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Factors associated with workplace insecurity in brazilian Unified Health System's oral health professionals during the COVID-19 pandemic

Fatores associados à insegurança laboral em profissionais de saúde bucal do Sistema Único de Saúde durante a pandemia de COVID-19

Abstract

Objectives: to analyze the factors associated with workplace insecurity during the COVID-19 pandemic among oral healthcare providers of the Unified Health System of the state of Ceará. **Methods:** cross-sectional study with secondary data made available by the Health Care Coordination, which were collected in May 2020. Logistic regression models were constructed. **Results:** in total, 801 professionals participated in this research, of whom 72.8% were dentists, 73.9% reported receiving only some of the recommended Personal Protective Equipment (PPE), and 58.2% reported feeling unsafe to carry out work activities. In the adjusted analysis, the following factors were associated with workplace insecurity: permanent employment (OR=1.85; 95%CI: 1.15; 2.99) and not receiving all the recommended PPE (OR=1.84; 95%CI: 1.16; 2.91); whereas the chance of feeling insecure was higher among dental assistants and technicians (OR=2.13; 95%CI 1.34; 3.40) than among dental surgeons. **Conclusion:** professionals reported workplace insecurity during the first wave of the pandemic. This study shows the need for improving working conditions with equal distribution of PPE throughout the state, ensuring safer working conditions.

Keywords: coronavirus infections; dental care; Unified Health System; workers health; biosafety.

Resumo

Objetivos: analisar os fatores associados à insegurança na realização das atividades laborais durante a pandemia de COVID-19 entre profissionais de saúde bucal do Sistema Único de Saúde do Ceará. **Métodos:** estudo transversal com dados secundários disponibilizados pela Coordenadoria de Atenção à Saúde do Ceará, coletados em maio de 2020. Foram construídos modelos de regressão logística. **Resultados:** participaram 801 profissionais, dos quais 72,8% eram cirurgiões-dentistas, 73,9% relataram não ter recebido todos os equipamentos de proteção individual (EPI) recomendados e 58,2% relataram não se sentirem seguros para realizar atividades laborais. Na análise ajustada, foram associados à insegurança laboral: maior tempo de formação (RC = 1,90; IC95%: 1,12; 3,20), vínculo empregatício efetivo (RC = 1,85; IC95%: 1,15; 2,99) e não recebimento de todos os EPI recomendados (RC = 1,84; IC95%: 1,16; 2,91); enquanto a chance de insegurança foi menor entre os profissionais que atuavam no nível secundário de atenção à saúde (RC = 0,52; IC95%: 0,28; 0,96). **Conclusão:** os profissionais relataram situação de insegurança laboral durante a primeira onda da pandemia. O estudo revelou a necessidade de melhorias nas condições de trabalho com distribuição de EPI de forma equitativa em todo o estado, garantindo um exercício laboral mais seguro.

Palavras-chave: infecções por coronavírus; assistência odontológica; Sistema Único de Saúde; saúde do trabalhador; biossegurança.

Introduction

In March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic, due to the global spread of infections caused by the novel coronavirus (SARS-CoV-2)[1]. The disease showed high lethality among older individuals with comorbidities[2]. Its main route of transmission is respiratory droplets produced by infected people, which explains its high transmissibility[1,3].

Measures were adopted to stop COVID-191,2 and reduce the number of infected people, in particular, the most serious cases[4]. In Brazil, the entire health care system was committed to tackling the pandemic caused by the novel coronavirus[5]. Various documents and technical notes published by governments and health regulatory agencies[1-3,5] were used to reorganize the actions of health services.

Due to the specific characteristics of professional practice in dentistry, which include practice in an indoor environment, direct contact with the patient, and aerosol production, oral health professionals were one of the categories with the highest potential risk of exposure to SARS-CoV-2[6,7]. Given the responsibility and inherent risks, the work process of oral health professionals was reformulated in order to stop the spread of the pandemic[7], with a focus on care management and adoption of preventive measures and care protocols[1,2].

