

Mental Health of Dentists during the COVID-19 Pandemic: A Critical Literature Review

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Abstract

Objective of this critical literature review was to analyze and systematize the potential impact of the COVID-19 pandemic on the mental health of dental specialists. This bibliographic search was carried out in PubMed, Web of Science, and Scopus databases, using the following search keywords "Psychiatry OR anxiety OR fear OR depression OR psychological distress OR mental health" AND "COVID-19 OR SARS-CoV-2" AND "Dentists OR dental practice.

Original research publications that included data on dentists' mental health status during the COVID-19 pandemic were included. Data were grouped, tabulated and rearranged in Microsoft Excel 2016 for Windows and descriptively presented. Eleven publications were eligible for this review. All studies characterized with a cross-sectional design. Most of them used questionnaires created by study researchers (81.8%) and were carried out in Italy (45.5%). The number of participants ranged from 14 to 1,500. Effects on dentists' mental health during the COVID-19 pandemic were observed regarding fear of contamination, anxiety, concerns, stress, depression, job insecurity, subjective overload, perceived risk and feelings, and emotions.

The COVID-19 pandemic had a negative impact on dentists' mental health, with a high prevalence of fear, anxiety, and concern, among other psychological symptoms.

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Introduction

Despite the upgrowing trend of COVID-related database aimed at treatment protocol improvement and development of effective vaccine, there is a lack of information considering impact of novel pandemic on interfacing areas of life and work, including both their physical and mental aspects. Also, while looking for the new important findings, retrospective analysis of already obtained data could serve as a reasonable database for evaluation of COVID-19 pandemic influence on personnel being related with high risk of possible infection. Moreover, not only physical side of health, but also its mental component should be analyzed, since remote

alterations of such could present substantial social and healthcare problem in future.

A new viral representative of Coronaviridae family was detected at the end of 2019, in the province of Wuhan, China, which tend to be somehow analogical to the virus of Severe Acute Respiratory Syndrome (SARS) that previously caused pandemic in 2002-2003.^{1,2} Coronavirus spread rapidly around the world, causing an infectious respiratory disease that became known as Coronavirus Disease 2019 (COVID-19).^{1,2} In March 2020, the World Health Organization identified the disease as a public health problem and raised the contamination status to the COVID-19 pandemic.³ Currently, the disease is found in 216 countries, accounting to more than 18.5 million confirmed cases and 700,000 deaths, with the Americas concentrating almost 10 million diagnosed individuals.⁴

SARS-CoV-2 is a positive, spherical, enveloped RNA virus with an approximate size of 30 kilobase (kbp),⁵ which can be transmitted by direct contact – coughing, sneezing and inhalation of droplets –, and by contact with

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mucous membranes – oral, nasal and ocular.⁶ Thus, people who are in close contact with patients with COVID-19, including health professionals, are at increased risk of contamination.^{2,7,8} Dentists, in particular, have a high risk of contamination and great potential to infect their family members and other patients, as they work close to the oral cavity of patients in direct contact with salivary fluids and in closed environment.⁹

Most infected individuals have mild symptoms,² with common fever and cough, and may also experience shortness of breath, muscle pain, confusion, headache, sore throat, diarrhea and vomiting.¹⁰ Among the most severe cases, patients develop Acute Respiratory Distress Syndrome (ARDS), cardiac arrhythmia and shock.¹⁰ Older individuals and the presence of comorbidities are associated with a worse prognosis.¹¹

Social isolation and distancing measures have been adopted by the governments of different countries to prevent contagion and spread of the virus,¹² such as severe restrictions on dental practice,¹³ in which dentists were allowed to perform only emergency procedures in several countries, such as China,² Italy,¹⁴ United States of America,¹⁵ Brazil¹⁶ and the United Kingdom.¹⁷ These conditions generated financial consequences, insecurity and anxiety, leading to greater risk for the emergence of mental health problems.^{7,18} Workers who were forced to stop working due to the pandemic reported an increase in suffering and decline in general health.¹⁹

In addition, social networks and the media in their various forms, spreading alarming news about the growing number of infected people, may have adversely affected the population and generated situations of stress, fear of contamination, personal frustration and difficulties in obtaining protective equipment,²⁰ that might impact significantly the costs of a dental consultation,²¹ as well as stigma of COVID-19 and concerns about the well-being of themselves and their families.²²

Therefore, this critical review aims at analysis and systematization of COVID-19 pandemic potential impact on the mental health of dental specialists.

