


Quality of life of Dentistry students during the COVID-19 pandemic: a cross-sectional observational study at two public universities


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Abstract

The aim of this study was to assess the quality of life (QoL) of students from two Dentistry courses at the Federal University of Ceará (UFC) during the Coronavirus Disease 2019 pandemic. A cross-sectional study was carried out, with data collected in May 2020, using questionnaires that measured sociodemographic, course-related and behavioral variables, in addition to the World Health Organization Questionnaire for Quality of Life-bref. Multinomial logistic regression was performed. A total of 396 students took part. It was observed that 64.1% of students were dissatisfied with their QoL. Variables such as monthly income ($p=0.018$), religion ($p=0.012$), sleep quality ($p<0.001$), insomnia ($p<0.001$) and practicing physical activity ($p<0.001$) were associated with dissatisfaction with QoL. The QoL of UFC Dentistry students was unsatisfactory, based on the analysis of the low scores on the questionnaires, and it is important that everyone involved in the educational process is sensitive to this reality, in order to try to change it.

Descriptors: Quality of Life. Students. Dentistry.

Calidad de vida de estudiantes de odontología durante la pandemia de COVID-19: un estudio observacional transversal en dos universidades públicas

Resumen

El objetivo de este estudio fue evaluar la calidad de vida (CV) de estudiantes de dos carreras de Odontología de la Universidad Federal de Ceará (UFC) durante la pandemia de Enfermedad por Coronavirus 2019. Se realizó un estudio transversal, con recolección de datos en mayo de 2020, a través de cuestionarios que midieron variables sociodemográficas, de curso y de comportamiento, además del Cuestionario de Calidad de Vida-bref de la Organización Mundial de la Salud. Se realizó regresión logística multinomial. Participaron 396 estudiantes. Se observó que el 64,1% de los estudiantes estaban insatisfechos con su CV. Variables como ingreso mensual ($p=0,018$), religión ($p=0,012$), calidad del sueño ($p<0,001$), insomnio ($p<0,001$) y actividad física ($p<0,001$) se asociaron con la insatisfacción con la calidad de vida. La calidad de vida de los estudiantes de Odontología de la UFC fue insatisfactoria, según el análisis de los bajos puntajes en los cuestionarios, y es importante que todos los involucrados en el proceso educativo sean sensibles a esta realidad, para intentar cambiarla.

Descriptor: Calidad de Vida. Estudiantes. Odontología.

Qualidade de vida dos estudantes de Odontologia na pandemia da COVID-19: um estudo observacional transversal em duas universidades públicas

Resumo O objetivo deste estudo foi avaliar a qualidade de vida (QV) dos estudantes de dois cursos de Odontologia da Universidade Federal do Ceará (UFC) durante a pandemia da *Coronavirus Disease 2019*. Foi realizado um estudo transversal, com coleta de dados em maio de 2020, por meio de questionários que mensuraram as variáveis sociodemográficas, relacionadas ao curso e comportamentais, além do *World Health Organization Questionnaire for Quality of Life-bref*. Foi realizada regressão logística multinomial. Ocorreu a participação de 396 estudantes. Observou-se que 64,1% dos acadêmicos apresentavam-se insatisfeitos quanto à QV. Variáveis como renda mensal ($p=0,018$), religião ($p=0,012$), qualidade do sono ($p<0,001$), insônia ($p<0,001$) e prática de atividade física ($p<0,001$) foram associadas com a insatisfação com a QV. A QV dos acadêmicos de Odontologia da UFC foi insatisfatória, a partir da análise dos baixos escores dos questionários, sendo importante que todos

os envolvidos no processo educacional sejam sensíveis a esta realidade, a fim de tentar modificá-la.

Descritores: Qualidade de Vida. Estudantes. Odontologia.

INTRODUCTION

In December 2019, the World Health Organization (WHO) was notified by Chinese authorities regarding the emergence of a new disease, Coronavirus Disease 2019 (COVID-19), whose etiological agent is Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). On January 30, 2020, the WHO declared the new coronavirus epidemic a public health emergency of international concern, due to the speed with which the virus was spreading across continents, and on March 11, the situation was elevated to the category of pandemic¹. Despite the absence of a cure and ideological conflicts, the practice of physical isolation and mass vaccination were the main measures to control viral infection², especially before the availability of vaccines.

From that perspective, it was considered essential to assess how the population dealt with the pandemic. Previous epidemics, such as H1N1 and Ebola, for example, reflected high mortality rates, insecurity regarding resources and food, discrimination, symptoms of post-traumatic stress related to diseases, as well as in mental health, including depression, anxiety and disorders due to the use of substances³.

