el pensamiento negativo. Conclusión: La pandemia de COVID-19 afectó significativamente la calidad de vida, el progreso académico y la salud mental de los estudiantes de odontología. Se necesitan estrategias de prevención y gestión para minimizar los impactos del sufrimiento psicológico.

Palabras clave: salud mental, estudiantes de odontología, COVID-19.

1 INTRODUCTION

Coronavirus disease 2019 (COVID-19) is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and was first discovered in Wuhan, China, in December 2019. This disease spread to other countries on different continents, and was recognized by the World Health Organization (WHO) as a pandemic in March 2020 [1,2,3]. Public health and the world economy were severely affected because of mortality and social vulnerability. Few months after its discovery, South America became the new epicenter of the pandemic. Brazil had faced two waves of COVID-19, and reported 12,910,082 confirmed cases of COVID-19 as of April 4, 2021 [2,4,5].

College students are more susceptible to mental health disorders, and pandemics such as COVID-19 can further exacerbate the existing problems [6,7]. In undergraduate dentistry courses, students had to deal with delays in course completion because of suspended laboratory and clinical training. In Brazil alone, 1,25,585 dentistry students were without classes/lectures for almost a year [8]. Switching to online learning, varying study loads, lack of practice during the pandemic negatively impacted students' lives and caused stress, anxiety disorder, and depression in many of them [6,7,9,10].

Close contact with patients and the increased production of aerosols during simple or complex clinical procedures make dentistry a high-risk profession in the context of transmission of the COVID-19 virus [11]. In addition to the stress related to difficulty in learning, dentistry students also experience pressure and fear due to the risks inherent to the profession.

In view of these considerations, this study aimed to analyze the factors affecting the

mental health of dentistry students from institutions in Pernambuco, and sought to document efforts toward lessening the psychological suffering during the pandemic.

2 METHODOLOGY

A cross-sectional study was carried out in public and private institutions in Pernambuco using an electronic questionnaire distributed through digital media. Questions related to sociodemographic status and mental health before and after the COVID-19 pandemic were included in the questionnaire. This research was conducted under the ethical precepts of Resolution 466/12 or 510/16 of the National Health Council. This study was approved by the Ethics and Research Committee of the Federal University of Pernambuco (CEP-UFPE; number: 5,186,415). The questionnaire was distributed to dentistry students (first to the tenth period) duly enrolled in the selected institutions. Students (of any gender and race, over 18 years old) who agreed to participate in the study after reading or listening to the Free and Informed Consent Terms (TCLE) were included.

A sample calculation was performed to check whether the convenience type sampling would be sufficient. The total sample was obtained from the following variables: population size, margin of error, and sample confidence level. The estimated population size was 10,000 dental students. The linked margin of error was 5%, and the confidence level was 95%, the total achieved for the sample was 370 individuals. A total of 264 students (151 from public and 103 from private institutions) participated in the study. They accessed the approved electronic questionnaire, and provided their consent after reading the TCLE and/or listening to the TCLE being read. Since seven (2.68%) students who did not consent to participate in the study were excluded, the final sample size included only 254 participants. The research data and information acquired by Google Forms were described (qualitative description) and analyzed using Microsoft Office programs. For quantitative statistical analysis, SPSS software version 21.0 was used. Pearson and chi-square correlation analyses were performed only for those responses that showed a significance of $p < 0.005$.

3 RESULTS AND DISCUSSION

Table 1 shows the socio-demographic characteristics of the participants. Majority of the students were female (76.4%), white (53.5%), single (92.5%), and residents of Recife (48.8%). The study also included participants from 41 other cities. The average age of the students was

22.26 years and the average number of people per household was 3.3. Majority of the participants were full-time students (63.8%), in their 5th semester (19.7%), and enrolled in public institutions (59.4%).

Table 1 - Sociodemographic analysis of university students participating in the research.

Variables	BR	No	Variables	BR	No
Sex			Shift		
Feminine	76.4%	194	diurnal	24.4%	62
Male	23.3%	60	nocturnal	11.8%	30
color/race			full	63.8%	162
White	53.5%	136	Time course		
Black	7.1%	18	1st	2.8%	7
Brown	37.8%	96	2nd	2.8%	7
Indigenous	0.4%	1	3rd	10.6%	27
Yellow	1.7%	3	4th	7.1%	18
Marital status			5th	19.2%	50
Not married	92.5%	235	6th	14.2%	36
Married	3.5%	9	7th	15%	38
stable union	3.9%	10	8th	11.8%	30
Institution			9th	10.2%	26
Public	59.4%	151	10th	5.9%	15
Toilet	40.6%	103			

Source: Own research (2022)

Table 2 shows the results of the descriptive analysis of the impact of the pandemic on the quality of life of the students. It was observed that 56.3% of the participants had their incomes affected because of the pandemic. For 68.1% of the students, there was no difference in the sleep quality before and during the pandemic, and 56.3% of the students declared that they had recurrent sleep disturbances during the pandemic. Furthermore, 64.2% of the students reported that the pandemic affected their diet. All the participants claimed that they had concerns about their own health, or the health of their loved ones. These concerns appeared to affect the daily routines of 53.1% of the students.