Materials and methods

This is a bibliographic search conducted through the analysis of articles indexed until July 2020 in PubMed (U.S. National Institutes of Health's National Library of Medicine), Web of Science (Clarivate Analytics) and Scopus (Elsevier) databases. For the study, the search keywords used were "Psychiatry OR anxiety OR fear OR depression OR psychological distress OR mental health" AND "COVID-19 OR SARS-CoV-2" AND "dentists OR dental practice". The PRISMA guidelines were followed (Available: <http://prisma-statement.org/>).

Articles eligible for the study were original research publications that presented data on dentists' mental health status during the COVID-19 pandemic. Review and editorial articles were excluded. The analysis of studies was independently carried out by two researchers (ICCL and LF). At the end of the analysis, information collected was compared and differences were discussed. In lack of consensus, a third researcher (ALC) decided to include or exclude the article.

The following variables were collected: information about the article (authors and year of publication), country, study design and research instrument, sample, sex, age, mental health conditions, main results (related to the mental health of dentists). Data were tabulated using the Microsoft Excel 2016 software for Windows (Microsoft Press, Redmond, WA, USA) and were descriptively presented.

Results

Eighty-eight articles were found and distributed as follows: 14 in PubMed, 8 in Web of Science, and 66 in Scopus. After removing duplicates, 70 studies remained, of which 15 were selected from reading of titles and abstracts. Of these, two systematic review articles were excluded because they did not meet the eligibility criteria. All other articles identified were analyzed in full. After full reading, two articles were excluded: one for not presenting information about the mental health of dentists and the other for not showing data specifically collected from dentists, but from health workers in general. At the end, 11 articles were included in this review (Figure 1).

Regarding geographical distribution, most studies were carried out by researchers in Italy (45.5%), followed by India (36.4%). The sample size ranged from 14,²³ to 1500 participants,²⁴ with Chinese and Italian individuals, respectively. In most studies, participants were men (55.6%) and young adults (55.6%) (Table 1). Regarding the methodological design, all studies had a cross-sectional design, using questionnaires (100%), with a predominance of questionnaires created by study researchers (81.8%) (Table 2). Six studies evaluated dentists' fear during COVID-19 pandemic; six studies, anxiety; five studies, concerns; five, stress; two, depression; two, job insecurity; two, subjective overload; one, perceived risk and one, feelings and emotions (Table 3).

Discussion

The COVID-19 pandemic brought changes worldwide, such as social distancing and isolation associated with the proposed restriction measures to control the disease.²³ In this context, mental health problems among health professionals resulting from changes in various daily routine aspects are gaining prominence.²³ This review highlights the significant impact of COVID-19 on the mental health of dentists and aims to inform these professionals about adversities experienced, to enable a greater understanding of the problems that may affect the dental class and to assist in the planning of actions in this pandemic moment.

Feelings of fear, anxiety, and stress have been reported in most studies.^{9,25-27,29,30} Fear was associated with the fear of being infected by a patient or co-worker, taking the infection to their families and possibly causing permanent effects.^{7,9,25,28} The dentist works in an environment with an intense generation of aerosols and close contact with patients and their salivary secretions, which significantly increases their chances of contamination, justifying this behavior. Staying in a hospital or in social isolation, the possibility of infection and the increase in mortality in the country were also causes for feelings of fear.⁹ It is possible to infer that the lack of knowledge about the viral behavior pattern in the population can directly influence this behavior.

Two studies^{23,25} used the General Anxiety Disorder-7 (GAD-7) to check the anxiety level

and identified an increase in anxiety disorders in this period. These data suggest that pandemic is a source of anxiety for dentists and other professionals who are part of the dental team. The symptom was mainly related to the routine of care when treating patients with suspicious symptoms.^{23,25}