However, changes in the work process involved insecurity regarding the occupational risk of professionals who worked during this period. With the reorganization of health services, it was necessary to identify the limitations of oral health professionals under the Brazilian Unified Health System (Sistema Único de Saúde [SUS]) so they could perform their work according to the guidelines to tackle the pandemic[4,7]. Therefore, our study aimed to analyze the factors associated with workplace insecurity during the COVID-19 pandemic among oral health professionals from the SUS in the State of Ceará.

Methods

Study design and context

This is a cross-sectional study assessing secondary data of oral health professionals from the Brazilian Unified Health System (SUS) in the state of Ceará. Data were collected in May 2020 by the Oral Health Care Coordnination (*Célula de Atenção à Saúde Bucal* – CEBUC) of the Health Care Coordination, which is part of Ceará State Health Department and frequently conducts surveys using online forms to assess the practice of professionals to support planning and evaluation of health management in Ceará.

Data used in this study were obtained after request for using secondary data from the Ceará State Health Department made to the Scientific Research Center of the Ceará Public Health School (ESP-CE).

Participants

The population of this study consisted of dental surgeons (DS), dental assistants (DA), and dental technicians (DT) from SUS in Ceará, which, according to CEBUC, had 2,791 professionals during the data collection period. All SUS professionals received the CEBUC questionnaire.

Data were collected using a self-administered online questionnaire (Google Forms), sent to every participant via WhatsApp. The questionnaire was also sent to every health administration of the five regions in the State of Ceará. They distributed the link to the online form, which was available for health professionals in their regions for a month. No individual link was sent to individual professionals, so it was not possible to ensure only one answer from every professional. An email was requested when the respondent answered the form, but this information was not available to researchers.

In total, 809 filled forms were obtained, corresponding to 28.9%, which is considered an acceptable proportion of respondents for studies using online questionnaires[8,9].

Variables and measurements

This study investigated two outcomes: workplace insecurity during the COVID-19 pandemic and availability of all recommended personal protective equipment (PPE) for professionals. Both were developed using the answers provided on Google Forms.

The form had 20 questions divided into four sections. The first section collected information about professional category (dental surgeon, dental assistant, dental technician); training time (up to 10 years, 10 years or more); and graduate studies (*lato sensu. stricto sensu*). The second section had questions related to professional practice: level of care where they are working (primary, secondary, tertiary); municipality where they work (Fortaleza and metropolitan region, interior of the state); and type of employment relationship (contractor/formal employee, public servant). The third section covered the work process during the COVID-19 pandemic in the SUS: types of contact with patients (regular care, dental emergency, health promotion, no contact); average number of patients per day (none, 1 to 4, 5 or more); personal protective equipment (PPE) available (yes, no); received guidelines on new dental protocols related to COVID-19 (yes, no); and insecurity to perform dental procedures during the pandemic period (yes, no). The fourth section of the questionnaire addressed COVID-19 infection: identification and notification of cases (yes, no); confirmation of infection (yes, no); and type of diagnosis performed (reverse transcription polymerase chain reaction or RT-PCR, rapid serological test, classic serological test, clinical laboratory criteria, I had no confirmation for COVID-19).

For the analysis of the variable of PPE availability, it was considered adequate when all items recommended for dental care during the pandemic period were available, such as disposable apron, N95/PFF2 mask or similar, and face shield, in addition to those already recommended before the pandemic (gloves, surgical mask, cap, and protective glasses)[1-3]. Regarding COVID-19 guidelines on dental protocols, only those who received guidelines through official/scientific sources, such as health departments, official bodies, scientific articles, lectures, professional training, official documents, etc. were considered as properly informed. Updates made via social media, YouTube or WhatsApp groups were not considered official training.

No demographic information was collected from respondents.

Data analysis

After the CEBUC provided access to the database, it was organized in an Excel spreadsheet and exported to the Statistical Package for the Social Sciences (SPSS) 22.0 for analysis. In the database cleaning and organization stage, respondents who did not belong to the evaluated professional category and questionnaires presenting inconsistent answers were excluded from the analysis.

