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Knowledge and attitudes of Mexican dentists regarding COVID-19

Conocimiento y actitudes de dentistas mexicanos sobre la COVID-19

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ABSTRACT: Dentists have a high risk of contracting COVID-19, they needed to be aware of the major challenge that represents the dental practice and COVID-19. Accordingly, this study aimed: 1) to investigate the knowledge of dentists regarding COVID-19, 2) to investigate the attitudes of dentists concerning the use of personal protective equipment and, 3) to investigate the attitudes of dentists on stopping their dental practices in the framework of a contingency plan for the COVID-19 outbreak. An online cross-sectional survey was applied to dentists (n=822). Dentists in Mexico answered the survey, which was administered before the contingency plan for the COVID-19 outbreak. Results were analyzed with descriptive statistics and with a Chi-square test ($P \leq 0.05$). Of the respondents, 99% of dentists indicated knowing what COVID-19 is, knowing most, but not all, of its signs and symptoms and knowing its mode of transmission. The 89% of dentists indicated that they always used personal protective equipment. But they did not use always wear face masks, protective eyewear, face shields, disposable gowns, and caps. Dentists were aware of the risk of performing dental procedures during the COVID-19 outbreak. The 90% of dentists indicated that they would treat only patients requiring emergency treatment, and 10% indicated that they would not treat any patients. The dentists had limited knowledge about the COVID-19 disease. They did not use personal protective equipment consistently, and they indicated that they might continue working during the COVID-19 outbreak.

KEYWORDS: Attitudes; COVID-19; Dentists; Knowledge; Personal protective equipment.

RESUMEN: Durante la pandemia por COVID-19, los dentistas han tenido un alto riesgo de contraer COVID-19. Los dentistas mexicanos tuvieron la necesidad de enfrentarse a la COVID-19 en la práctica dental con un posible conocimiento limitado sobre la enfermedad. De acuerdo con esa problemática, los objetivos de este estudio fueron: 1) investigar el conocimiento de los dentistas sobre la COVID-19, 2) investigar las actitudes de los dentistas sobre el uso de equipo de protección personal, 3) investigar las actitudes de los dentistas para detener la práctica laboral frente a la pandemia. Una encuesta fue aplicada a dentistas mexicanos en el inicio de la contingencia por COVID-19 (n=822). Se analizaron los resultados de con una prueba de Chi cuadrada ($P \leq 0.05$). El 99% de los participantes conocieron qué es la COVID-19, pero no todos los signos y síntomas de la enfermedad ni los modos de transmisión. El 89% de los dentistas indicaron que siempre usan equipo de protección personal. Pero no usan siempre careta, lentes de protección, cubreboca, guantes deshechables y gorro. Los participantes tenían conocimiento del riesgo de contraer COVID-19. El 90% indicó que sólo atenderían urgencias dentales y el resto indicó que no atendería pacientes. Los dentistas tuvieron un conocimiento limitado sobre la COVID-19. No usaron equipo de protección personal de forma consistente. Además indicaron que estarían dispuestos a seguir trabajando durante la pandemia.

PALABRAS CLAVE: Actitudes; Dentistas; COVID-19; Conocimiento; Equipo de protección personal.

INTRODUCTION

The RNA-type coronavirus SARS-COV-2 causes the COVID-19 disease (1). SARS-COV-2 transmits in a human-to-human mode by respiratory contact transmission with both nasal and oral droplets (1). The transmission mode of SARS-COV-2 puts dentists at high risk of contracting COVID-19 (2-4). Safety guidelines for dentists recommend how to behave during the COVID-19 outbreak and include 5 main actions: (1) use complete personal protective equipment (PPE) for the operator and dental team, (2) screen each patient before dental visits, (3) focus on emergency care, (4) reduce procedures causing aerosol, nasal and buccal droplets and (5) disinfect surfaces, materials and the workplace (2,3,5,6). Dentists require comprehensive knowledge about COVID-19 to understand the basis for these actions, some of which had been suggested for the swine H1N1 influenza A virus (H1N1A) pandemic in 2009 (7-9). The H1N1A outbreak originated in Mexico, but, surprisingly, no studies investigated the behavior of Mexican dentists in that situation (4,7-10). In terms of the COVID-19 outbreak, it is necessary to explore the knowledge of dentists and their attitudes about COVID-19 as well as their role in preventing the spread of the virus (11,12).