Studies were carried out to assess how people felt about the outbreak of the pandemic, and its effects on their daily lives. In some South American countries, although social interdependence, care and responsibility are part of the range of values considered essential and developed in the fight against COVID-19, negative feelings of impotence and sadness, as well as anxiety as a result of knowing about the growing number of people hospitalized and killed by the pandemic in the news, were part of the lives of those affected by the pandemic⁴⁻⁶.

Regarding university students, a study⁷ concluded that they experience biological, psychological and social changes, and were directly affected by the COVID-19 pandemic, with significant fear and anxiety, with higher rates of obsessive-compulsive disorder (OCD)⁸. In addition, around 45.3% of these students reported symptoms of anxiety, which was more prevalent among those in the health sector (53.3%) compared to other areas (38.9%)⁹. It has been estimated that among the general population, common mental disorders, such as anxiety and depression, can affect up to 30% of the population, while in university students this percentage can reach up to 44.9%¹⁰. These disorders are often associated with irritability, insomnia, fatigue, forgetfulness and somatic factors. Furthermore, these students were exposed to numerous stressors, being more pronounced in the health area, due to their proximity to situations of pain, suffering and death, in addition to exhausting academic routines⁷. In this sense, it has been the aim of research to observe the quality of life (QoL) of university students, such as Dentistry students.

Studies show that Dentistry students are subjected to significant stress, often associated with learning, both theoretical and practical^{11,12}, as Dentistry courses are very demanding, with high levels of depression among students¹³. In the first years, students are subjected to a high theoretical load, combined with disputes for increasingly higher grades and the fear of not achieving a high level of success in activities¹⁴. All of these factors can directly affect the quality of life of these students¹⁵.

Thus, assessing the QoL of dentistry students during the COVID-19 pandemic has become important and necessary, aiming to promote strategies that help students face situations of this nature. Therefore, this study aimed to assess the QoL of students from two Dentistry courses at the Federal University of Ceará (UFC), Brazil, during the COVID-19 pandemic.

METHOD

Design and study site

An observational, cross-sectional study was conducted with undergraduate students from the two Dentistry courses of

the UFC, both with more than 10 years of experience, located in the cities of Fortaleza and Sobral, state of Ceará, Brazil.

The UFC is a public higher education institution and an agency linked to the Ministry of Education, consisting of 7 campuses, 3 of which are located at the university's headquarters and 4 located in countryside cities. It is one of the largest federal universities, considered a reference in the country for its excellence in education and research. In 2019, in the National Student Performance Exam (Enade), the UFC achieved maximum scores in 13 of the 26 courses evaluated. Nine were ranked among the top 10 in their areas, and three came first in Brazil, including the Dentistry course at the Sobral *Campus*¹⁶.

Sampling plan and participants

Students regularly enrolled in UFC Dentistry courses were included, and those with on hold registration *status* were excluded. For the sample calculation, the number of students enrolled in the 2020.1 academic period was used, that is, 667 (415 from UFC/Fortaleza and 252 from UFC/Sobral). Considering the lack of knowledge of the COVID-19 effect on the quality of life (QoL) of undergraduate students ($p=0.5$), adopting a 95% confidence level, 5% precision and the total number of students from each of the HEIs, it was stipulated that that 200 and 153 Dentistry students, respectively, needed to be assessed, totaling a minimum final sample of 353 students.

Data collection

Data collection took place between May 19 and 25, 2020, entirely *online*, by providing a google forms link that was widely disseminated on social networks, keeping the participants anonymous. The coordinators, as well as the teaching and student staff of the courses involved, helped to disseminate the survey questionnaire among academics. Sociodemographic, course-related and behavioral information was collected, along with the semi-structured, self-administered QoL questionnaire, the *World Health Organization Questionnaire for Quality of Life-bref* (WHOQOL-bref).

The sociodemographic variables included: gender (male and female); age (≤ 22 years and > 22 years); self-declared race (white, black, brown, yellow and indigenous); marital status (single, married or living together); having children (no and yes); having job (no and yes); monthly family income, in minimum wages (mw) (up to 5sm, more than 5sm); having religion (no and yes); living with (parents, other family members, spouse, alone, friends and others); and having health plan (no and yes). Information related to the course included: course (UFC Fortaleza and UFC Sobral); and year in course (1st, 2nd, 3rd, 4th and 5th).

The behavioral questions included: satisfaction with sleep quality (fully satisfied, reasonably satisfied and dissatisfied); insomnia (often, sometimes and not at all); frequency of physical activity (always, sporadically, rarely and never); leisure time on weekdays (no leisure, one day, two to three days and four days or more); leisure time on weekends (no leisure, one day and two days); smoking (on some occasions, always and do not smoke); and drinking alcohol (on some occasions, always and do not drink).