The association between the two dependent variables (workplace insecurity and availability of PPE) and the independent variables was assessed using Pearson's chi-square test, considering a confidence level of 95%. Crude and adjusted logistic regression models were also used to identify associations with the two dependent variables of the study. Odds ratios (OR) and 95% confidence intervals (95% CI) were calculated. Variables with $p<0.20$ in the unadjusted model (crude analysis) and those with theoretical relevance to the study were incorporated into the regression model using a stepwise procedure. Variables with $p<0.05$ were maintained in the final model.

Ethical considerations

This study was approved by the Research Ethics Committee (REC) of Universidade Federal do Ceará, report nº 4.618.476, issued on March 29, 2021. As it is a study with secondary data used by the administration, the REC did not require an informed consent form (ICF), but the submission of a Data Custodian form.

Results

After analyzing the database, eight people were excluded, with the final sample consisting of 801 participants. The sample predominantly consisted of dental surgeons (72.8%), without graduate degrees (51.2%), with less than 10 years of training (61.5%). Most of them had an employment relationship by a form employment agreement (54.1%), worked in the interior of the state (90.6%), 40 hours per week or more (87.9 %), and for less than 5 years (56.3%). Among dental surgeons (n=583), most worked in the Family Health Strategy (74.4%).

Most respondents had contact with patients only for dental emergencies (92.6%), with an average of 1 to 4 visits per day (72.2%) (**Table1**).

Table 1 Workplace and infection characteristics during the COVID-19 pandemic period of oral health professionals of the the Brazilian Unified Health System (SUS) in Ceará, 2020 (n=801)

	n	%
Procedures provided to patients		
Regular care		
Dental emergency only	16	2.0
Other procedures: health surveillance/	742	92.6
health promotion/teledentistry/	33	5.4
administrative actions		
Average number of patients per day		
None	103	12.8
1 to 4	578	72.2
5 or more	120	15.0
Received all recommended PPE (n=777)		
Yes	203	26.1
No	574	73.9
Received COVID-19 dental guidelines		
Yes	750	93.6
No	51	6.4
Source of guidelines (n=716)		
Official source	440	61.4
Unofficial source	276	38.6
Safety in dental procedure		
Yes	335	41.8
No	466	58.2
Causes of insecurity (n=466)		
Incomplete PPE	166	35.6
Fear of contamination	272	58.4
Other	28	6.0
COVID-19 case notification		
Yes	36	4.5
No	765	95.5

(continues)

Table 1 Continuation

	n	%
Isolation after contact with a patient with COVID-19		
Yes	72	9.0
No	729	91.0
Confirmed COVID-19 infection		
Yes	26	3.2
No	775	96.8
Method of COVID-19 diagnosis (n=26)		
Rapid test	13	50.0
Serological test	8	30.7
Molecular Biology (PCR)	5	19.3

PPE: personal protective equipment; PCR: polymerase chain reaction.

According to the table above, 73.9% of professionals did not receive all recommended PPE; 93.6% received COVID-19 guidelines for dental practice and, of these, 61.4% received this information from official sources. Also, 58.2% of professionals did not feel safe providing dental care, and the main reason for that was fear of COVID-19 contamination (58.4%).

Most respondents did not report cases of COVID-19 (95.5%) and 9.0% were in isolation after contact with such infected patients. Also, 3.2% of professionals tested positive for COVID-19, half of which were diagnosed by rapid test (**Table 1**).

In the crude analysis, the factors associated with workplace insecurity were: longer training time (OR = 1.20; 95%CI: 1.08; 1.54), formal employment relationship (OR = 1.76; 95%CI: 1.47; 2.11), not receiving all recommended PPE (OR = 1.49; 95%CI: 1.26; 1.76), lack of COVID-19 guidelines (OR = 4.48; 95%CI: 1.94; 10.35); receiving guidelines from unofficial sources (OR = 1.36; 95%CI: 1.13; 1.63); while working in primary health care showed an inverse association (OR = 0.75; 95%CI: 0.58; 0.96) (**Table 2**).

