ORIGINAL ARTICLE

Psychological effects of coronavirus disease (COVID-19) lockdown on dental students in Tunisia: An online survey

Impact psychologique du confinement lié à la pandémie COVID sur les étudiants en médecine dentaire en Tunisie : Une enquête en ligne

Farah Chouchene[1,2], Nehed Sboui[1,3], Imed Ouni[1,4], Fatma Masmousi[1,3], Ahlem Baaziz[1,3].

1. Laboratory of Biological, Clinical and Dento-Facial Approach, University of Monastir, Monastir, Tunisia.
2. Dentistry Department, Ibn El Jazzar University Hospital, Kairouan, Tunisia
3. Pediatric and Preventive Dentistry Department, Faculty of Dental Medicine of Monastir.
4. Dentistry Department, Regional Hospital of Kasserine, Kasserine, Tunisia.

Abstract

Aim: The present study aimed to assess the impact of coronavirus disease (COVID-19) pandemic on the mental health of dental students.
Methods: The survey was designed as an online cross-sectional study conducted among dental students in Tunisia between May 2020 and January 2022 using a web-based questionnaire. Anxiety, depression, and stress were assessed using three standardized scales (validated French version); the Generalized Anxiety Disorder (GAD-7), the Patient Heath Questionnaire (PHQ-9) depression scale, and the Perceived Stress Scale (PSS-10). The independent t-test and analysis of variance were used to determine the significance of the continuous data. Chi-square and Fisher exact tests were performed for categorical data.
Results: A total of 366 dental students completed the questionnaire, 82.5% (302) were female and 17.5% (64) were male, with a mean age of 21± 6 years. Most participants (96.7%) were Tunisian and 25.7% were in the first grade. The mean scores for anxiety, depression, and stress were 11.48±5, 13.82±5.63, and 8.20±4.72 respectively. Female students were more likely to experience depression than male students (P<0.05).A statistically significant difference was reported between students mental health status, GAD-7, PHQ-9, and PSS-10 scores (P<0.05) and a statistically significant difference was found between students under medical care for mental health problems, GAD-7, PHQ-9, and PSS-10 scores (P<0.001).
Conclusion: During the pandemic, increased stress and anxiety have been reported among dental students, and some experienced symptoms related to depression.

Key-words: Anxiety, COVID-19, Dental student, Depression, Mental health, Stress.

Résumé

Objectif: Évaluer l'impact psychoaffectif de la pandémie COVID-19 sur la santé mentale des étudiants en médecine dentaire.
Méthodes: Étude transversale menée à l'aide d'un questionnaire distribué en ligne auprès des étudiants en médecine dentaire en Tunisie entre mai 2020 et janvier 2022. La prévalence et l'intensité du stress, des symptômes anxieux et dépressifs ont été évalués à l'aide de trois échelles psychométrique standardisées et validées ; le GAD-7 (Generalized Anxiety Disorder), le PHQ-9 (the Patient Health Questionnaire) et le PSS-10 (Perceived Stress Scale). Pour la comparaison de deux moyenne le test-t de Student a été utilisé. Le test du chi carré et le test de Fisher ont été utilisés pour comparer deux fréquences.
Résultats: L'étude a inclus 366 participants. Parmi les étudiants, 82,5 % (302) étaient des femmes et 17,5 % (64) étaient des hommes, avec un âge moyen de 21± 6 ans. La plupart des participants (96,7 %) étaient tunisiens et 25,7 % étaient en première année.
Les scores moyens d'anxiété, de dépression et de stress étaient respectivement de 11,48 ± 5, 13,82 ± 5,63 et 8,20 ± 4,72. Le sexe féminin(s) était un facteur de risque de symptômes dépressifs modérés à graves (P < 0,05). Une différence statistiquement significative a été signalée entre l'état de santé mentale des étudiants, et les scores GAD-7, PHQ-9,PSS-10 (P < 0,05). Une différence statistiquement significative a été reportée entre les étudiants sous soins médicaux pour des problèmes de santé mentale et les scores GAD-7, PHQ-9, PSS-10 (P<0,001).
Conclusion: Pendant la pandémie, une augmentation du stress et de l'anxiété a été signalée chez les étudiants en médecine dentaires, et certains ont même reporté des symptômes liés à la dépression.

Mots clés : Anxiété, COVID-19, Étudiant en dentisterie, Dépression, Santé mentale, Stress.