The WHOQOL-bref¹⁷ was the instrument used to assess the students' QoL, and was self-administered and cross-cultural. This instrument was validated and translated into Portuguese. In order to obtain more reliable data, the instrument suggests that participants consider the fifteen days prior to the application of the instrument. All 26 questions have five *Likert*-type alternatives, ranging from option 1 (nothing/very, bad/never) to option 5 (extremely/completely/very good/always). The questionnaire consists of two general questions and the remaining questions are separated into four domains: physical (seven questions), psychological (six questions), social relations (three questions) and environment (eight questions).

Data analysis

Data were exported to a Microsoft Excel spreadsheet using *Google Forms*[®] "View responses in Spreadsheet" command to be coded and analyzed in the *Statistical Package for the Social Sciences* (SPSS) software version 20.0 for Windows

($p < 0.05$).

QoL was the dependent variable of this study, calculated using WHOQOL-bref scores. The scores obtained were analyzed and transformed into a linear scale, ranging from 0-100, representing, respectively, the least and most favorable values of QoL, according to the construction proposed by the WHOQOL-group¹⁷. This information was incorporated into the independent variables, which are sociodemographic information, related to the Dentistry course, and behavioral information.

Participants were grouped into "dissatisfied" and "satisfied" regarding QoL, with the cut-off point being values below and above 70, respectively, from the WHOQOL-bref¹⁸ questionnaire, to obtain the absolute and percentage frequency. All variables were analyzed in an integrated manner regarding the course using Fisher's exact test or Pearson's chi-square, in addition to the multinomial logistic regression model, in addition to the multinomial logistic regression model, in order to analyze the factors independently associated with QoL.

The internal consistency of the WHOQOL-bref questionnaire was assessed item-by-item and domain-by-domain, by calculating the Cronbach's alpha value. Furthermore, all of these items were correlated with the general score, using the Spearman correlation, and the domains were compared using the Friedman/Dunn test.

Ethical aspects

The study was approved by the National Research Ethics Commission, under opinion no. 4.032.230 of May 18, 2020. Prior to the application of the questionnaire, in accordance with Resolution no. 466/2012 of the National Health Council¹⁹, an access *link* to the Free and Informed Consent Form (TCLE) was made available and its reading was suggested to the participants. The students then marked a digital box agreeing or not to take part in the survey.

RESULTS

The 667 students regularly enrolled on the courses in question were invited to take part in this study. Of these, 271 did not answer the questionnaires and there was no refusal. Thus, 396 Dentistry students participated in the research, with UFC/Fortaleza having the highest participation (57.8%). It was found that the majority of students in the sample (64.1%) were dissatisfied with their QoL (Table 1).

The following predominated in this study: female students (66.7%); those over 22 years old (66.2%); and self-declared browns (52.8%). Regarding marital status, (95.7%) were single. Furthermore, the majority did not have children (97.2%); and 93.2% did not work. In relation to monthly family income, the majority were those with an income of less than 5 mw (79.3%). Regarding belief in some religion, 75.8% said they had it. 79.5% of undergraduate students stated that they lived with their parents; and 59.1% said they did not have a health plan (Table 1).

Regarding year of the course, 22.2% were in their first year. Regarding sleep quality, 50.8% were reasonably satisfied; and 50.5% reported having insomnia at times. Physical activity was rarely practiced by 37.4% of students. Leisure prevailed 1 day a week (35.4%) and in the same number on the weekend (50%). The vast majority (96.5%) of students stated that they do not currently smoke; and 59.6% reported drinking alcohol on some occasions (Table 2).

Furthermore, it is observed that sleep quality ($p < 0.001$), insomnia ($p < 0.001$), physical activity ($p < 0.001$), leisure on weekdays ($p < 0.001$) and leisure on weekends ($p < 0.001$), were the variables that showed a statistically significant relationship with quality of life.

Table 3 summarizes the multivariate analysis. There was a significant association of the following variables with dissatisfaction regarding QoL: monthly income less than 5 mw ($p = 0.018$), not having a religion ($p = 0.012$), dissatisfaction with sleep quality ($p < 0.001$); insomnia ($p = 0.001$) and always practicing physical activity ($p = 0.005$).

Table 4 showed how participants responded to each item, according to a Likert-type scale. A high value was found when considering the WHOQOL-bref questions, with $\alpha=0.843$ for all items, and values above 0.800 for individual questions. In relation to the WHOQOL-bref domains, there are values of $\alpha=0.834$ when considered item-by-item. Individual values were above 0.750 in all. When excluding any of the items or domains from the WHOQOL-bref, the α value did not decrease to values below 0.700, which means that the questionnaire used in this research showed excellent internal validity.

Table 1. Descriptive analysis and association of sociodemographic variables of UFC Dentistry students with the WHOQOL-bref, in the COVID-2019 pandemic.