Table 2 Safety to perform dental procedures according to the characteristics of training, professional practice, and work process of oral health professionals of the the Brazilian Unified Health System (SUS) in Ceará, 2020

	Workplace safety					
	Yes		No			
	n	%	n	%	p value*	OR (95%CI)
Professional category						
Dental technician/assistant	90	41.3	128	58.7	0.850	0.98 (0.81; 1.18)
Dental surgeon	245	42.0	338	58.0		
Training time						
Up to 10 years	226	45.8	267	54.2	0.004	1.20 (1.08; 1.54)
10 years or more	109	35.4	199	64.6		
Level of attention of dental surgeon						
Primary attention	173	38.7	274	61.3	0.038	0.75 (0.58; 0.96)
Secondary attention	39	51.3	37	48.7		
Location						
Fortaleza and metropolitan region	25	33.3	50	66.7	0.117	1.28 (0.92; 1.78)
Interior of the state	310	42.7	416	57.3		

(continues)

Table 2 Continuation

	Workplace safety					
	Yes		No			
	n	%	n	%	p value*	OR (95%CI)
Employment relationship						
Contractor	226	52.2	207	47.8	<0.001	1.76 (1.47; 2.11)
Formal agreement	109	29.6	259	70.4		
Procedures performed						
Only dental emergency	311	41.9	431	58.1	0.723	1.20 (0.43; 3.34)
Regular dental care	6	37.5	10	62.5	0.658	1.23 (0.48; 3.17)
Other procedures: health surveillance/ health promotion/teledentistry/ administrative actions	12	36.3	21	63.7		
Average number of patients per day						
1 to 4	235	40.7	343	59.3	0.059	0.68 (0.46; 1.01)
5 or more	60	50.0	60	50.0		
Received all recommended PPE						
Yes	112	55.2	91	44.8	<0.001	1.49 (1.26; 1.76)
No	212	36.9	362	63.1		
Received COVID-19 guidelines						
Yes	330	44.0	420	56.0	<0.001	4.48 (1.94; 10.35)
No	5	9.8	46	90.2		
Source of guidelines						
Official source	216	49.1	224	50.9	0.001	1.36 (1.13; 1.63)
Unofficial source	99	36.0	176	64.0		

*Pearson's chi-square test. OR: odds ratio; 95%CI: 95% confidence interval; PPE: personal protective equipment.

When analyzing the factors associated with receiving all recommended PPE in the gross analysis, the category of dental technicians/assistants showing OR = 1.20 (1.30; 1.11) and the SUS professionals in the interior of the state presenting OR = 2.00 (1.48; 2.70) were those that received incomplete PPE (**Table 3**).

Tabela 3 Availability of all recommended personal protective equipment (PPE) according to the characteristics of training, professional practice, and work process of oral health professionals of the the Brazilian Unified Health System (SUS) in Ceará, 2020

	PPE					
	Yes		No			
	n	%	n	%	p value*	OR (95%CI)
Professional category						
Dental technician/assistant	34	15.7	182	84.3	<0.001	1.20 (1.11; 1.30)
Dental surgeon	169	30.1	392	69.9		
Level of attention of dental surgeon						
Primary attention	120	27.1	322	72.9	0.357	1.08 (0.90; 1.30)
Secondary attention	20	32.8	41	67.2		
Location						
Fortaleza and metropolitan region	43	61.4	27	38.6	<0.001	2.00 (1.48; 2.70)
Interior of the state	160	22.6	547	77.4		

(continues)

Table 3 Continuation

	PPE					
	Yes		No			
	n	%	n	%	p value*	OR (95%CI)
Employment relationship						
Contractor	105	25.2	312	74.8	0.518	1.02 (0.94; 1.11)
Formal agreement	98	27.2	262	72.8		
Received COVID-19 guidelines						
Yes	194	26.6	536	73.4	0.261	0.90 (0.78; 1.05)
No	9	19.1	38	80.9		

*Pearson's chi-square test. OR: odds ratio; 95%CI: 95% confidence interval; PPE: personal protective equipment.