Correspondance
Farah Chouchene
Laboratory of Biological, Clinical and Dento-Facial Approach, University of Monastir, Monastir, Tunisia.
Email: farah.pedo@gmail.com

LA TUNISIE MEDICALE-2025; Vol 103 (10): 1511-1517 DOI: 10.62438/tunismed.v103i10.5429

Introduction

Severe disease epidemics have occurred throughout history. In December 2019, the world reported the first outbreak of coronavirus disease 2019 (COVID-19) in Wuhan, China (1).
This viral infection, characterized by devastating characteristics and rapid spread, has challenged researchers and healthcare systems.(1) COVID-19 has spread quickly and caused acute infectious pneumonia worldwide. Therefore, it was defined as a Public Health Emergency of International Concern (PHEIC) on January 30, 2020 by the World Health Organization (WHO).(2,3)
In Tunisia, from January 3, 2020, to April 13, 2024, about 1.153.361 confirmed cases of COVID-19 with 29.423 deaths, were reported by the WHO.(4)
To reduce propagation risk, several countries in the world imposed a total lockdown.(5) The Tunisian government also implemented a lockdown throughout the country at the very beginning of the onset of the disease for three months. During this period, public traffic was completely stopped, the movement of individuals was restricted, and people were required to stay at home, except for a few workers in necessary vital areas. All the sudden events associated with COVID-19 have impacted various aspects of human life around the world. These events have also deeply affected the mental health of individuals.(6)
The severity of the pandemic has led governments and institutions to take drastic measures regarding ongoing education. Hence, all Tunisian universities were mandated to be closed from March 2020.
In Tunisia, the teaching concept of school dentistry was based on a curriculum that compromises two semesters of courses divided over six years of studies. The courses consist of theoretical lectures, preclinical, and clinical classes.
The pandemic affected dramatically clinical practice and dental education. All clinical sessions and the lectures were canceled. Dental students were required to stay at home and take online courses to complete their academic studies. The fear of contraction, and social isolation have also affected dental students. (7) The COVID-19 lockdown prevented students from practicing their learning and clinical skills necessary for their future success in dentistry and their graduation requirements.(8)
The uncertainty surrounding all aspects of the lockdown, strict isolation measures, and disruption of education especially interrupting direct patients care, have influenced the mental health of dental students. (3)
The negative impact of the pandemic on didactic teaching, cessation or modification of clinical, preclinical, and patient care experiences, likely increased stress and anxiety among dental students.
The transition from in-person to online teaching has resulted in challenges in adapting to new technologies and practices likely increasing levels of stress and anxiety among students.
However, understanding the extent to which the current COVID-19 pandemic has affected the mental health of dental students is crucial.
Therefore, it is essential to understand the extent to which the mental health of undergraduate dental students is affected during the COVID-19 pandemic.
As public mental health concerns have been raised during the coronavirus disease (COVID-19), the present study was conducted to assess the effect of COVID-19 pandemic on the mental health of dental students in Tunisia.

Methods

Participant and procedure

The present study was conducted according to the STROBE guidelines (9).
The survey was designed as an online cross-sectional survey conducted between May 2020 and January 2022 among Tunisian dental students to assess the mental problems experienced during the COVID-19 lockdown.
The participants were students enrolled in the Faculty of Dental Medicine of Monastir, Tunisia.
Based on the results of a recently published study on the prevalence of depressive symptoms among university students(10). The required sample size was calculated using 5% relative precision and 95% confidence level.
The sample size required was 366.
Because there is only one dental school in Tunisia and the number of students enrolled in this school is very low, the minimal sample size was retained.

Data collection

The survey was initiated during the first lockdown.
Assessment was performed using an online tool used for course management administered by The Faculty of Dental Medicine of Monastir.
An anonymous online questionnaire was sent via Google Forms and was available for more than 12 months.
The study included junior students in the 1st, 2nd, 3rd, and 4th academic years as well as senior students in 5th and 6th academic years.

Questionnaire

The 5-minute survey consisted of 38 questions with multiple-choice answers.
The web-based questionnaire was adopted from an instrument validated in the literature (11), drafted and reviewed by the study team.
The validity of the questionnaire was assessed using Cronbach's alpha method.
For the pilot study, a group of ten interns and professors were recruited.
Participants' feedback was reviewed by the study team and incorporated into the survey.
The validated French version of the questionnaire comprised four sections.
The first section presented the demographic data, including questions on age (years), gender, educational level (1st, 2nd, 3rd, 4th, 5th, and 6th academic year), and nationality (Tunisian/other nationality).