Variables	Total n (%)	WHOQOL-bref		p-value
		Dissatisfied n (%)	Satisfied n (%)	
<i>Total</i>	396 (100)	254 (64.1)	142 (35.9)	-
<i>Campus</i>				
Capital	229 (57.8)	138 (54.3)	91 (64.1)	0.059
Countryside	167 (42.2)	116 (45.7)	51 (35.9)	
<i>Gender</i>				
Male	132 (33.3)	81 (31.9)	51 (35.9)	0.415
Female	264 (66.7)	173 (68.1)	91 (64.1)	
<i>Age</i>				
Up to 22 years	262 (66.2)	164 (64.6)	98 (69.0)	0.370
>22 years	134 (3.8)	90 (35.4)	44 (31.0)	
<i>Race</i>				
White	146 (36.9)	94 (37.0)	52 (3.6)	0.295
Black	28 (7.1)	18 (7.1)	10 (7.0)	
Brown	209 (52.8)	130 (51.2)	79 (5.6)	
Yellow	10 (2.5)	9 (3.5)	1 (0.7)	
Indigenous	3 (0.8)	3 (1.2)	-	
<i>Marital status</i>				
Single	379 (95.7)	241 (94.9)	138 (97.2)	0.279
Married/living together	17 (4.3)	13 (5.1)	4 (2.8)	
<i>Children</i>				
No	385 (97.2)	246 (96.9)	139 (97.9)	0.547
Yes	11 (2.8)	8 (3.1)	3 (2.1)	
<i>Job</i>				
No	369 (93.2)	234 (92.1)	135 (95.1)	0.265
Yes	27 (6.8)	20 (7.9)	7 (4.9)	
<i>Monthly income</i>				
Up to 5mw	314 (79.3)	216 (85.0)*	98 (69.0)	<0.001
>5mw	82 (20.7)	38 (15.0)	44 (31.0)*	
<i>Religion</i>				
No	96 (24.2)	70 (27.6)*	26 (18.3)	0.039
Yes	300 (75.8)	184 (72.4)	116 (81.7)*	
<i>Living with</i>				
Parents	315 (79.5)	195 (76.8)	120 (84.5)	0.599
Other family members	32 (8.1)	23 (9.1)	9 (6.3)	
Spouse	11 (2.8)	8 (3.1)	3 (2.1)	
Alone	15 (3.8)	11 (4.3)	4 (2.8)	
Friends	13 (3.3)	9 (3.5)	4 (2.8)	
Other	10 (2.5)	8 (3.1)	2 (1.4)	
<i>Health plan</i>				
No	234 (59.1)	157 (61.8)	77 (54.2)	0.141
Yes	162 (40.9)	97 (38.2)	65 (45.8)	

*p<0.05, Fisher's exact test or Pearson's chi-square; mw: minimum wages.

Table 2. Descriptive analysis and association of course-related and behavioral variables of UFC Dentistry students with the WHOQOL-bref, in the COVID-2019 pandemic.

Variables	Total n (%)	WHOQOL-bref		p-value
		Up to 70 n (%)	>70 n (%)	
<i>Year of the course</i>				
1st.	88 (22.2)	50 (19.7)	38 (26.8)	0.106
2nd.	82 (20.7)	52 (20.5)	30 (21.1)	
3rd.	86 (21.7)	56 (22.0)	30 (21.1)	
4th.	64 (16.2)	38 (15.0)	26 (18.3)	
5th.	76 (19.2)	58 (22.8)	18 (12.7)	
<i>Sleep amount/quality</i>				
Fully satisfied	87 (22.0)	39 (15.4)	48 (33.8)*	<0.001
Reasonably satisfied	201 (50.8)	118 (46.5)	83 (58.5)*	
Dissatisfied	108 (27.3)	97 (38.2)*	11 (7.7)	
<i>Insomnia</i>				
Often	128 (32.3)	113 (44.5)*	15 (10.6)	<0.001
Sometimes	200 (50.5)	110 (43.3)	90 (63.4)*	
I don't suffer from insomnia	68 (17.2)	31 (12.2)	37 (26.1)*	
<i>Practice physical activity</i>				
Always	71 (17.9)	31 (12.2)	40 (28.2)*	<0.001
Sporadically	139 (35.1)	83 (32.7)	56 (39.4)*	
Rarely	148 (37.4)	112 (44.1)*	36 (25.4)	
Never	38 (9.6)	28 (11.0)*	10 (7.0)	
<i>Frequency of leisure activities on weekdays</i>				
No leisure time	112 (28.3)	74 (29.1)	38 (26.8)	0.001
Once a week	140 (35.4)	84 (33.1)	56 (39.4)*	
2 to 3 times/week	58 (14.6)	28 (11.0)	30 (21.1)*	
4 times or more/week	86 (21.7)	68 (26.8)*	18 (12.7)	
<i>Frequency of leisure activities on weekends</i>				
Once	198 (50.0)	133 (52.4)	65 (45.8)	<0.001
More than once	137 (34.6)	69 (27.2)	68 (47.9)*	
No leisure time	61 (15.4)	52 (20.5)*	9 (6.3)	
<i>Smoking</i>				
Always	-	-	-	
On some occasions	14 (3.5)	11 (4.3)	3 (2.1)	0.252
Do not smoke	382 (96.5)	243 (95.7)	139 (97.9)	
<i>Drinking alcohol</i>				
Always	3 (0.8)	2 (0.8)	1 (0.7)	0.879
On some occasions	236 (59.6)	149 (58.7)	87 (61.3)	
Do not drink	157 (39.6)	103 (40.6)	54 (38.0)	