The logistic regression model showed that professionals with longer training time (OR = 1.90; 95%CI: 1.12; 3.20), formal employment relationship (OR = 1.85; 95%CI: 1.15; 2.99), and did not receive all recommended PPE (OR = 1.84; 95%CI: 1.16; 2.91) were almost twice as likely to feel unsafe in the workplace during the pandemic. Secondary attention professionals had a lower chance of insecurity (OR = 0.52; 95%CI: 0.28; 0.96) (**Table 4**).

Table 4 Logistic regression model of factors associated with workplace insecurity among oral health professionals of the the Brazilian Unified Health System (SUS) in Ceará, 2020

	p*	OR (95%CI)	p adjusted**	OR (95%CI) adjusted
Longer training time	0.004	1.20 (1.08; 1.54)	0.016	1.90 (1.12; 3.20)
Secondary attention professionals	0.038	0.75 (0.58; 0.96)	0.039	0.52 (0.28; 0.96)
Worked in Fortaleza and the metropolitan region	0.117	1.28 (0.92; 1.78)	0.532	1.26 (0.60; 2.64)
Formal employment relationship	<0.001	1.76 (1.47; 2.11)	0.011	1.85 (1.15; 2.99)
Did not receive all PPE	<0.001	1.49 (1.26; 1.76)	0.009	1.84 (1.16; 2.91)
Did not receive COVID-19 guidelines	<0.001	4.48 (1.94; 10.35)	0.283	1.28 (0.92; 1.78)
Guidelines from unofficial sources	0.001	1.36 (1.13; 1.63)	0.188	1.31 (0.85; 1.97)

*Pearson's chi-square test. **Wald test. PPE: personal protective equipment; OR: odds ratio; CI: confidence interval.

Table 5 Logistic regression model of factors associated with not receiving all recommended personal protective equipment (PPE) among oral health professionals of the the Brazilian Unified Health System (SUS) in Ceará, 2020

	p*	OR (95%CI)	p adjusted**	OR (95%CI) adjusted
Dental technicians and assistants	<0.001	1.20 (1.11;1.30)	0.001	2.13 (1.34;3.40)
Primary attention professionals	0.357	1.08 (0.90;1.30)	0.494	0.80 (0.43;1.49)
Worked in the interior of the state	<0.001	2.00 (1.48;2.70)	<0.001	5.38 (3.00;9.64)
Contractor or formal employment relationship	0.518	1.02 (0.94;1.11)	0.115	0.84 (0.55;1.26)
Received COVID-19 guidelines	0.261	0.90 (0.78;1.05)	0.348	0.36 (0.45;2.99)

*Pearson's chi-square test. **Wald test. PPE: personal protective equipment; OR: odds ratio; 95%CI: 95% confidence interval.

The logistic regression model of factors associated with not receiving all recommended PPE (**Table 5**) showed that dental technicians and assistants (OR = 2.13; 95%CI: 1.34; 3.40) and those who worked in the interior of the state (OR = 5.38; 95%CI: 3.00; 9.64) were around two and five times more likely to not receive all PPE, respectively.

Discussion

Our study showed that most dental professionals who worked in the SUS in the state of Ceará and who answered the form sent by CEBUC did not feel safe about their work during the first wave of the pandemic, especially those with longer training, formal employment relationship, who worked in primary health care, who had not received all recommended PPE (a more common situation among dental technicians and assistants), and who worked in the interior of the state.

Due to the risks faced by oral health professionals and the need to reorganize the work process during the pandemic, several technical notes and new protocols were published at state, national[1-3,5], and global[10] levels in order to promote safer work processes. However, even with the new guidelines, most professionals felt lack of safety, as reported in other studies[11-13].

A higher percentage of emergency procedures and a lower average number of patients per day were observed. These findings were due to changes in the work process required in this period. The prevention and management measures showed a consensus among the guidelines: the provision of dental care only for urgent and emergency cases, with more emphasis on screening of suspected cases of COVID-19 through targeted and careful anamnesis, in addition biosafety precautions to avoid infection, such as the use of appropriate PPE, techniques to minimize aerosol production, and prevention of cross-contamination[1-3,14].