Significant difference in the self-reported feeling of anxiety occurred between the group of non-working female dentists and the group of working male dentists ($p < 0.01$).²⁴ Stefani et al. reported that female dentists were less confident at treating a suspected case of COVID-19, more worried with returning to work, more worried with the consequences of income loss for them and / or their family than among male dentists ($p < 0.05$). Elevated psychological distress was found among those who have background illness (OR = 3.023 (IC 95%: 1.186–7.705); $p = 0.021$), fear of contracting COVID-19 from a patient (OR = 2.110 (IC 95%: 1.236– 3.603); $p = 0.006$) and higher subjective overload (OR = 1.073 (IC 95%: 1.010-1.141); $p = 0.022$).²⁷

The guidance of the World Health Organization is that the suspected or diagnosed individual remains in isolation until recovery or presenting negative diagnosis for COVID-19.³ However, in cases of dental emergencies, the dentist will need to intervene to minimize or resolve the patient's problem, and there may be need for close contact between patient and professional and, therefore, greater likelihood of infection.

The prevalence of generalized anxiety symptoms found in studies^{23,32} is relevant since high GAD-7 scores have been shown to be associated with reduced productivity at work, increased inflammatory processes, and, consequently, decreased immune system response.^{23,32} Being immunocompromised may be related to worse prognosis in confirmed COVID-19 cases. In addition to anxiety, the highest stress levels were found among dentists included in a risk group.³⁰ Chronic diseases that are risk factors for COVID-19 can keep them away from work for fear of getting worse in case of contamination.³³

Depressive symptoms have also been identified.^{7,29} Younger or less experienced individuals reported having greater fear of losing their jobs, indicating an increase in depressive symptoms.⁷ It is suggested that these professionals may be in a less stable and

financially more insecure job condition. Perceived job insecurity ($b = 0.58$, $p < 0.001$, 95% CI [0.35,0.70]) and fear of COVID-19 ($b = 2.11$, $p < 0.001$, 95% CI [1.58,2.60]) were positively associated with depressive symptoms.⁷ The loss of close people makes these professionals more sensitive to the situation and aware of the disease severity.

Regarding patient management concerns, a significant number of dentists (57.8%) reported that they would like to request test results for COVID-19 from all patients before performing any aerosol-generating treatment procedure.²⁸ Rapid diagnostic tests for COVID-19 have low sensitivity and there is a period of latency and virus manifestation that varies between populations, making the test result unsafe.³⁴ In addition, the cost of tests can make their performance unviable. The adoption of this criterion for access to care can make it even more difficult for the patient to seek the dental office. Another concern reported was the impossibility of purchasing personal protective equipment due to the lack of these products on the market.²³

Other less common psychological effects reported were job insecurity, subjective overload, perceived risk and feelings and emotions. For Italian dentists,^{7,24} perceived job insecurity was associated with depressive symptoms and this association increased with fear of COVID-19 infection.⁷ The perception of job insecurity is the fear of losing or maintaining it.³⁵ Measures to avoid virus contagion such as social distancing, isolation and limitation of dental activities resulted in financial losses and, possibly, in the perception of job insecurity. Professionals with higher fear of COVID-19 infection may consider their jobs at greater risk because, if they are contaminated, they would be unable to work for a specified period.⁷ Fear of COVID-19 significantly moderated the relationship between perceived job insecurity and depressive symptoms ($b = 0.61$, $p = 0.007$, 95% CI [0.14,1.06]), suggesting that the association between perceived job insecurity and depressive symptoms increases with the levels of fear of COVID-19.⁷ The regression coefficients of age and number of people who had died known personally were also statistically significant ($p = 0.014$ and $p = 0.049$, respectively).⁷ Knowing more than one person who died due to COVID-19 was also associated with higher levels of depressive symptoms.⁷

Subjective overload differed significantly among different countries – China, India, Israel, Italy and the United Kingdom, with the highest average value in the United Kingdom, followed by China, Italy, India and Israel.²⁶ The comparison of correlations between subjective overload and psychological distress across the countries was the highest among Italian dentists in comparison to the Chinese dentists ($Z = -2.76$, $p < 0.01$), Indian dentists ($Z = -2.09$, $p < 0.05$), and Israeli dentists ($Z = -2.45$, $p < 0.05$).²³ Subjective overload refers to perceptions and feelings surrounding circumstances experienced by individuals in various aspects of daily life, not just the professional aspect.³⁶ However, included studies used instruments that assessed subjective work-related overload,^{26,30} demonstrating that Italian dentists experienced higher levels of stress at work, possibly due to the country's scenario. There was an association between the number of dentists that dealt with fewer than five emergencies during this period and the level of fear facing the emergencies (OR 1.8; $p = 0.035$); there was an association between the level of distress (PHQ-4) and the fear during emergencies (OR 0.1; $p < 0.001$).²⁶