The second section included questions about the respondent's health condition during quarantine, and their history of mental illness.
In the third section, the psychological impact of the pandemic and the quarantine was evaluated using three standardized scales: the seven-item Generalized Anxiety Disorder (GAD), the nine-item Patient Heath Questionnaire (PHQ) depression scale, and the ten-item Perceived Stress Scale (PSS).
Symptoms of anxiety were assessed using the GAD scale which included seven items based on seven core symptoms.
In the questionnaire, students were asked to rate how often they had experienced certain symptoms during the past four weeks.
Depressive symptoms were assessed using a simple and highly effective self-report tool for depression, namely the PHQ scale consisting of nine items.
Participants were asked to rate the presence of nine problems, including depression and declining interest, over the past four weeks.
Stress symptoms were assessed using the PSS scale, which consists of 10 items that measure the degree to which one perceives aspects of one's life as uncontrollable, unpredictable, and overloading.
The endorsed symptoms were specifically associated with COVID-19.
In the last part of the questionnaire, the students were asked to report the most prescribed medications during the pandemic (analgesic, anti-migraine, soporific drugs, anxiolytics, or antidepressants).
Then students were asked to rate their state of mental health before and during the COVID-19 pandemic on a scale ranging from 0 (minimum score; the worst) to 10 (maximum score; the better)

Ethical Approval

The present study was approved by the Ethics Committee of the Scientific Research Unit at the Faculty of Dental Medicine and conducted in accordance with the ethical standards outlined in the Declaration of Helsinki and its subsequent amendments.(12)
All dental students were informed of the confidentiality of their responses and the purpose of this survey. All the participants provided informed consent.

Data Management and Statistical Analyses

Responses were collected using Google Forms in the principal investigator's web database (Google Drive) and then transferred to Microsoft Excel.
After proper encoding, data were imported into IBM SPSS version 23 for analysis.
For the GAD and PHQ scales, items were scored on a 4-point Likert scale.
The response options were "not at all", "several days", "more than half the days" and "almost every day", rated respectively 0, 1, 2, and 3. (11,13,14)
Anxiety symptoms severity scores ranged from 5 to 9 for mild, 10 to 14 for moderate and 15 to 21 for severe to very severe. (14)
For the severity of depressive symptoms, the scores ranged from 5 to 9 for mild, 10 to 14 for moderate and 15 to 27 for severe to very severe. (11,13)
For the PSS scale, each item was scored on a 5-point Likert scale (0=never, 1= almost never, 2= sometimes, 3= often, and 4= very often) to rate the extent to which the symptom had bothered the person in the past month.
The PSS-10 rated low stress for scores 0-13, moderate stress for 14-26, and high perceived stress for 27-40.
PSS-10 scores were calculated by reversing responses to four positively stated items.(15,16)
Frequencies and percentages were used to present categorical data.
Continuous variables were expressed as mean and standard deviations (SD).
For the comparison of two means the Student t-test was used. Chi-square and Fisher exact tests were used to evaluate the association between sociodemographic data (gender, grade, history of medication and mental illness) and levels of anxiety, depression, and stress.
Statistical significance was set at P-value of ≤0.05.

Results

Demographic distribution of the participants

A total of 366 dental students completed the questionnaire. Of these, 82.5% (302) were female and 17.5% (64) were male with a mean age of 21± 6 years.
The youngest participant was aged 18, whereas the oldest was 27.
The majority of participants (96.7%) were Tunisian and 25.7% were in their first year, as described in Table 1.

Table 1. Frequency and percentage distribution of students among demographic variables.

Characteristics		Frequency	
		%	N
Age (years)	18-19	12	44
	20-21	36.9	135
	22-23	35.8	131
	24-25	11.8	43
	26-27	3.5	13
Gender	Female	82.5	302
	Male	17.5	64
Grade	First grade	25.7	94
	Second grade	19.4	71
	Third grade	17.5	64
	Fourth grade	24.6	90
	Fifth grade	10.4	38
	Sixth grade	2.5	9
Nationality	Non-Tunisian	3.3	12
	Tunisian	96.7	354

Regarding the mental health status of students, the study found that 14.2% of dental students reported a history of mental illness (Table 2).

Table 2. Frequency and percentage distribution of students among mental health status.

Characteristics		Frequency	
		%	N
Actual health status	Pretty good	3.8	14
	Good	13.9	51
	Did not really know	38.5	141
	Bad	30.9	113
	Very bad	12.8	47
Previous mental health	No	85,8	314
	Yes	14.2	52
Recent deterioration of mental illness	Yes	50	183
	No	50	183

Psychological impact

Table 3 describes the details of GAD-7, PHQ-9, and PSS-10. The mean scores for anxiety, depression, and post-traumatic stress were 11.48±5.16, 13.82±5.63, and 8.20±4.72, respectively.

