

## Challenges faced by dental professionals during COVID-19- A cross sectional survey

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### Introduction

Coronavirus disease also called as COVID-19 brought the world to a standstill. COVID-19 is caused by SARS Cov-2, which belongs to the family of coronaviruses commonly involved in infecting birds and mammals. This virus, which originated in Wuhan, China became a major public health challenge for every country on the globe. Based on epidemiologic research, it has been proposed that the disease spreads via respiratory droplets and contact transmission. (1) Patients suffering from COVID-19 can be asymptomatic for a period of at least 14 days. Symptomatic patients often present with most common flu-like symptoms fever and dry cough (48-92%), shortness of breath, fatigue and less common symptoms of headache, pharyngitis, productive cough anosmia and gastrointestinal symptoms. (2) Direct transmission through cough, sneeze, droplet inhalation and contact transmission through

### Abstract

**Background:** At the time of pandemics like COVID-19, dental professionals being one of the frontline workers must face a lot of challenges in workplace bringing about a lot of anxiety and stress. The purpose of this survey was to assess the physiological well-being of the dental professionals, the majority of challenges faced by them, how they are dealing with it and what changes in their opinion could be implemented to be prepared in the wake of any future adversity.

**Methodology:** We conducted a cross sectional survey via an online questionnaire that was sent to dentists in 4 different countries- India, US, UK, and Iran. The questionnaire comprised of closed ended questions grouped in broad categories of demographics, physiological well-being of dentists, Changes in dental practice during COVID-19 and Changes to be implemented post Covid-19. Descriptive analysis was performed to summarize the data with SPSS-19 software.

**Results:** A total of 312 dentists (181 Males and 131 Females) from four countries responded to the study. Most of them (56.4 %) were in the age group of 30 to 40 years, 27.9 % in 25-30 years, and 7.1% above 50 years. 47.5% dentists reported suffering from stress and anxiety due to the shutting down of their private dental practices. 72.5% dentists reported that they are worried about the operational and financial challenges to run their practice during Covid-19. 60% of the dentists had concerns due to the shortage of personal protective equipment. Most of the dental professionals (73.9%) are of the opinion that management of medical emergencies should be included in the dental curriculum, so that dentists can volunteer their services at the time of crisis and also can be well-prepared to take care of their patients.

**Conclusion:** During the COVID-19 pandemic, dentists like medical professionals must face a lot of ethical and moral dilemma along with dealing with the operational challenges. The present study draws our attention to the fact that despite having faced pandemics like SARS, health professions like dentistry still need a lot of preparedness and requires modifications to face any such challenges in future.

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oral, nasal, and mucous membranes put health professionals at very high risk. Dental professionals are at high risk owing to the specificity of the profession which involves constant exposure to aerosols, blood, and handling of infected instruments. (2) In March 2020, CDC issued guidelines for health care professionals and mandated that only urgent care be provided in dental settings. (3) Dental clinics had to be shut down, leaving many dentist, dental assistant, and hygienists unemployed. Few studies had reported serious psychological reactions in healthcare workers during the SARS outbreak. (4,5,6) The stress faced by dentists can be categorized into financial, operational and related to their personal safety as well as safety of their patients. Even though a lot of literature has been published regarding COVID-19 and WHO guidelines are constantly updated, many dentists are still fearful and anxious about treating their patients even in emergency settings.

We constructed this questionnaire-based study to determine the challenges faced by the dentists during COVID-19 and their attitude on dealing with these situations.

**Materials and methods:**

The present cross sectional study was conducted using an online questionnaire from <https://docs.google.com/forms/>. The online survey was conducted from April 10- June 6,2020. A total of 312 responses were received from 4 countries- India, USA, Iran, and UK. The questionnaire was circulated via emails and various social media portals. Only dental professionals were asked to fill out the questionnaire. Dental students and paramedical staff were excluded from the present study.

Questionnaire comprised of 13 closed ended questions, which were divided under three headings- General information, Psychological well-being and questions on necessary modifications in dentistry/ dental practice post COVID-19. Informed consent were obtained from subjects which was integrated in the survey. The list of questions is presented in Table 1. Statistical analysis was done by SPSS 19 software. Descriptive statistical analysis was used to represent the data obtained.