This association between subjective overload and psychological distress can be explained by the Karasek's³⁷ demand-control-support model, in which stress experience is the result of the interaction between stressor, the individual's perception of control over the stressor and social support. In the context of uncertainties surrounding the COVID-19 pandemic, dentists have poor control, resulting in greater subjective overload.³⁰ Additionally, COVID-19 numbers may have a different impact on overload subjective and psychological distress experienced by individuals from different cultures and countries.²⁶

The assessment of perceived risk among Italian orthodontists in relation to COVID-19 revealed that most professionals considered the dental practice to be of high risk for themselves and their families.²⁹ Regarding orthodontic care, there was a higher frequency of professionals who considered it to be of lower risk,²⁹ since Orthodontics can be classified as a specialty that represents a little risk of contamination since care is faster, generates less aerosols and most patients are in the age group least affected by the virus.³⁸ However, orthodontists should be aware of the SARS-CoV-2 transmission

pathways, screen suspected patients, follow official protection guidelines for controlling virus transmission and request patient cooperation. Teleorthodontic checks can help check patients' oral health, schedule future interventions, reassure about their condition, and motivate them to continue orthodontic therapy.³⁹

Other psychological consequences reported were the high frequency of some level of sadness and moderate frequency of anger related to COVID-19.²⁵ This result corroborates findings of a recent review on the effects of quarantine in previous outbreaks, which demonstrated that health professionals were more psychologically affected, reported more anger, fear and sadness,⁴⁰ suggesting the importance of psychological attention to health professionals, including dentists, during pandemics. In addition, the creation of programs to provide economic support for professionals and encourage the use of applications or computer programs to facilitate communication via the Internet with patients, which are measures that can help reduce the impact on the mental health of these professionals, including dentists.

All studies included in this review were carried out through the distribution of an online questionnaire.^{9,23-28,30,31} Digital tools gained prominence in studies during the COVID-19 pandemic, as they are a means of obtaining information quickly and directed to their target populations. Other advantages include answering questionnaires via cell phone, obtaining data in real-time, sending questionnaires via links from one person to another and knowledge of the instant diagnosis of the health situation.⁴¹ On the other hand, the use of non-validated questionnaires and convenience samples end up by influencing data generalization.⁴²

New approaches of general and adjuvant treatment of COVID-19 are developing and approving on different study models, while demonstrating various efficiency and being targeted on diverse pathogenesis' chain aspects.⁴³ Nevertheless adapted protocol of dental patients management that includes three main P'S (patient's self-care, prophylaxis and prioritization of pathology elimination), demonstrates a lack of mental health considerations among both dentists and patients.⁴⁴ Based on provided analysis significant conclusions could be formulated regarding risk of dentists mental health alterations under the conditions of COVID-19 immediate and remote impact.

Conclusion

The COVID-19 pandemic had a negative impact on dentists' mental health, with a high prevalence of fear, anxiety, and concern, among other psychological symptoms. The support and monitoring of these professionals are highly necessary to minimize traumatic episodes resulting from the COVID-19 pandemic.

Ethical disclosures

Protection of human and animal subjects

The authors declare that no experiments were performed on humans or animals for this study.

Declaration of Interest

The authors have no conflicts of interest to declare.