Table 3. Frequency and percentage of anxiety, depression, and stress symptoms among dental students.

Scale	Categories	N	%	Mean (SD)
Anxiety (GAD-7)				
	No anxiety	29	7.8	11.48±5.163
	Mild anxiety	124	33.5	
	Moderate anxiety	95	25.7	
	Severe to very severe anxiety	118	31.9	
Depression (PHQ-9)				
	No depression	21	5.7	13.82±5.636
	Mild depression	65	17.6	
	Moderate depression	114	30.8	
	Severe to very severe depression	60	16.2	
Stress (PSS-10)				
	No PTSS	68	18.4	8.20±4.729
	Mild PTSS	108	29.2	
	Moderate PTSS	93	25.1	
	Severe to very severe PTSS	97	26.2	

a) PHQ = Patient Heath Questionnaire,
b) GAD = Generalized Anxiety Disorder,
c) PSS = Perceived Stress Scale
d) PTSS=Post Traumatic Stress Syndrome

A comparison of anxiety, depression, and posttraumatic stress levels based on gender, grade, previous mental health, and medical care for mental health problems is shown in Table 4.
Statistically significant differences were observed between gender and PHQ-9 scores, as well as grade and GAD-7 scores (P<0.05).
Additionally, statistically significant differences were reported in students' mental health status, GAD-7, PHQ-9, and PSS-10 scores (P<0.05).
Significant differences were also found between students receiving medical care for mental health problems, and their GAD-7, PHQ-9, and PSS-10 scores (P<0.001).
During the COVID-19 pandemic, the most commonly taken medication were analgesic and anti-migraine with 37.2% and 32% respectively (Table 5).

Table 5. Used medications during the COVID-19.

Characteristics		Frequency	
		%	N
Medications taken during the Covid-19 coronavirus pandemic	No	11.2	41
	Analgesic	37.2	136
	Anti-migraine	32	114
	Soporific drugs	5.2	19
	Anxiolytics	6	22
	Antidepressants	8.5	31

On a scale ranging from 0 (minimum score) to 10 (maximum score), 25.1% of dental students rated their mental health at 8 before the Covid-19 pandemic, while about 18.6% of them rated their mental health at 4 during the pandemic (Table 6).
A statistically significant difference in the general state of the students' mental health before and during the pandemic was reported (P=0.03).

Table 6. General state of student's mental health before and during the pandemic COVID-19

Characteristics	categories	% (N)	Mean SD	*P*
The state of student's mental health, before the Covid-19 coronavirus pandemic	0-1	0.8 (3) - 08 (3)	7.1±2.06	**0.03**
	2-3	1.9 (7) - 2.5 (9)		
	4-5	5.5 (20) – 8.7 (32)		
	6-7	10.1 (37)- 19.1 (70)		
	8-9	25.1 (92) – 16.9 (62)		
	10	8.5 (31)		
The state of student's mental health, during the Covid-19 coronavirus pandemic.	0-1	4.6 (17) - 4.4 (16)	4.57±2.33	
	2-3	8.2 (30) - 16.1 (59)		
	4-5	18.6 (68)- 16.7 (61)		
	6-7	10.9 (40) – 8.2 (30)		
	8-9	3 (9) - 6.6 (24)		
	10	2.7 (10)		

Student-t-test
P= P value significant P<0.05

Discussion

To the best of our knowledge, the present study is the first designed to assess the psychological effects of the COVID-19 lockdown on the mental health of dental students in Tunisia.
During the pandemic and social isolation, sleep and diets were severely disrupted, leading to severe psychological symptoms such as depression, anxiety, insomnia, and fear. (3,17)
In the current survey, the mean GAD-7 score indicated that 31.9% of dental students experienced severe anxiety for several days, while 7.8% had never experienced anxiety.
In Riyadh, Saudi Arabia, an anxiety prevalence of 7.3% were expressed by dental interns during the pandemic.(18)

Table 4. Comparison between anxiety, depression, and post-traumatic stress levels of gender, grade, previous mental health, and medical care for mental health problems.