Although more than half of the sample was made up of professionals with shorter training time, mainly due to the absorption of professionals by the public service in the first years after graduation[15], job insecurity was associated with professionals who had graduated a long time ago. At the beginning of the first wave of COVID-19 in Brazil, lack of knowledge and the severity of the disease contributed to insecurity especially among oral health professionals, who assumed a central role in relation to the practice of dentistry[6,16]. In addition to the risks inherent to the profession, older age, which would place professionals who graduated longer ago in the risk group for the disease[17], may have contributed to a high number of professionals reporting insecurity in this group.

The relationship between formal employment relationship and higher insecurity can be explained by the understanding that, even with the health and economic crisis caused by the pandemic[4], professionals with stronger employment relationships would not lose their jobs. Then, professionals with fragile employment bonds may have hidden their insecurity for fear of some type of punishment. Although demographic information was not collected, respondents could be identified by their emails provided when filling out the online form.

Regarding the level of care where dental surgeons worked, those in secondary health care felt safer. Traditionally, Dental Specialty Centers (CEO) have better technology and structure than Basic Health Units (UBS), especially the regional CEOs in the state of Ceará that operate with consortium management models, which may have contributed for a stronger feeling of security among these professionals. Also, dental surgeons at CEOs began to perform only emergency and teledentistry procedures during the pandemic[9,18] while dental surgeons at primary health care also performed COVID-19 surveillance actions, such as screening, assessment, and monitoring of cases, health inspections, and teledentistry[19,20].

Insecurity regarding the performance of dental procedures was also associated with not receiving all recommended PPE. To ensure the protection of professionals, all personal protective equipment must be available, as well as training should be provided on how to use these items[4,6]. The provision of PPE was the most relevant and discussed precaution among healthcare professionals during the pandemic[21]. Therefore, as they did not receive all PPE, they could not work safely, as the risk of contamination was evident.

The economic impact that PPE had on the provision of health services must be taken into account. The new biosafety recommendations significantly increased the demand for PPE, as well as their costs. Before the pandemic, PPE costs per service were BRL 0.84, while during COVID-19, this cost reached about BRL 16.01, with potential annual impact of more than BRL 30,000.00[22]. Not to mention that the shortage of PPE on the market, caused by increased demand and high prices, became a serious problem for health services at the beginning of the pandemic in Brazil[4,23].

The low number of patients who sought care in the public dental care network, especially due to the guidelines reinforcing care provision to dental emergencies only, may also have supported prioritization of PPE to

health professionals providing medical treatment to patients with COVID-19[22,24]. Therefore, health management must consider a rational and equitable allocation of financial resources, a rational use of PPE, and prioritization of care as crucial measures[25].

Also, human factors should be taken into account, as even when PPE is available, many professionals do not use it, a fact that demonstrates resistance to the new recommendations[26]. In the period evaluated by the authors, many professionals believed that PPE and biosafety procedures recommended for dental practices could not efficiently prevent and protect against the transmission of COVID-19[27].

Failure to receive all recommended PPE was associated with professional practice in the interior of the state. The first wave of the pandemic began in large urban centers, causing these cities to acquire PPE more quickly, such as Fortaleza, the capital of Ceará, and the metropolitan region. Also, the Ministry of Health and the Health Department of the State of Ceará recommended centralized care in strategic centers for easy access of the population and because of PPE shortage in that period[28,29].

The fact that dental assistants and technicians received all recommended PPE less frequently deserves attention due to the risk of contamination and professional depreciation, given their important role in dental care[29]. Task division in screening flow and patient classification in centers[19] may have contributed to this occurrence. In this process, assistants and technicians provided care in the initial step of symptom identification, while dental surgeons and nurses evaluated symptoms and reported cases[19,20]. Therefore, it is believed that PPE provision was prioritized to professionals who were in contact with patients who were infected or possibly infected.

Although PPE is required by law, regardless of whether the patient is infected or not, the technical note "Dental Care in the SUS," released in March 2020 by the Ministry of Health (MS), indicated the N95 mask should be used only when the patients presented symptoms of respiratory infection1. This technical note may have reduced the availability of PPE (such as N95 or a similar mask) for dental technicians and assistants, given the new screening role that was assigned to these professionals.