Table 2 - Descriptive analysis of the impacts on the quality of life of the academic population during the COVID-19 pandemic.

Variables	No	BR
Has your main income changed because of the pandemic?		
Yes	143	56.3%
Not	111	43.7%
Before the COVID-19 pandemic, did you experience changes in sleep quality and duration?		
Ever	46	18.1%

Rarely	173	68.1%
Never	35	13.8%
During the COVID-19 pandemic, did you experience changes in sleep?		
Ever	143	56.3%
Rarely	94	37%
Never	17	6.7%
Before the COVID-19 pandemic, did you have changes in the quality of your diet?		
Ever	63	24.8%
Rarely	151	59.4%
Never	40	15.7%
During the COVID-19 pandemic, did you experience changes in the quality of your diet?		
Ever	163	64.2%
Rarely	73	28.7%
Never	18	7.1%
Do you feel or have you felt concerns about your own health or that of your loved ones due to the new coronavirus?		
Yes	254	100%
Not	0	0%
these concerns prevent you from developing something that is part of your day-to-day routine?		
Yes	135	53.1%
Not	119	46.9%

Source: Own research (2022).

Descriptive analysis of the impact of the COVID-19 pandemic on the academic activities of the students is shown in Table 3. The results indicated that 50.8% of the students were frustrated with their academic situation, and 39.8% reported that being frustrated was sometimes part of their daily lives. Majority (63.4%) of the students stated that their current academic situation affected their lifestyle. Not surprisingly, a vast majority (73.6%) of the students also stated that their current academic situation affected their mental health.

Table 3 – Descriptive analysis of the impacts of the COVID-19 pandemic related to the academic situation of university students.

Variables	No	BR
Have you had difficulties concentrating on academic activities?		
Ever	181	71.3%
Not	14	5.5%
Sometimes	59	23.6%
Have you been frustrated with your academic situation?		

Yea	129	50.8%
Not	24	9.4%
Sometimes	101	39.8%
Has your current academic situation affected your lifestyle?		
Yea	161	63.4%
Not	39	15.4%
Sometimes	54	21.3%
Do you think your current academic situation has affected your mental health?		
Yea	187	73.6%
Not	29	11.4%
Sometimes	38	15%
What is your level of expectation regarding the course?		
High	161	63.4%
Low	87	34.3%
None	6	2.4%

Source: Own research (2022).

A positive and significant correlation ($p < 0.005$) was found when the impact of the pandemic on the academic life of university students was assessed (Table 4). It was observed that 63.4%, 34.7%, and 2.4% of the students had high, low, and no expectations, respectively about their program of study (Frame 4). Compared to students from private institutions, feelings of frustration about their academic situation appeared to be more common among students from public institutions ($p < 0.000$). Not surprisingly, more students from public institutions reported that their current academic situation affected their lifestyle and mental health ($p < 0.000$). When expectations about the program of study were compared between students from public and private institutions, students from private institutions generally had high expectations ($p < 0.000$).

Table 4 – Comparison between the academic impacts of the COVID-19 pandemic on university students from public and private institutions.

Variables	Public N = 151	Toilet N = 103	p* value
Have you been frustrated with your academic situation?			0.000
Yes	92	37	
Not	8	16	
Sometimes	51	50	
Has your current academic situation affected your lifestyle?			0.000
Yes	111	50	
Not	10	29	

Variables	Public N = 151	Toilet N = 103	p* value
Have you been frustrated with your academic situation?			0.000
Sometimes	30	24	
Do you think your current academic situation has affected your mental health?			0.000
Yes	128	59	
Not	7	22	
Sometimes	16	22	
What is your level of expectation regarding the course?			0.000
High	74	87	
Low	71	16	
None	6	0	

*Correlation analysis using Pearson's chi-square test, p<0.005 significance.
Source: Own research (2022).

Table 5 shows the major consequences of the COVID-19 pandemic on the mental health of university students participating in the research. Multiple factors appeared to contribute to increased stress, anxiety, and depression among these students. These included difficulty in concentrating (89%), disruptions to sleep patterns (86%), decreased social interactions (86%), and increased concerns about academic performance (82%). When asked how often they experienced feelings of stress or nervousness, 82.3% answered “always.” The number of participants reporting negative and depressive thoughts was almost the same as those not reporting such thoughts (44.9% and 45.7%, respectively).