	Gender % (N)		*P*	Grade % (N)						*P*	Previous Mental health % (N)		*P*	Medical care for mental health problems % (N)		*P*
	Men	Women		1st	2nd	3rd	4th	5th	6th		Yes	No		Yes	No	
Anxiety (GAD-7)																
Normal	2.2(8)	5.7(21)	0.351	2.5(9)	3 (11)	0.5(2)	0.8(3)	0.5(2)	0.5(2)	**0.015**	0.3(1)	7.7(28)	**0.014**	1.1(4)	6.8(25)	**<0.001**
Mild	5.2(19)	28.7(105)		7.7(28)	8.2(30)	7.1(26)	7.7(28)	2.2(8)	1.1(4)		4.4(16)	29.5(108)		9.6(35)	24.3(89)	
Moderate	3.8(14)	22.1(81)		6.6(24)	4.9(18)	4.4(16)	6.6(24)	3.9(13)	0(00)		2.5(9)	23.5(86)		14.5(53)	11.5(42)	
Severe	6.3(23)	26(95)		9(33)	3(11)	5.5(20)	9.6(35)	4.1(15)	0.8(3)		7.1(26)	25.1(92)		23.8(87)	8.5(31)	
Depression (PHQ-9)																
Normal	2.2(8)	3.6(13)	**0.023**	1.4(5)	2.5(9)	0.8(3)	0.3(1)	0.3(1)	0.5(2)	0.179	0(00)	5.8(21)	**0.001**	0.3(1)	5.5(20)	**<0.001**
Mild	1.9(7)	15.9(58)		5.5(20)	3.6(13)	2.5(9)	4.1(15)	1.6(6)	0.5(2)		1.9(7)	15.9(58)		4.1(15)	13.7(50)	
Moderate	4.1(15)	24.7(90)		7.1(26)	6(22)	5.5(20)	7.1(26)	2.2(8)	0.8(3)		2.5(9)	26.3(96)		11.8(43)	17(62)	
Severe/ very sever	9(33)	38.6(141)		11.8(43)	6.8(25)	32(8.8)	13.2(48)	6.3(23)	0.6(2)		9.8(36)	37.8(138)		32.9(120)	14.8(54)	
Stress (PSS-10)																
Normal	4.6(17)	13.9(51)	0.371	4.9(18)	5.2(19)	2.5(9)	3.6(13)	1.6(6)	0.8(3)	0.263	0(00)	18.6(68)	**<0.001**	2.7(10)	15.8(58)	**<0.001**
Mild	5.5(20)	24(88)		8.2(30)	7.1(26)	6.3(23)	5.5(20)	1.9(7)	0.5(2)		2.5(9)	27(99)		9(33)	20.5(75)	
Moderate	3.6(13)	21.9(80)		6.3(23)	4.1(15)	4.9(18)	6.8(25)	3(11)	0.3(1)		3.3(12)	22.1(81)		16.1(59)	9.3(34)	
Severe/ Very severe	3.8(14)	22.7(83)		6.3(23)	2.7(10)	3.8(14)	8.8(32)	3.8(14)	0.8(3)		8.5(31)	18.1(66)		21(77)	5.4(20)	

Chi-square/ Fisher exact
a) PHQ = Patient Heath Questionnaire,
b) GAD = Generalized Anxiety Disorder,
c) PSS = Perceived Stress Scale,
d) P= P value significant P<0.05

The same anxiety scale showed a lower percentage of moderate (2.7%) to severe anxiety (0.9%) among medical students in China.(19)

Approximately 76.4% of dental students exhibited moderate to severe symptoms of depression.

A study conducted among Iraqi dentists using the PHQ-9 scale showed that 28.3% of the sample suffered from major depressive syndrome(20), while, in India 27% of dental students reported moderate and severe depression.(21)

In the present survey, the mean score for post-traumatic stress was 8.20±4.72. A similar result was reported among dental students in Saudi Arabia.(22)

Psychological impact was evaluated using three standardized validated scales; the seven-item Generalized Anxiety Disorder (GAD), a nine-item version of the Patient Heath Questionnaire (PHQ) depression scale and the ten-item Perceived Stress Scale (PSS).

Several studies have used the GAD-7 scale to assess anxiety levels during the COVID-19 pandemic in several studies.(23,24)

The PHQ scale was used to provide a preliminary diagnosis of depression in different populations, providing to be an effective tool for detection and for monitoring of depression severity.(18,20,21,25,26)

The PSS scale, a classic stress assessment tool, was designed to measure individual stress levels.(15,27)

The results of this study indicated a decline in mental health among dental students during the COVID-19 lockdown.