Studies have explored the knowledge, the attitude, the preferences of sources of information of dentists regarding COVID-19 (13-17). They have showed that dentists had basic knowledge on COVID-19, that dentists were aware of the risks of dental practice during the COVID-19 outbreak and that dentists used several sources of information to learn about the disease. However, to date few studies on the topic have been done in Latin-American countries including Mexico. A cross-sectional study applied in dentists of eleven Latin-American countries (n=2214) found that psychosocial well-being was impacted negatively

by the effect of the COVID-19 pandemic but also the economic income was negatively impacted by collateral effects (18). The dentists' weekly working hours and the dentists' salary suffered changes during the COVID-19 pandemic. The study emphasized on the differences of results among countries because the dentists' faced challenges in its country that depended on the role that each government played to control the impact of the pandemic (18).

In Mexico, the Federal Government called on the population to participate in the COVID-19 lockdown that involved a halt to non-essential activities to reduce the spread of COVID-19, it occurred 3 weeks after that the first case of COVID-19 was reported in Mexico (19). Dental practices were not considered 'non-essential'; thus, dentists had to make their own decision to stop or continue and no economic plan was created to support dentists in case they decided to stop clinical activities. It has been reported that Mexico is the country with most deaths of healthcare workers -including dentists- and that continuing education has been lacking for facing the COVID-19 (20). Thus, dentists had faced a major challenge during the COVID-19 lockdown. Accordingly, the aim of our study was to investigate the knowledge of dentists regarding COVID-19, their attitudes concerning the use of PPE and their attitudes on stopping their dental practice during the COVID-19 lockdown in Mexico.

MATERIALS AND METHODS

The study was approved by the Ethical Committee of the School of Dentistry (Universidad Veracruzana, Orizaba-Córdoba, CEIFO2020-02a). We designed a cross-sectional survey based on information provided by the World Health Organisation (WHO). First, the authors designed five series of items exploring five dimensions: 1) knowledge about COVID-19, 2) attitudes toward personal protective equipment, 3) attitudes toward professional activities, 4) attitudes toward search for information, and 5) attitudes toward lockdown measures. Second, the items were reviewed by two experts that were not involved in the study; the experts gave its opinion about the pertinence of the items as well as about the clarity of the items. Third, the authors eliminated the items that the reviewers considered as not valid for the study. All the decisions regarding the design of the questionnaire were done by consensus. After that, five dimensions were considered: 1) knowledge about COVID-19 (22 items), 2) attitudes toward personal protective equipment (7 items), 3) attitudes toward professional activities (11 items), 4) attitudes toward search for information (9 items), and 5) attitudes toward lockdown measures (12 items).

We posted the questionnaire on Facebook and invited colleagues to re-post it. The questionnaire was sent to colleagues by text message on cell phones. The questionnaire was in Spanish (national language) and was applied with an online response tool (Survey Monkey®); participation was anonymous, voluntary and confidential. To guarantee the participation of dentists, our study had two restrictive items: a) Are you a dentist? b) Do you have a general dentistry program award? In addition, the invitation to participate in the survey was posted exclusively in Facebook pages of dental associations or dental colleges.

We performed the qualitative validation of the questions by a pair discussion and by consensus. Five dimensions were considered: 1) knowledge about COVID-19 (22 items), 2) attitudes toward personal protective equipment (7 items), 3) attitudes toward professional activities (11 items), 4) attitudes toward search for information (9 items), and 5) attitudes toward lockdown measures (12 items). For quantitative validation, 202 respondents were considered the pilot group. This number was obtained based on the formula for estimating a proportion if the population size is known, based on the last record of the number of dentists in the

country (N=151,622) from the National Institute of Statistics and Geography (INEGI for its Spanish acronym). For the estimate, we used 95% security and 3% precision.

Data were analysed with SPSS® software (version 20, IBM®). The relevance of the items was evaluated by Pearson correlations, with those that were not significant (P>0.05) discarded in each dimension. The internal consistency reliability for each dimension and for the final instrument was measured with Cronbach's alpha. Items were analysed by descriptive statistical analysis. The validation (n=202) allowed us to discard some items: 1) for knowledge about COVID-19 (alpha=0.588),16 items were left (alpha=0.588), 2) 6 for attitudes toward personal protective equipment (alpha=0.589), 3) 5 items for the attitude dimension in professional activities (alpha=0.662), 4) 9 for the attitudes toward search for information (alpha=0.647), and 10 for attitudes toward lockdown measures (alpha=0.655). As a whole (46 items), the instrument showed an alpha of 0.646, making it reliable. Cronbach's alpha applied to the total number of respondents (n=822) improved the values slightly (0.675, 0.606, 0.663, 0.609 and 0.641 for each of the previous dimensions, respectively). The instrument reached an alpha of 0.647.The Chi-square test was used to explore associations between selected categorical variables (P≤0.05).