Furthermore, 72% of the survey participants reported that they experienced feelings of anguish during the COVID-19 pandemic, and 42.9% found it hard to keep calm in stressful situations. Only 52% of the participants reported that they occasionally ability to deal adequately with stressful situations. An overwhelming majority (93.7%) of the students believed that other students were also experiencing stress and anxiety due to the COVID-19 pandemic.

Table 5 – Main consequences of the COVID-19 pandemic on the mental health of the academic population interviewed.

Variables	No	BR
How often did you feel nervous/stressed?		
Ever	209	82.3%
Rarely	45	17.7%
Never	0	0%

Have you had or do you have negative and/or depressive thoughts during the COVID-19 pandemic?		
Ever	114	44.9%
Rarely	116	45.7%
Never	24	9.4%
Have you felt or felt distressed during the COVID-19 pandemic?		
Ever	183	72%
Rarely	69	27.2%
Never	Two	0.8%
Have you found it difficult to calm down in stressful situations?		
Yes	109	42.9%
Not	37	14.6%
Sometimes	108	42.5%
Do you feel that you are able to adequately handle the stress related to the current situation?		
Yes	72	28.3%
Not	50	19.7%
Maybe	132	52%
Do you think other students are experiencing stress/anxiety because of the pandemic?		
Yes	238	93.7%
Not	0	0%
Maybe	16	6.3%

Source: Own research (2022).

Durant et al. (2022) [10] reported that 69% of their survey participants experienced financial difficulties during the pandemic. Cao et al. (2020) [12] suggested in their work that concerns about the economic influences of the pandemic positively correlated with anxiety levels in college students. In the present study, almost 60% of the study population had their incomes altered, and were sleep deprived due to the pandemic. In this study, 64.2% of the students reported that their diet was altered during the pandemic. It is possible that the imbalanced diet affected the development of some students. Some authors have reported that COVID-19 affected the daily routine of the population globally, and the need for adaptation during the pandemic may not have been perceived positively by all. Reports of emotional and physical disorders are frequent due to alterations in sleep, diet, and stress levels [13,14]. Not surprisingly, all participants in this study indicated that they had concerns about their own health and the health of their loved ones. This outcome is remarkably similar to that reported by Kecojevic et al. (2020) [12] and Son et al. (2020) [9].

Gonçalves et al. (2022) [15] suggested that online teaching/lectures convey a sense of

insecurity about the quality of academic training, especially among students from more advanced semesters in undergraduate courses. The findings of Novaes et al., [16] corroborate this sense of insecurity, as 94.6% of the participants in their study indicated that they did not feel the ability to perform some procedures. In the present study, almost 95% of the students reported that they were unable to perform some procedures they were adept at, and more than 70% had difficulties concentrating on academic activities. Medeiros et al., 2021 [8] reported that the suspension of clinical and laboratory sessions/classes significantly affected learning and impacted dental education.

Gundim et al. (2021) [17] stated that with regard to the repercussions on academic life, risk of infection for students participating in coping with the pandemic, disruption of the study routine, postponement of tasks and academic activities, and delay in the schedule of courses has repercussions on future professional plans and on the search for independence and financial stability, which is occasionally fostered in the expectation of university education leading to a feeling of frustration in academics. Frustration is not unexpected among university students because achieving their academic goals becomes more difficult in the face of many insecurities and uncertainties. However, more than 60% of university students have high expectations of dentistry courses after facing COVID-19.

In a study involving 2031 participants, Wang et al. (2020) [18] reported that majority of the respondents (71.26%) experienced moderate or severe psychological problems due to the pandemic. This study also reported that uncertainty, and its potential negative impact on academic progress, can harm the mental health of students. Studies that evaluated various disorders during the pandemic point to a greater psychological impact due to social isolation. The present study revealed several factors that contributed to increased stress levels, anxiety, and depressive thoughts.

Moreover, high levels of depression are associated with difficulties in focusing on academic work and job loss [6,9]. It is noteworthy that in this study >82.3% responded they “always” experienced feelings of stress or nervousness, and only 52% felt that they were capable of dealing with the situation, which shows that only 32.3% of students who have suffered from nervousness or stress can handle difficult situations.

Contrary to these results, studies by Da Silva et al. (2021) [13] and Durant et al. (2022) [10] reported that their participants had normal or mild stress levels, anxiety, and depression. However, they also observed that women generally had higher stress levels, anxiety, and depression.

Some difficulties were encountered during data collection. Although the electronic questionnaire was made available several times on social media, many students did not show interest in answering it. Due to restrictions on mobility and social isolation measures, distribution of physical questionnaire for data collection was impossible.

4 CONCLUSIONS

The study participants experienced academic frustration, higher stress levels, nervousness, anguish, and negative thoughts. The COVID-19 pandemic significantly impacted the mental health of university students. Therefore, it is necessary to devise measures to reduce, prevent, and effectively manage the psychological distress. It is also important to minimize the negative impacts of the pandemic on mental health.

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