These finding align with previous studies showing that dental students experienced higher levels of depression, anxiety, and stress symptoms compared to the general population.(28,29) It has been noted in various publications that students have been impacted by the global pandemic in diverse ways.(30–34)

Dentistry is known to be a stressful profession, and dental students face similar stressors, along with increasing academic pressures over time.(35)

Common stressors identified among dental students include pressure to excel, heavy coursework, challenges in learning clinical procedures, and managing difficult patients. (35)

In addition to these typical stressors, dental students faced a global health crisis, practice restrictions and school closures during the study period.

During the lockdown, dental students missed several valuable opportunities, such as lectures, exams, practical work sessions, case presentations, and clinical sessions.

Addressing the psychological impact of the pandemic on student mental well-being was an important issue that should not be neglected.

At the start of the epidemic, the COVID-19 origin, treatment, and routes of transmission were not clearly understood. During this time, most students around the world spent a lot of time surfing the internet since they were isolated at home, leading to a greater number of negative psychological symptoms appeared.(31)

Distress experienced by the students during medical curricula was reported and explained by several components such as the fear of failure, the need to memorize several information or courses, and academic

competition.(18,32,36)
The present study reported a statistically significant difference between genders in distress experienced during the lockdown.
Female dental students were more likely to experience depression than male students, which is consistent with previous studies conducted during quarantine.(23,37)
Several pre-pandemic studies support this finding. (38,39)
Such results could be attributed to the tendency of females to be more emotional about their social life and the hormonal changes experienced by women.(22,24)
However, given that most of the students in this study were female (82.5%), these results should be interpreted with caution.
In the present study, first-grade students were more likely to exhibit anxiety symptoms during the lockdown. This finding is in line with the study of Hakami et al. which reported that junior students anxiety symptoms were due to high academic demands.(22)
Statistically significant differences were reported between the levels of anxiety, depression, stress, the student's mental health status and history of medications taken for mental illness.
Suffering from subsequent mental health problems was also reported by other studies to be one of the risk factors associated with an increase in depressive and anxiety symptoms.(20,22,27)
The present study stated that students with a history of mental illness expressed more depressive symptoms than their healthy counterparts.
Other studies have suggested that students who have experienced stressful life events and who have been clinically diagnosed with mental illness may have higher rates of developing mental health problems.(40) A post-pandemic study carried out in China showed that life experiences among students can be mediated by social support, resilience, and coping strategies as effective intrapersonal and interpersonal protective factors.(40)
Dental students were asked to rate their state of mental health on a numerical scale before and during the COVID-19 lockdown.
Approximately, 25.1% of dental students rated their mental health at 8 before the COVID-19 pandemic, while about 18.6% rated it at 4 during the pandemic.
A statistically significant difference in the general state of students' mental health before and during the pandemic was reported (P=0.03).
These results confirmed the deterioration in the students' mental health.
After evaluating the psychological impact of the COVID-19 pandemic, institutions should implement and conduct psychological workshops to help students and strengthen their confidence.
It is also important to provide psychological and social support to students, especially those with preexisting psychiatric disorders.
Medical institutions and universities should take preventative measures to support students and address stressors factors or factors that could influence their mental health.
Despite the significant findings, the limitations of the present survey included the limited study period, sampling, and confounding bias.
Additionally, the present study was cross-sectional; therefore, there was no data from the study group before the pandemic.
There were not enough participants to conduct a statistical analysis in certain groups for specific comparisons, such as students in high-risk groups and students who lived alone or with their families.
As the pandemic continues to evolve, it is likely that recommendations and guidelines will change, while the results reported in the present study provide a snapshot in time.
Although the scales used were validated, the questionnaire used in this study to measure psychiatric symptoms was self-reported and no clinical diagnosis was performed.
The possibility of reporting bias should be considered as the gold standard for establishing a psychiatric diagnosis should be based on a structured clinical interview and functional neuroimaging. (13,26)
Nevertheless, using an online self-reporting method for psychological effects was the most affordable during the COVID-19 pandemic.
Only a few unique symptoms were assessed during the study, and a limited number of factors associated with mental health were included.
In the present survey, self-assessments were conducted online, and random sampling was conducted in a non-rigorous manner, which likely reduced in the representativeness and reliability of the results.

Conclusion

The results of the present study demonstrated that the COVID-19 lockdown affected the mental health of dental students. During the pandemic, increased stress and anxiety were reported among dental students, and some experienced symptoms related to depression.
Anxiety, stress, and social isolation contribute to the development or exacerbation of depressive disorders, anxiety, substance abuse and other psychiatric disorders in vulnerable populations such as dental students.

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