* p<0.05, Fisher's exact test or Pearson's chi-square (n. %). W: Weekend

Table 3. Adjusted analysis of variables with dissatisfaction in the QoL of UFC Dentistry students during the COVID-19 pandemic.

	p-value	Adjusted odds ratio	95% confidence interval	
WHOQOL-bref (<70)				
Campus	0.471	0.80	0.44	1.47
Gender	0.618	0.87	0.49	1.53
Age (>22 years)	0.418	0.77	0.40	1.46
Race	0.867	0.95	0.54	1.68
Marital status	0.434	0.33	0.02	5.39
Children	0.737	0.74	0.13	4.18
Job	0.466	0.64	0.19	2.14
Monthly income (up to 5mw)	*0.018	2.43	1.17	5.06
Religion	*0.012	0.43	0.83	0.22
Person(s) you live with	0.908	1.13	0.14	8.84
Health plan	0.666	1.15	0.61	2.16
Year of the course (1st)	0.019	0.34	0.14	0.83
Sleep quality (Unsatisfied)	<0.001	6.40	16.77	2.45
Insomnia	0.001	4.86	1.87	12.65
Physical activity (always)	0.005	0.22	0.08	0.64
Estimated number of leisure activities per day during the week	0.277	0.59	0.23	1.52
Estimated number of leisure activities per day on weekends	0.057	0.31	0.09	1.04
Currently smoking	0.495	1.96	0.28	13.46
Drinking alcoholic beverages	0.777	0.56	0.01	29.63

*p<0.05, multinomial logistic regression; mw: minimum wages.

DISCUSSION

Students from two Dentistry courses at a same public university were classified as dissatisfied with their QoL. It is noteworthy that in the context of carrying out the research, the pandemic caused by COVID-19 represented a relevant factor for the findings of this study. Thus, through State Decree no. 33.532, people were recommended to stay strictly at their homes, with housing that is sometimes unsafe, with precarious and unfavorable conditions for studying, which may have directly affected their physical and mental well-being²⁰.

In addition, this result can be justified by the strong influence of factors related to changes in the undergraduate Dentistry course, such as adaptations to distance classes, stoppage of laboratory and clinical practices, delay in completing the degree, in addition to the fear that has spread throughout the population of being affected by the virus and even of death²¹.

Another factor to be considered as relevant regarding QoL dissatisfaction was the monthly income of the students. In a study carried out in Brazil, in which the QoL of Dentistry students was assessed, the economic class that obtained the greatest satisfaction regarding QoL was class A, with 67.3 ± 19.7 , and the worst was class D, with 58.8 ± 14.8 , a difference of 8.5 ± 4.9 , which suggests that better financial conditions directly reflect on students' QoL.

Having a religion was also considered one of the significant variables when associated with dissatisfaction with the QoL of Dentistry students. Another study carried out with adolescents found that religion, by establishing meaning to existence

and encouraging shared beliefs and worldviews, strengthens social ties and a sense of belonging, which has a direct impact on QoL²³⁻²⁴.

Table 4. Analysis of the internal validity and correlation of the WHOQOL-bref questions and domains.