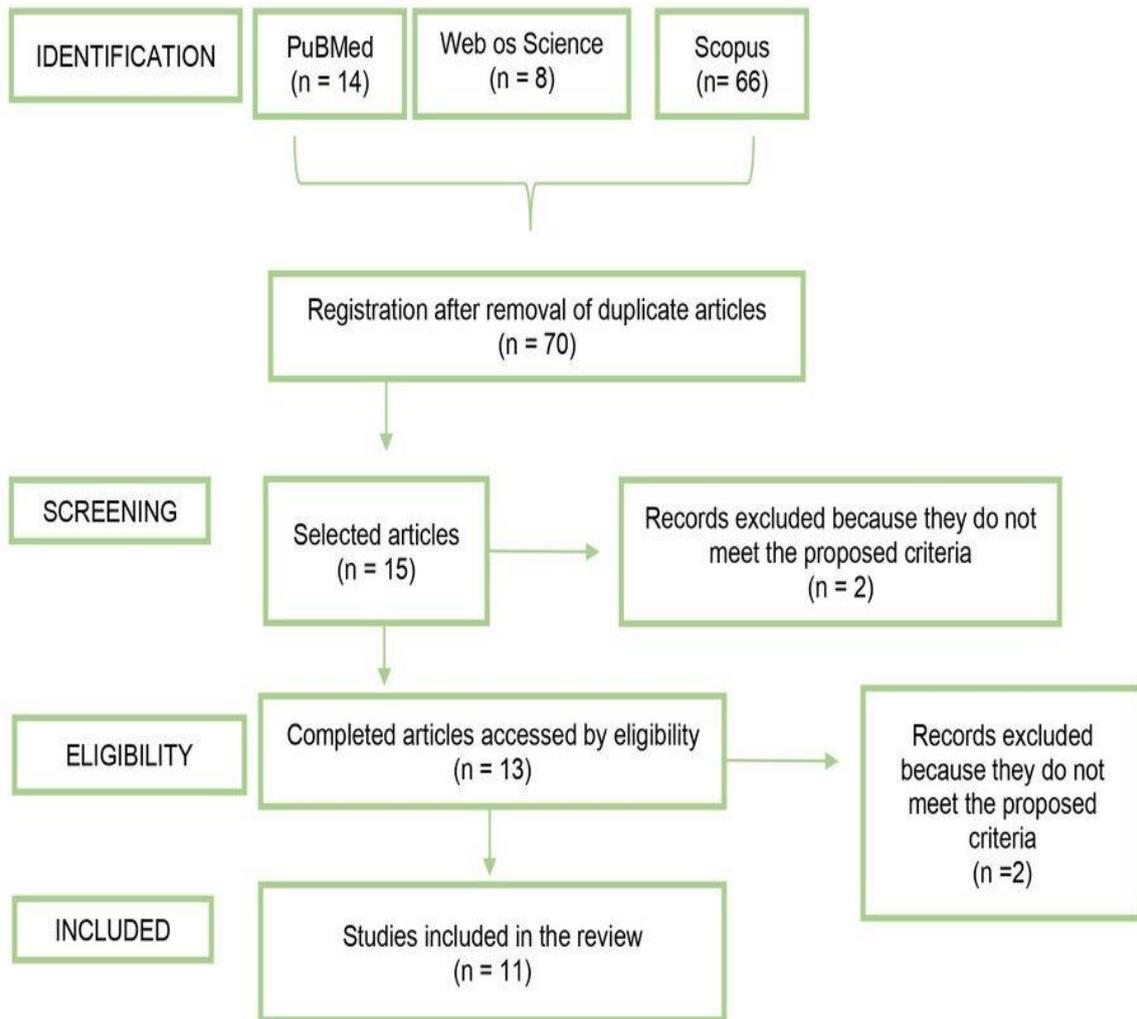


Figure 1. Flowchart of selection procedure for the articles included in the review.