RESULTS

In total, 822 dentists participated in the survey (Table 1). The percentages of dentists located in Northern Mexico, Central Mexico and Southern Mexico were 25%, 55% and 20%, respectively. Most dentists-94%-indicated that they worked in private dental practices, while a few dentists-6%-indicated that they did not. Only 48% of dentists were registered as members of a dental association. Of the respondents, 53% of dentists reported private dental practice as their only job activity, while 47% of dentists had an extra job, primarily at an institution. Of the dentists working at an institution (n=388), 27% indicated working at a public health institution, 17% at a private health institution, 30% at a public university and 26% at a private university.

The knowledge of Covid-19 was investigated in this study. We asked the dentists if they knew what COVID-19 is. Almost all dentists (99%) replied in the affirmative. We asked the dentists if they knew the mode of transmission of COVID-19, and 99% replied in the affirmative. We asked the dentists if they knew the signs and symptoms of COVID-19, and 99% replied in the affirmative. We asked the dentists if they knew the recommendations for reducing the risk of transmission of COVID-19 in the clinical dental practice, and 98% replied in the affirmative, while only 2% replied in the negative. Table 2 shows the percentages of dentists who identified transmission mode, incubation period, as well as signs and symptoms of COVID-19. We investigated the sources of information from which the dentists learnt about COVID-19 and its impact on dentistry and also investigated the number of scientific articles that the dentists read about COVID-19 (Table 3).

Table 1. Results of items exploring demographics.

Demographics		% Dentists (n)
Gender	Female	70.68% (n=581)
	Male	29.32% (n=241)
Age group (year)	20-29	21.78% (n=179)
	30-39	41.97% (n=345)
	40-49	22.51% (n=185)
	50-59	9.25% (n=76)
	60-69	4.38% (n=36)
	70 or more	0.12% (n=1)
Level of studies	Bachelor's	32.97% (n=271)
	Specialisation	41.73% (n=343)
	Master's	21.41% (n=176)
	Doctorate	3.89% (n=32)
Private dental practice	Yes	93.55% (769)
	No	6.45% (53)
Geographical region of the country	Northern Mexico	24.82% (204)
	Central Mexico	55.23% (454)
	Southern Mexico	19.95% (164)

Table 2. Results of items exploring dentists' knowledge about COVID-19.

	Options	% Dentists
Transmission		
	Contact of hands with eyes, nose or mouth after having touched a contaminated surface	98.30%
	Oral droplets	78.10%
	Nasal droplets	59.12%
Incubation period		
	1 to 14 days	86.25%
	3 to 7 days	10.83%
	1 to 3 days	2.92%
Signs and symptoms		
	Fever	99.64%
	Dry cough	96.35%
	Fatigue	71.05%
	Sore throat	70.68%
	Nasal congestion	22.51%
	Diarrhea	16.91%
	Rhinorrhea	15.57%

Table 3. Results of items exploring dentists' sources of information about COVID-19.

	Options	% Dentists
Source of information about COVID-19 and dentistry	World Health Organisation	68.37%
	Social networks	59.61%
	Public health institution	56.33%
	Dental association	47.81%
	Scientific journal	26.03%
Number of scientific articles that dentists read about COVID-19	None	27.13%
	1 or 2 articles	44.04%
	3 or 4 articles	18.98%
	5 or 6 articles	4.99%
	7 or more articles	4.87%

ATTITUDES ON THE USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

Table 4 shows the percentages of dentists who use PPE for dental clinical practice always, sometimes or never. It was found that the dentists do not use PPE consistently. We asked the dentists to indicate the level of protection of the mask they used for dental clinical practice: 6.20% of dentists indicated ASTM level 1, 11.56% of dentists indicated ASTM level 2, 19.83% of dentists indicated ASTM level 3, 9.98% of dentists indicated level N95 and 52.43% indicated not knowing the level of protection.