	Average±SD	Cronbach's α	Correlation ^e	Likert scale				
				1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)
<i>Item-by-item analysis</i>		0.843a						
Item 1	3.75±0.74	0.831b	p<0.001 (r=0.653)	1(0.3)	24(6.1)	92(23.2)	234(59.1)	45(11.4)
Item 2	3.45±0.89	0.836b	p<0.001 (r=0.552)	8(2.0)	60(15.2)	100(25.3)	203(51.3)	25(6.3)
Item 3	2.16±1.06	0.864b	p<0.001 (r=-0.452)	132(33.3)	122(30.8)	93(23.5)	43(10.9)	6(1.5)
Item 4	1.99±0.99	0.860b	p<0.001 (r=-0.337)	153(38.6)	134(33.8)	76(19.2)	27(6.8)	6(1.5)
Item 5	3.15±0.76	0.833b	p<0.001 (r=0.587)	5(1.3)	65(16.4)	200(50.5)	117(29.5)	9(2.3)
Item 6	3.75±0.93	0.836b	p<0.001 (r=0.525)	6(1.5)	29(7.3)	108(27.3)	167(42.2)	86(21.7)
Item 7	2.84±0.76	0.837b	p<0.001 (r=0.483)	12(3.0)	112(28.3)	204(51.5)	65(16.4)	3(0.8)
Item 8	3.02±0.85	0.834b	p<0.001 (r=0.602)	13(3.3)	84(21.2)	198(50.0)	85(21.5)	16(4.0)
Item 9	3.33±0.87	0.835b	p<0.001 (r=0.485)	13(3.3)	47(11.9)	151(38.1)	165(41.7)	20(5.1)
Item 10	2.94±0.83	0.834b	p<0.001 (r=0.611)	8(2.0)	105(26.5)	204(51.5)	59(14.9)	20(5.1)
Item 11	3.12±0.97	0.835b	p<0.001 (r=0.492)	20(5.1)	76(19.2)	169(42.7)	100(25.3)	31(7.8)
Item 12	3.02±0.88	0.834b	p<0.001 (r=0.530)	13(3.3)	85(21.5)	203(51.3)	70(17.7)	25(6.3)
Item 13	3.99±0.82	0.835b	p<0.001 (r=0.505)	2(0.5)	13(3.3)	83(21.0)	185(46.7)	113(28.5)
Item 14	2.98±0.95	0.834b	p<0.001 (r=0.524)	20(5.1)	104(26.3)	151(38.1)	104(26.3)	17(4.3)
Item 15	4.15±0.92	0.834b	p<0.001 (r=0.529)	9(2.3)	14(3.5)	46(11.6)	167(42.2)	160(40.4)
Item 16	2.96±1.07	0.834b	p<0.001 (r=0.579)	40(10.1)	98(24.7)	113(28.5)	128(32.3)	17(4.3)
Item 17	2.85±1.05	0.830b	p<0.001 (r=0.696)	37(9.3)	126(31.8)	110(27.8)	106(26.8)	17(4.3)
Item 18	2.69±1.01	0.833b	p<0.001 (r=0.627)	47(11.9)	134(33.8)	120(30.3)	86(21.7)	9(2.3)
Item 19	2.91±0.93	0.830b	p<0.001 (r=0.703)	24(6.1)	108(27.3)	151(38.1)	104(26.3)	9(2.3)
Item 20	3.36±1.01	0.834b	p<0.001 (r=0.556)	22(5.6)	54(13.6)	113(28.5)	173(43.7)	34(8.6)
Item 21	2.92±1.18	0.839b	p<0.001 (r=0.451)	63(15.9)	72(18.2)	124(31.3)	106(26.8)	31(7.8)
Item 22	3.57±1.00	0.837b	p<0.001 (r=0.431)	18(4.5)	41(10.4)	90(22.7)	192(48.5)	55(13.9)
Item 23	3.84±0.95	0.834b	p<0.001 (r=0.492)	9(2.3)	32(8.1)	66(16.7)	197(49.7)	92(23.2)
Item 24	3.26±1.07	0.837b	p<0.001 (r=0.452)	20(5.1)	83(21.0)	112(28.3)	137(34.6)	44(11.1)
Item 25	3.42±1.19	0.833b	p<0.001 (r=0.549)	28(7.1)	67(16.9)	88(22.2)	135(34.1)	78(19.7)
Item 26	2.94±1.03	0.867b	p<0.001 (r=-0.543)	11(2.8)	158(39.9)	103(26.0)	92(23.2)	32(8.1)
<i>Domain-by-domain analysis</i>								
Domain 1	66.96±13.13	0.834c	p<0.001 (r=0.829)					
Domain 2	62.77±12.15	0.788d	p<0.001 (r=0.825)					
Domain 3	65.69±15.72	0.774d	p<0.001 (r=0.647)					
Domain 4	67.18±12.78	0.830d	p<0.001 (r=0.778)					
Domain 5	71.99±14.01	0.816d	p<0.001 (r=0.691)					
<i>Whoqol-bref</i>	66.30±10.42	0.796d						

^aCronbach's α from item-by-item analysis; ^bCronbach's α if the item is deleted; ^cCronbach's α from domain-by-domain analysis; ^dCronbach's α if the item is deleted; ^eSpearman's correlation.

This research also found that sleep quality was associated with greater dissatisfaction regarding QoL. The change in sleep pattern during the pandemic period may be associated with a change in routine, discouragement to perform activities, lack of academic environment and colleagues, issues related to productivity, social distancing, fear for family members, among others²⁵.

Insomnia was also associated with dissatisfaction regarding QoL. In this aspect, the quantity and quality of sleep can be harmed by several factors, such as: organic, psychological, environmental and/or social. Sleep disorders, such as insomnia, were more frequent during the pandemic period, and may also be associated with a reduction in students' mental and physical well-being²⁶.