AUTHOR(S), YEAR	COUNTRY	SAMPLE (n)	SEX (%)	AGE (years)
Ahmed et al. ⁸ , 2020	Saudi Arabia, Pakistan, India, United Arab Emirates, People's Republic of China, Italy, United Kingdom, Australia, Malaysia, United States of America, Ireland, Israel, New Zealand, South Africa, Turkey, Germany, Kuwait, Canada, Hungary, France, Poland, Bulgaria, Republic of the Congo, Mexico, Finland, Romania, Egypt, Switzerland, Demark, Bahrain	650	25% were male and 75% female	20-30 years: 54% 31-40 years: 39% 41-50 years: 5% 51-60 years: 1.85% > 60 years: 0.15%
Consolo et al. ²² , 2020	Italy	356	60.4% were male and 39.6% female	< 35 years: 16.6% 35-55 years: 48.6% > 55 years: 34.8%
Gasparro et al. ⁷ , 2020	Italy	735	67.3% were male and 32.7% female	Mean 44.80 ±12.44 Interval 27-70
Kinariwala et al. ²⁵ , 2020	India	403	n.a.	n.a.
Martina et al. ²⁶ , 2020	Italy	349	50.1% were male and 49.9% female	20-29 years: 18.6% 30-39 years 31.5% 40-49 years: 16.3% 50-59 years: 21.8% 60-69 years: 10% > 70 years:1.7%
Mijiritsky et al. ²³ , 2020	China, India, Israel, Italy, and the United Kingdom	1.302 China: 514 India: 470 Israel: 202 Italy: 88 United Kingdom: 27	55.4%: male China 54.3%: male India 69.8%: male Israel 73.9%: male Italy 70.4%: male United Kingdom	Mean China 38.70 ± 8.30 Mean India 34.90 ± 9.40 Mean Israel 47.00 ± 11.40 Mean Italy 44.80 ± 12.50 Mean United Kingdom 44.70 ± 9.60
Shacham et al. ²⁷ , 2020	Israel	338	58.6% were female	Mean 46.39 ± 11.18 Interval 24-74
Tysiąc-Miśta et al. ²⁴ , 2020	Poland	875	82.5% were female and 17.5% male	Mean 39.10 ± 11.00 Interval 24-75
Stefani et al. ²¹ , 2020	Italy	1500	44.2% were male and 55.8% female	< 30 years: 12.1% 30-39 years: 27.6% 40-49 years: 27.8% Above 50 years: 32.5%
Nair et al. ²⁸ , 2020	India	586	53.07% were male and 46.93% female	< 25 years: 7.17% 25-35 years: 55.46% 36-45 years: 24.91% Above 45 years: 12.46
Mahendran et al. ²⁰ , 2020	China	14	n.a.	n.a.

Table 1. Descriptions of samples characteristics represented in analyzed studies.

AUTHOR(S), YEAR	DESIGN AND INSTRUMENTS
Ahmed et al. ⁸ , 2020	Cross-sectional Online survey questionnaire Questionnaire developed by researchers, registered at online website (Kwiksurveys) and validated
Consolo et al. ²² , 2020	Cross-sectional Anonymous online survey questionnaire Questionnaire developed by researchers, created using the Google Forms and GAD-7
Gasparro et al. ⁷ , 2020	Cross-sectional Anonymous online survey questionnaire Single-item based on the work by Strazdins et al., FCV-19S and short version of the DSM-5
Kinariwala et al. ²⁵ , 2020	Cross-sectional Online survey questionnaire Questionnaire developed by researchers, based on guidelines of Centre for Disease Control (CDC), Ministry of Health and Family Welfare of the Government of India, and the Dental Council of India (DCI)
Martina et al. ²⁶ , 2020	Cross-sectional Online survey questionnaire Questionnaire developed by researchers, created using the SurveyMonkey and PHQ-4
Mijiritsky et al. ²³ , 2020	Cross-sectional Online survey questionnaire Questionnaire developed by researchers, Demands Scale—Short Version and K6
Shacham et al. ²⁷ , 2020	Cross-sectional Online survey questionnaire Questionnaire developed by researchers, Demands Scale—Short Version and K6
Tysiąc-Miśta et al. ²⁴ , 2020	Cross-sectional Anonymous online survey questionnaire Questionnaire developed by researchers, created using the Google Forms
Stefani et al. ²¹ , 2020	Cross-sectional Anonymous online survey questionnaire Questionnaire developed by researchers, created using the Google Forms
Nair et al. ²⁸ , 2020	Cross-sectional Anonymous online survey questionnaire Questionnaire developed by researchers, created using the Google Forms, PSS and CPDI
Mahendran et al. ²⁰ , 2020	Cross-sectional Questionnaire printed or digital GAD-7

Table 2. Descriptions of designs and instruments used in analyzed studies.

GAD-7: 7-item Generalized Anxiety Disorder; FCV-19S: 7-item Fear of COVID-19 Scale; SMDA: 9-item Severity Measure for Depression – Adult; PHQ-4: Patient Health Questionnaire-4 items; K6: 6-item Kessler psychological distress scale; PSS: 10-item Perceived Stress Scale; CPDI: 24-item COVID-19 Peritraumatic Distress Index.