Also, the technical note differed from recommendations from other entities operating at different administrative levels[2,3,14], which became a common reality in Brazil during the pandemic[30]. Then, inconsistencies between them may have generated confusion in the decision about which recommendation should be followed, creating different protocols across the state. This issue in observing different biosafety protocols for dental practice during the pandemic was already reported by Brazilian professionals and associated with problems in performing biosafety measures[31]. Such guidelines should be more precise and homogeneous to allow the adoption of safe work practices, regardless of the workplace[32].

Provision of training to these professionals is also a critical strategy for the safety of professionals and patients. Dissemination of correct and scientifically proven information, mainly considering the high spread of fake information about the disease[4], constitutes an important strategy. In Ceará, it is necessary to highlight the role of management and local coordination in the process of continuing education for professionals based on the new published guidelines and technical standards mentioned above[14,29].

The pandemic caused by SARS-CoV-2 forced the SUS to quickly adopt measures to fight against the infection[1,2], which aggravated issues like restricted budget at all levels of care seen in recent years[21]. Therefore, reformulations must be made to federal actions for the development of effective public policies to control the pandemic. Also, the state administration must strengthen technical support to oral health actions, particularly at the primary care level, and municipal administrations must ensure conditions for dental teams to perform their work safely.

The results found here highlight that new public policies and internationally accepted guidelines are required for professional safety in health services. These new measures should be developed together with prevention tools that can address the challenges related to COVID-19[27]. The pandemic required a better financial planning and constant reinforcement of biosafety care, so that professionals can operate safely in this new reality[33].

This study is relevant due to its analysis of the situation of workplace insecurity felt by oral health professionals. However, we emphasize our study refers to the first wave of the COVID-19 pandemic, when measures were adopted for dental care in the health network in Ceará, such as reduced number of visits, focus on emergency care only, new

PPE, and creation of surveillance activities[14,28]. This reality was also seen in other regions of the country during the same stage of the pandemic[34].

The study limitations included the use of secondary data from a questionnaire distributed by the state administration, which may have caused response bias as respondents may have hidden job insecurity for fear of some type of punishment. Another limiting factor was the possibility of selection bias, given the high number of non-respondents and the difference in response rate when comparing the categories of dental surgeons and dental technicians and assistants. Also, as this study assessed secondary data, it did not include relevant variables, such as sex/gender, race/skin color, and age of the professionals. Despite that, the sample size allowed us to investigate important associations regarding oral health work process during the first peak of the COVID-19 pandemic in the state of Ceará, which makes this study a valuable contribution that supports actions to fight against the pandemic by oral health teams and the safety in their work process.

Final considerations

Our study concluded that most oral health professionals in Ceará public service who answered the CEBUC questionnaire felt workplace insecurity during the first wave of the COVID-19 pandemic. Longer training time, formal employment relationship, working at the primary level of care, and not receiving adequate PPE were the factors associated with such insecurity. Availability of PPE was not equal among professionals and regions of the state, highlighting the challenges in the access to PPE during the study period. Our findings show that working conditions must be improved, with equitable management and distribution of PPE in all regions of the state, allowing professionals to work safely in the new post-COVID-19 reality.

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Data availability: The dataset supporting the results of this study is available upon request to the organization Célula de Atenção à Saúde Bucal (CEBUC), Coordenadoria de Atenção à Saúde, Secretaria da Saúde do Ceará, because this is a database with information from oral health professionals from the oral health network in the state of Ceará during the pandemic period (1st wave), used to support planning and technical/structure actions to municipalities.

Data request: After request for research with secondary data from Ceará Sate Health Department made to the *Centro de Investigação Científica da Escola de Saúde Pública do Ceará* (ESP-CE), the request and approval from ESP-CE should be submitted to *Célula de Atenção à Saúde Bucal* (CEBUC) *da Coordenadoria de Atenção à Saúde. da Secretaria da Saúde do Ceará*.

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