Table 1: Questionnaire was subdivided under following subheadings

I. Demographics	
What is your age?	20-30yrs
	30-40yrs
	40-50yrs
	>50yrs
How do you identify yourself?	Male
	Female
Do you own a private practice?	Yes
	No
Do you work as a faculty in medical/ dental college?	Yes
	No

II. Psychological Well-being	
Did you suffer any stress or anxiety due to shutting down of practice due to Covid-19?	Yes
	No
How do you spend your time these days?	Reading
	Spending time with family
	Recreational activities
	Volunteering activities
Did your college/ university give you paid leave?	Yes
	No

III. Changes in dental practice during COVID-19	
Why did you have to shut down during Covid-19?	Lack of protective gear
	Less patient's inflow
	Worried about own safety
	Made mandatory in state/ country
Are you providing urgent care?	Yes
	No
If you are still providing urgent care, do you face problems with getting protective gear?	Yes
	No
Are you currently volunteering with medical professionals for handling Covid-19 patients?	Yes
	No
Are you worried about changes to be made to dental practice post Covid-19 to comply with CDC guidelines?	Yes
	No
Are you in touch with patients during Covid-19 and how?	Yes
	No

IV. Changes to be implemented post COVID-19	
Are you planning to increase your fees to cover the extra cost required for up-keep of dental practice?	Yes
	No
What is your main concern about opening of dental clinics post Covid-19?	Safety of yourself and patients
	Financial
	Procurement of face masks, protective gear
	Operational challenges in dental clinic

What changes you intend in our dental education system?	Introduce medical emergencies as a different subject for dental students
	Oral-systemic diseases to be taught as a different subject
	More rotations in rural areas
	None

**Results**

**A. Demographic Data**

A total of 312 (181 Males and 131 Females) dentists from four countries responded to the study. Most of them (56.4 %) were in the age group of 30 to 40 years, 27.9 % in 25-30 years, and 7.1% above 50 years. 65% of respondents had own practice and 27% were working as faculty of medical and dental institutions. Respondent's Demographic data is presented in the Table 2.

Demographics	Variables	Dentists
Gender	Male	181 (58%)
	Female	131 (42%)
Age	25 -30	88 (27.9%)
	30-40	175 (56.4%)
	40-50	26 (8.4%)
	50 above	22 (7.1%)
Type of Practice	Private Practice	205 (66 %)
	Faculty of Dental	84 (21.2%)
	Medical Institute	

**B. Psychological Well-being of Dentists during COVID-19**

A high percentage (71%) of dental professionals answered that they experienced stress or anxiety due to shutdown of practice during COVID 19 period. During the lockdown period most of the respondents (75%) spent time with family and a small percentage (2.9%) engaged themselves with volunteering in hospitals and community centres. 80.2% of the dentists working in academia on various positions of Assistant, Associate and full-time professors had to go through financial constraints as they were not paid due to the closure of the dental college. Data is shown in Table 3.

Psychological Well-Being		Responses Number (%)
Did you suffer any stress or anxiety due to shutting down of practice during COVID-19?	Yes	148 (47.5%)
	No	87 (28%)
	Maybe	77 (24.5%)

How do you spend time during lockdown?	Spending Time with family	237 (75.9%)
	Recreational Activities	39 (12.4%)
	Reading	27 (8.8%)
	Volunteering work	9 (2.9%)
	No	250 (80.2%)
Did your college/university give you paid leave?	Yes	25(7.9%)
	May be	37(11.9%)

**C. The Changes in Dental Practice during COVID-19**

A huge number of private dental practices had to be shut down during the first few months of Covid-19 spread. A good percentage (42.5%) of dentists' shutdown practice for the fear of their safety. 35.8% of the dentists had to shut down because it was made mandatory by the state whereas 18.7% did due to the lack of protective gear along with a small percentage (3%) because of less patient flow. More than half of the respondents (58.3%) were providing urgent care but 60% of them were facing problem in getting necessary protective gear. 72.5% of the dentists reported that they were under stress as they were worried about the changes to be implemented to the dental practice following COVID 19 to comply with CDC guidelines. Majority of the respondents had been responding to their patients' needs through telephones with only 4% through their clinic chat webpage and 25% reported no contact with the patients during the time of shutdown. Data is shown in Table 4.

Changes in Dental Practice	Responses	
Why did you shut down during COVID-19?	Worried about own safety	133(42.5%)
	Made mandatory in state/country	112(35.8%)
	Lack of protective gear	58(18.7%)
	Less patient Inflow	9(3%)
Are you providing urgent care?	Yes	182(58.3%)
	No	130(41.7%)
If you providing Urgent care, do you find problems in getting protective gear?	Yes	187(60%)
	No	124(40%)

Are you Currently volunteering with Medical professionals for handling COVID-19 patients?	Yes	36(11.6%)
	No	276 (88.4%)
Are you worried about the changes to be made to the dental practice Post COVID-19 to comply with CDC guidelines?	Yes	226(72.5%)
	No	32 (10.1%)
	May be	54 (17.4%)
Are you in touch with patients and how?	Telephone	219 (70.3%)
	Clinic Website	15 (4.7%)
	Neither	78 (25.4%)