In this study, it was observed that students who stated they always practiced physical activity were more dissatisfied with their QoL. This result may be associated with sports spaces closure as a measure to contain the spread of the virus, such as gyms, sports courts, among others, which may have directly affected those who usually frequented these spaces. Despite the difficulty in practicing physical activity during pandemic times, it is known that there is a positive association between the practice of physical activity and the perception of QoL, since physical exercise is a low-cost activity, contributing to good physical condition, prevention and treatment of diseases and maintenance of health²⁷⁻²⁸.

This study assessed the QoL of undergraduate Dentistry students from two dental courses at a same public university, in the midst of the COVID-19 pandemic. It presents some limitations, such as *online* data collection, which could allow for possible information bias; in addition to carrying out a cross-sectional study, there was no monitoring of research participants over time, which also prevented the inference of causality.

CONCLUSION

The QoL of students at the HEIs investigated is part of the dissatisfaction category [A56], probably affected by the COVID-19 pandemic. Furthermore, this study was important for HEIs managers, teachers, students and researchers to understand the QoL of this public in a comprehensive way.

REFERENCES

1. Araujo PR, Rodrigues LMC, Sousa SMG, Cruz DL, Sampaio FSF, Santos SC, et al. Desafios e inovações no uso de ferramentas tecnológicas para a vigilância epidemiológica em tempos de Covid-19. *Rev Eletro Acerv Saude* [Internet]. 2021;13(1):5768-5768. doi: <https://doi.org/10.25248/reas.e5768.2021>
2. Júnior SNS, Santana WKF. Análise dialógica de comentários sobre a vacina contra a covid-19 no instagram: sentidos em construção. *Verbum* [Internet]. 2021;10(1):64-81. doi: <https://doi.org/10.23925/2316-3267.2021v10i1p64-81>
3. Guirado GMP, Guirado VMP, Oliveira E, Queiroz PE, Garcia R. Avaliação da qualidade de vida de trabalhadores antes e durante a pandemia de COVID-19 por meio do questionário SF-36. *Rev Gest Sistem Saude* [Internet]. 2021;10(1):84-105. doi: <https://doi.org/10.5585/rgss.v10i1.17820>
4. Johnson MC, Saletti-Cuesta L, Tumas N. Emociones, preocupaciones y reflexiones frente a la pandemia del COVID-19 en Argentina. *Cien Saude Coletiva* [Internet]. 2020;25(1):2447-2456. doi: <https://doi.org/10.1590/1413-81232020256.1.10472020>
5. Sousa ARD, Carvalho ESDS, Santana TDS, Sousa ÁFL, Figueiredo TFG, Escobar OJV, et al. Sentimento e emoções de homens no enquadramento da doença Covid-19. *Cien Saude Coletiva* [Internet]. 2020;25(9):3481-3491. doi: <https://doi.org/10.1590/1413-81232020259.18772020>
6. Quintino ASS, Souza SC, Teixeira PG, Neto FE. O impacto do envelhecimento em tempos de pandemia e o isolamento social na terceira idade. *Inter Sci J* [Internet]. 2020;7(3):189-205. doi: <http://dx.doi.org/10.17115/2358-8411/v7n3a10>
7. Nogueira-Martins LS. Saúde Mental dos profissionais da saúde. *Rev Bras Med Trab* [Internet]. 2003;1(1):56-68.
8. Guangjun J, Wei W, Yue KC, Li H, Shi LJ, Ma JD, et al. Effects of the COVID-19 Pandemic on Obsessive-Compulsive Symptoms Among University Students: prospective cohort survey study. *J Med Internet Res* [Internet]. 2020;22(9):15-38. doi: <http://dx.doi.org/10.2196/21915>
9. Yang KH, Wang L, Liu H, Li LX, Jiang XL. Impact of coronavirus disease 2019 on the mental health of university students in Sichuan Province, China: an online cross-sectional study. *Inter J Mental Heal Nursing* [Internet]. 2021;1(1):1-10. doi: <http://dx.doi.org/10.1111/inm.12828>
10. Fagundes VLD, Ludermir AB. Common mental disorders among health care students. *Rev Bras Psiquiatria* [Internet]. 2005;27(3):194-200. doi: <https://doi.org/10.1590/S1516-44462005000300007>