ATTITUDES TOWARD STOPPING DENTAL CLINICAL PRACTICE

The dentists indicated the risk level they considered for the transmission of COVID-19 in the dental practice: 96.35% indicated a high level, 3.53% indicated a medium level and 0.12% indicated none. We asked the dentists the importance of stopping their clinical dental practice during the contingency plan to reduce the transmission of COVID-19. Of the respondents, 78.10% indicated that it was very important, 21.17% indicated that it was moderately important and 0.73% indicated that it was unimportant. We asked the dentists if they would decide to halt private dental clinical practice during the contingency plan, to reduce the transmission of COVID-19. Of the respondents, 90.5% replied in the affirmative and 9.50% replied in the negative. Also, we asked if they would stop private clinical dental practice for a recommendation made by the government. Of the respondents, 92.94% replied in the affirmative and 7.06% replied in the negative. We asked the dentists if they would stop private clinical dental practice for a recommendation made by a dental association. Of the respondents, 86.39% replied in the affirmative and 13.61% replied in the negative. In cases where dentists halted clinical dental practice during the contingency plan, 90.54%

indicated that they would treat only patients in an emergency and 10.46% indicated that they would not treat any patients.

To identify possible statistically significant differences among variables, we applied a Chi-square test for variables of demographics and variables of knowledge on COVID-19, attitudes toward using PPE and attitudes toward stopping dental clinical practice. Tables 5 and 6 show the crossing of variables that showed statistically significant differences (P<0.05).

Table 4. Results of items exploring dentists' attitudes toward use of personal protective equipment.

	% of Dentists		
Options	**Always**	**Sometimes**	**Never**
Frequency of use of personal protective equipment	88.93%	11.07%	–
Frequency of use of disposable gloves	100%	–	
Frequency of use of face masks	98.78%	1.22%	
Frequency of use of protective eyewear	75.67%	20.07%	4.26%
Frequency of use of caps	42.21%	41.36%	16.42%
Frequency of use of disposable gowns	26.28%	48.78%	24.94%
Frequency of use of face shields	18.49%	46.72%	34.79%

Table 5. Results obtained from the Chi-square test. P<0.05 identifies statistically significant differences between variables.

Variable	Age range (years)	Gender	Level of education	Member of a dental association	Private dental practice as single job	Job at an institution
Identification of signs and symptoms	P<0.001		P<0.05			
Knowledge of recommendations to reduce transmission of COVID-19			P<0.05			
Source of information about COVID-19: Public health institutions		P<0.05	P<0.05			
Source of information about COVID-19: a dental association		P<0.05	P<0.05	P<0.05	P<0.05	P<0.05
Source of information about COVID-19: scientific journal		P<0.05	P<0.001	P<0.05		P<0.05
Source of information about COVID-19: social networks				P<0.05		
Number of scientific articles read		P<0.05	P<0.05	P<0.05	P<0.05	P<0.05

Table 6. Results obtained from the Chi-square test. P<0.05 identifies statistically significant differences between variables.

Variable	Age range (years)	Gender	Level of education	Member of a dental association	Private dental practice as single job	Job at an institution
Identification of the level of protection provided by face masks used in clinics.	P<0.001	P<0.05	P<0.05	P<0.05	P<0.001	P<0.001
Use of caps for clinical dental practice	P<0.05	P<0.001		P<0.05		P<0.05
Use of disposable gowns for clinical dental practice			P<0.001	P<0.001	P<0.05	P<0.001
Use of eye protection for clinical dental practice			P<0.05			
Use of face shields for clinical dental practice		P<0.05		P<0.001		P<0.001
Importance of stopping dental clinical practice during the contingency plan		P<0.001			P<0.05	P<0.001
Would you stop your private clinical dental practice during a contingency plan?		P<0.05	P<0.001		P<0.001	P<0.001
Would you stop your private clinical dental practice during a contingency plan if it was a recommendation of the government?		P<0.05	P<0.001		P<0.001	P<0.001
Would you stop your private clinical dental practice during a contingency plan if it was a recommendation of a dental association?		P<0.001	P<0.001		P<0.001	P<0.05

DISCUSSION

Most of our respondents worked in private dental practices (93.55%), which, in Mexico, represent 75% of the dental services offered to the population (21,22). Women represented the highest percentage of respondents, since, in Mexico, women have increasingly registered in dental schools in recent decades (21-24). Regarding the ages of respondents, the primary age range agreed with that of the economically active population in Mexico (25). In terms of academic degrees, more than half the respondents (67.03%) had a graduate degree, but the highest degree levels were held by the fewest dentists.