#### D. Changes to be implemented in practice post COVID-19

Operational costs have been worrisome for all the health professionals running a private medical/ dental practice in any part of the world. About 38% of Dentists at the time of survey were planning to increase their fee to cover the extra cost for upkeep of dental practice in accordance with the CDC guidelines. The main concern of respondents about restarting the practice was their own safety, about 19.7% were concerned about operational challenges, financial challenges (13.9%), followed by procurement of necessary protective gear. The majority of the dentists (73.9%) are of the opinion that medical emergencies and their management should be taught as a different subject so that they can also be on the frontline for the management of any future pandemic whereas 16.7% opined that no changes are needed in current system. The questions and the responses are shown in Table 5.

Changes to be implemented in practice post COVID-19	Responses	
Are you planning to increase the fee to cover the extra cost required for upkeep of dental practice?	Yes	119(38%)
	No	102(32.8%)
	May be	91(29.2%)
What Changes should be Introduced in dental education system?	Introduce Medical Emergencies as a different subject	231(73.9%)
	More rotation in rural areas	29(9.4%)
	None	52(16.7%)
What is your main concern about opening practice post COVID-19?	Personal safety	193(62%)
	Financial	43(13.9%)
	Procurement of protective gear	14(4.4%)
	Operational Challenges in clinics	62(19.7%)

#### Discussion

This questionnaire survey assessed the challenges faced by dentists from four countries which recorded most cases of ongoing COVID-19 pandemic. Dentists being one of the highest risk group to contract disease and the dental office being one of the most susceptible places for spread of the disease had to bear the brunt of this pandemic. Various regulatory bodies of different countries had advised to either shut down the dental clinics and dental schools or to restrict the practice to emergency procedures. (7, 8)

During the lockdown period most dentists suffered anxiety and stress due to their financial state and concerns about maintaining their practice. Even though emergency services had been provided for the patients, most dentists were hesitant because of the fear of contacting COVID-19, and difficulty in procuring personal protection equipment. On a positive note respondent of this survey did get time to spend with family, pursue their hobbies and even to do volunteering duties, but the extended lock down in countries and practice restrictions adversely affected their professional life. Almost 71% of the dentist responded that they had mental stress / anxiety due to various reasons. 42% reported concerns related to their own safety while treating patients in urgent care and 71% reported that they were concerned about the changes to be made to the practice to meet the CDC guidelines once they resume the practice. The findings in our survey is similar to findings of Kinariwala et al. who assessed the concerns and fears of Indian dentists during the pandemic. (9). The studies which assessed the psychological reactions of dentists to the pandemic from Italy, Saudi Arabia and Israel reported practice closure or reduction in activity, dentists being anxious and stressed about their professional future, they were also concerned about being infected and transmission to family members. (10, 11, 12)

With dentists gradually beginning their practice which require strict infection control procedures and mandatory use of Personal protection equipment's expenses for maintaining the practice is surely going to increase. This was also reflected in our survey with 38% of the dentists wanting to hike their operational fees. However, ethical dilemma has also been adding to the stress of professionals with dental practice. In our survey, 29% of the dentists answered unsure about hiking their fee while 32.8% not willing to increase the fee. Majority of the dentists would like to hike the patient fee to cover the extra cost of running private practice, but also fear that it might affect the patient turn over and generation of income.

Dentists are also of the opinion that medical emergencies should be given more emphasis in the dental curriculum; this may help them to actively work with medical professionals in the fight against the pandemic. In our survey, 74% of the dentists believed dentists should be taught more about medical emergencies with 9.4% think that more rotations and work in rural area be included in dental curriculum

Our present survey was a cross-sectional questionnaire survey, which was done in limited countries and despite sending large number of questionnaires in different platforms we received less than half responses. Small sample size is the limitations of our survey.

#### Conclusion

Dentists all over the world had to shut down their practice due to government norms or due to fear of their safety during COVID-19 pandemic which had negative impact on their financial and psychological state. The present survey was done to determine the impacts on dentists via series of questions assessing short-lasting effects like operational challenges, financial constraints,

and anxiety and stress faced by dental professionals and shared by many across the globe. The results of the present study can be interpreted to understand the challenges faced by health professionals. Governments and regulatory bodies should take into consideration the psychological stress faced by health professionals at the time of grave pandemics and set up guidelines to deal with the same. Also, the authors would like to suggest that medical emergencies should be included in the dental curriculum so that dentist can be a part of the task force in situations like the deadly COVID-19 pandemic.

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