11. Farokh-Gisour E, Hatamvand M. Investigation of Stress Level Among Dentistry Students, General Dentists, and Pediatric Dental Specialists During Performing Pediatric Dentistry in Kerman, Iran, in 2017. *Open Dent J* [Internet]. 2018;12(1):631-637. doi: <https://doi.org/10.2174/1745017901814010631>
12. Chandrasekaran B, Cugati N, Kumaresan R. Dental Students' Perception and Anxiety Levels during their First Local Anesthetic Injection. *Malays J Med Sci*. 2014;21(6):45-51.
13. Alfaris E, Irfan F, Qureshi R, Naeem N, Alshomrani A, Ponnampereuma G, et al. Health professions' students have an alarming prevalence of depressive symptoms: exploration of the associated factors. *BMC Med Educ* [Internet]. 2016;16(1):278-286. doi: <https://doi.org/10.1186/s12909-016-0794-y>
14. Aboalshamat K, Hou X, Strodl E. Psychological well-being status among medical and dental students in Makkah, Saudi Arabia: a cross-sectional study. *Medic Tea* [Internet]. 2015;37(1):75-81. doi: <https://doi.org/10.3109/0142159X.2015.1006612>
15. Mocny-Pachońska K, Doniec R, Trzcionka A, Pachoński M, Piaseczna N, Sieciński S, et al. Evaluating the stress-response of dental students to the dental school environment. *PeerJ* [Internet]. 2020;8(1):1-19. doi: <https://doi.org/10.7717/peerj.8981>
16. ENADE: UFC tem 9 cursos entre os 10 melhores do Brasil em suas áreas; Farmácia, Enfermagem e Odontologia (Sobral) estão em 1º lugar [Internet]. Brasil: Portal da UFC; 2020 [cited 2021 Jul 28]. Available from: <https://www.ufc.br/a-universidade>
17. Fleck MPA, Louzada S, Xavier M, Chachamovich E, Vieira G, Santos L, et al. Application of the Portuguese version of the abbreviated instrument of quality life WHOQOL-bref. *Rev Saude Public* [Internet]. 2000;34(2):178-183. doi: <https://doi.org/10.1590/S0034-89102000000200012>
18. Teixeira CNG, Rodrigues MIQ, Silva PGB, Frota MMA, Almeida MEL. Quality of life of postgraduate students stricto sensu in dentistry and sociodemographic factors. *Rev Odontol UNESP* [Internet]. 2017;46(5):278-283. doi: <https://doi.org/10.1590/1807-2577.01217>
19. Brasil. Resolução nº 466, de 12 de dezembro de 2012. Dispõe sobre diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. *Diário Oficial [da] República Federativa do Brasil*, Brasília, DF; 2013.
20. Saeed SG, Bain J, Khoo E, Siqueira WL. COVID-19: Finding silver linings for dental education. *J Dent Educ* [Internet]. 2020;1-4. doi: <https://doi.org/10.1590/jdd.12234>
21. Haroon Z, Azad AA, Sharif M, Aslam A, Arshad K, Rafiq S. COVID-19 Era: Challenges and Solutions in Dental Education. *J Coll Physicians Surg Pak* [Internet]. 2020;30(1):129-131. doi: <https://doi.org/10.29271/jcpsp.2020.suppl2.129>
22. Amadeu JF, Justi MM. Qualidade de vida de estudantes de graduação e pós-graduação em Odontologia. *Archi Health Invest* [Internet]. 2017;11(6):540-544. doi: <https://doi.org/10.21270/archi.v6i11.2275>
23. Serinolli MI, Oliva MPM, El-mafarjeh E. Antecedente de ansiedade, síndrome do pânico ou depressão e análise do impacto na qualidade de vida em estudantes de medicina. *Rev Ges Sist Saude* [Internet]. 2015;4(2):113-126. doi: <https://doi.org/10.5585/rgss.v4i2.205>
24. Farinha tF, Banhara FL, Bom GC, Kostrich LMV, Prado PC, Tresttene AS. Correlação entre espiritualidade, religiosidade e qualidade de vida em adolescentes. *Rev Bioet* [Internet]. 2018;26(4):567-573. doi: <https://doi.org/10.1590/1983-80422018264275>
25. Coelho APS. Saúde mental e qualidade do sono entre estudantes universitários em tempos de pandemia da COVID-19: experiência de um programa de assistência estudantil. *Res Soc Develop* [Internet]. 2020;9(9):1-14. doi: <http://dx.doi.org/10.33448/rsd-v9i9.8074>
26. Monteiro BMM, Santos Neto CN, Souza JCRP. Sono e cronotipo em estudantes universitários na pandemia da COVID-19. *Res Soc Develop* [Internet]. 2020;9(9):1-29. doi: <http://dx.doi.org/10.33448/rsd-v9i9.7688>
27. Ferreira JS, Diettrich SHC, Pedro DM. Influência da prática de atividade física sobre a qualidade de vida de usuários do SUS. *Saude Debate* [Internet]. 2015;39(106):792-801. doi: <https://doi.org/10.1590/0103-1104201510600030019>
28. Silva RS, Silva I, Silva RA, Souza L, Tomasi E. Atividade física e qualidade de vida. *Cien Saude Colet* [Internet]. 2010;15(1):115-120. doi: <https://doi.org/10.1590/S1413-81232010000100017>

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