For safety, dentists need to know about COVID-19. In our study, almost all dentists identified contact of hands with eyes, nose or mouth after having touched a contaminated surface as a transmission mode. They reported less recognition of oral and nasal droplets as a transmission mode as well as signs and symptoms of COVID-19. That limited knowledge places both dentists and their patients at risk, because strategies to avoid COVID-19 require the identification of transmission modes, signs and symptoms of the disease (2,3). The primary signs of COVID-19 (fever and dry cough) were identified by almost all dentists, but the minor signs were identified less often. Hence our respondents might be unprepared for the efficient screening of patients for signs and symptoms of COVID-19 before the visit to the dental office. Our finding agreed with the results of other studies that have reported also that dentists have identified the primary signs of the COVID-19 but they have identified poorly the secondary signs (12,14,16,17).

Relevant information about COVID-19 and dentistry has been published in several scientific articles (2,3,5). However, we found that dentists read few scientific articles. More than half of the respondents indicated reading no or only 1 or 2 scientific articles. Many scientific articles are written in English, which might be a disadvantage for Mexican professionals because less than 10% of graduates showed English as a professional skill (26). The degree level was associated with the number of scientific articles, with identification of signs and symptoms and with knowledge of recommendations to reduce the transmission of COVID-19 (Table 5). Dentists with a better academic background were more prepared for COVID-19, possibly because they had more skill in reading scientific articles.

We investigated the choice of sources from which dentists sought information about dentistry and COVID-19. More dentists (68.37%) indicated the WHO as a source of information, although, to our knowledge, the WHO has provided general information for health workers but not specifically for dentists. Almost 60% of dentists indicated social networks as a source of information. Social networks are efficient tools for sharing scientific information, and health authorities and dental associations should take advantage of them and share information for dentists during the virus outbreak. At the same time, dentists should be wise in selecting information from social networks, because misinformation and conspiracy theories about COVID-19 abound (27,28). Of the survey respondents, 56.33% of dentists indicated that they receive their information from public health institutions. In Mexico, the Ministry of Health controls those institutions; thus, its poor and delayed actions to inform and protect dentists from COVID-19 might be the reason that dentists had low interest in them as a source of information. Regarding a dental association as a source of information, the percentage of dentists citing that source (47.81%) was very similar to the percentage who belonged to a dental association (48.05%). Thus, the information on dentistry and COVID-19 given by a dental association reached its members exclusively. Indeed, belonging to a dental association was a variable associated with getting information from a dental association (Table 5) and represented an advantage for gaining knowledge about dentistry and COVID-19.

Studies in several countries have also investigated the source of information that dentists used to know about COVID-19. Cultural characteristics of the population of dentists might influence on the preference for the source of information. In Turkey, 80.4% of dentists got information from the Ministry of Health, 76.7% of dentists got information from Turkish Dental Association, and 66.7% of dentists got information from the internet (16). In Italy, 70% of dentists got information from the National Health Institute, 54.5% got information from the radio and television, and 54% got information from the social networks (17). Interestingly, 32.4% of dentists and 7% of dentists in Turkey and Italy respectively got information from scientific journals (16,17). Those findings were similar to our finding regarding the low percentage of dentists getting information from scientific journals.

As a rule, dentists should consider every patient as a possible source of infection. Consequently, while dentists should always use PPE for treating patients, they do not consistently adhere to that rule. They did not always use face masks, caps, disposable gowns, protective eyewear and face shields. Almost all dentists used a face mask but more than half (52.43%) were unaware of its level of protection. While 90% of dentists indicated that they would continue providing emergency treatment during the contingency plan for COVID-19, they would be in a high-risk situation. In Mexico, the law for dental practice indicates that a dentist must use disposable gloves, a gown (it does not specify disposable or not), a face mask, and protective eyewear or a face shield (29). We