AUTHOR(S), YEAR	MAIN RESULTS
Ahmed et al. ⁸ , 2020	87% of participants were afraid of getting infected with COVID-19 from either a patient or a co-worker; 90% were anxious while treating coughing or a patient suspected to be infected with COVID-19; more than 72% of participants felt nervous when talking to patients in close vicinity; 92% were afraid of carrying the infection from dental practice to their families, and 77% were afraid of getting quarantined if they got infected; 73% were anxiety concerning the cost of treatment if they got infected and 86% felt afraid while they learned about mortalities because of COVID-19.
Consolo et al. ²² , 2020	85.1% of dentists reported being concerned about contracting COVID-19 during their clinical activity; 83.4%, 83.7%, 96.6%, 74.7%, 55.9%, reported feeling some level of fear, anxiety, worry, sadness and anger when they think about COVID-19, respectively. Dentists aged between 35 and 55 years were those more concerned about their professional future.
Gasparro et al. ⁷ , 2020	Mean perceived job insecurity (1–5): 3.57±1.15 Mean fear (7–35): 15.03±5.45 Mean depressive symptoms (0–27): 5.66±5.22
Kinariwala et al. ²⁵ , 2020	54.3% of the respondents were not confident and 35.7% were hesitant to commence their post-pandemic dental practices and the main reason was the risk of contracting SARS-CoV-2 infection via a patient (45.9%). 75.5% were worried about medico-legal consequences of post-pandemic dental care provision.
Martina et al. ²⁶ , 2020	PHQ-4: 22% reported moderate/high distress. Returning to daily work activities was a source of anxiety for 192 participants and this was associated with the level of distress (odds ratio (OR) = 3.7; p < 0.001). 92.3% were considering dental practice as at higher risk; 88% were considered their work of higher risk for their families and 63.1% were considered orthodontic procedures at lower risk.
Mijiritsky et al. ²³ , 2020	Mean fear of contract COVID-19: 2.5±0.9 China, 2.4±0.9 India, 2.7±0.8 Israel, 2.5±0.9 Italy, 3.1±0.8 United Kingdom. Mean fear infect family COVID-19: 2.3±0.9 China, 2.5±0.9 India, 3.0±0.9 Israel, 2.8±0.9 Italy, 3.1±0.9 United Kingdom. Mean subjective overload: 16.1±4.6 China, 14.8±4.8 India, 14.4±5.8 Israel, 15.7±5.7 Italy, 18.6±4.8 United Kingdom. Mean psychological distress: 12.6±4.7 China, 12.2±4.2 India, 12.0±4.6 Israel, 12.7±4.8 Italy, 14.6±5.0 United Kingdom.
Shacham et al. ²⁷ , 2020	Mean fear of contracting COVID-19 from patients: 2.88±0.88 Risk of elevated psychological distress: 11.5% of the sample
Tysiąc-Miśta et al. ²⁴ , 2020	71.2% of the respondents decided to entirely suspend their dental practice; of this, 57.6% fear for the health and life of the members of family and 51.2% fear for their health and life. Mean anxiety: 3.61±1.01
Stefani et al. ²¹ , 2020	Mean confidence at treating a suspected case of COVID-19 (score range 1-10): 2.7 ± 2.2 Mean worry about going back to work and consequently being at risk of contagion (score range 1-10): 7.3 ± 2.2 Mean worry about the income loss of your dental office because of lockdown (score range 1-10): 8.3 ± 2.0 Mean worry about the consequence of income loss for them and/or their family because of lockdown (score range 1-10): 7.9 ± 1.1
Nair et al. ²⁸ , 2020	PSS documented perceived moderate perceived stress (PS) (score 14-26) among 406 (69.28 %) and high PS in 63 (10.75%) respondents CPDI recorded 224 (38.23%) and 80 (13.65%) experienced mild-moderate and severe distress, respectively
Mahendran et al. ²⁰ , 2020	GAD-7: 57.1% none; 21.4% mild; 7.1% severe (14.3% missing data) Average GAD-7 score based on job role: 4.75

Table 3. Descriptions of main results obtained in analyzed studies.

GAD-7: 7-item Generalized Anxiety Disorder; FCV-19S: 7-item Fear of COVID-19 Scale; SMDA: 9-item Severity Measure for Depression – Adult; PHQ-4: Patient Health Questionnaire-4 items; K6: 6-item Kessler psychological distress scale; PSS: 10-item Perceived Stress Scale; CPDI: 24-item COVID-19 Peritraumatic Distress Index.

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