noticed that many dentists did not follow those indications. In a pilot survey (data not published), we found that 79.52% of dentists (n=198) had read the law governing dental practice, while 20.48% (n=51) had not read it, and that while 48.18% of dentists (n=117) indicated having considerable knowledge about the use of PPE as described in the law, 50.0% of them (n=124) indicated having only a modicum of knowledge and 2.82% (n=7) indicated having little knowledge. The law was published in 2015, six years after the occurrence of the H1N1A outbreak. Dental treatment for the H1N1A virus outbreak also required very strict use of PPE, and N95 masks were considered part of PPE (7). However, the law does not mention anything about special protection for a virus pandemic. Others have also reported the 'no strict use of PPE' by dentists. Ramich et al, in Germany, found that 93.8% of dentists always wear gloves, that 87.3% wear a face mask and that 66.7% always use protective goggles for clinical work (30). In a survey involving dentists in several countries, Ahmed et al found that while COVID-19 has challenged dentists' practices, they have weak habits regarding the use of PPE and report limited use of the N95 mask (13). Reasons for dentists' failure to use PPE have been explained as belief that PPE is unnecessary or unavailable and that dentists have received poor training in infection control or have failed to identify patients and activities that need specific infection-control practices (7).

Demographic characteristics have an impact on the culture of safety for dental healthcare workers (31). For example, gender, level of education and job position have been identified as variables associated with the culture of safety in dental practice (31). We found a statistically significant association between gender, academic degree, membership in a dental association and working in an institution and attitudes on the use of PPE. In an elegant study, Adams identified women as having professional behaviour particularly suitable for the dental practice (32). Thus, among the respondents in our study, women may have paid more attention to safety than did men.

Most dentists recognised a high-level risk of transmission of COVID-19 in the dental practice, but fewer of them considered it important to stop the clinical dental practice (78.10%) to reduce the spread of the disease. It might be that, at early stages of the COVID-19 pandemic, dentists lacked enough information to learn the risks of getting the infection. Khader et al reported that only 17.7% of dentists perceived COVID-19 as very dangerous, and Ahmed et al reported that only 66% wanted to close their dental practice because of the COVID-19 outbreak (12,13). In our study, the dentists were interested in working during the COVID-19 outbreak. Most (90.54%) would provide emergency treatment, while others would stop totally for the contingency plan (9.46%). This indicates that dentists are willing to participate in actions to reduce the spread of COVID-19 by decreasing or stopping their dental practice. Dentists recognised their risk of contracting COVID-19 and have even reported feeling fearful and anxious because of the disease, so they preferred to stop their clinical practice (13). High-income countries have designed strategies to support economies for dentists having no practice, but for low- or low-middle-income countries, such strategies have not been implemented, as is the case for Mexico (11). Stopping practice might have detrimental consequences for the personal economies or even the emotional health of dentists. We found it interesting that a governmental recommendation would have the highest impact on the dentists' decision to stop their clinical dental practice. Governmental institutions should play a major role in educating and supporting dentists during the COVID-19 outbreak.

Our study had limitations. Because of the method of survey distribution, we could not determine a response ratio, but the sample size and its regional distribution were representative of the

dental population in Mexico. Also, the record of dentists reported by the National Institute of Statistics and Geography has not been updated since 2010, which limited the calculation of proportions.

As perspectives, future studies might explore if dentist got COVID-19 because of working activities, or if dentists were able to recover from the stopping of activities because of the COVID-19 lockdown, and, how they adapted its working conditions to COVID-19 pandemic. As recommendations, the ministry of health might give main importance to dentists facing the COVID-19 pandemic, the labour of dentists might be considered as important as the labour of other health professionals. The Ministry of Health, dental organizations and dental schools might collaborate to promote education on COVID-19 for dentists. Also, more public research might be done by those institutions in order to get data that can be employed to design strategies for managing risks and risk assessment at work.

CONCLUSIONS

The dentists had limited knowledge about the transmission modes of COVID-19, which might put them at risk when performing clinical activities because they did not use PPE consistently. But also, dentists had no support from health authorities or government to face COVID-19. As perspective, dentists and authorities must co-work to improve working conditions as well as to improve access to information and to prevention measures against COVID-19.

AUTHOR CONTRIBUTION STATEMENT

Conceptualization and design: B.I.C.C. and J.R.B.E.
Literature review: B.I.C.C. and J.R.B.E.
Formal analysis: B.I.C.C. and J.R.B.E.
Investigation and data collection: B.I.C.C. and J.R.B.E.
Data analysis and interpretation: B.I.C.C. and J.R.B.E.
Writing original draft: B.I.C.C.
Writing review and editing: B.I.C.C. and J.R.B.E.
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Project administration: B.I.C.C.
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