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## Assessing the Dental Practitioner's Awareness, Fear, Anxiety and Practices to Battle the Covid-19 Pandemic in Himachal Pradesh, India

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### Abstract

**Aim:** The purpose of the study was to assess the knowledge and awareness of dentists in Himachal Pradesh, India towards COVID-19 and how are they handling their fear and apprehension as well as modification in their clinical practice due to coronavirus pandemic. **Methodology:** Our study population consisted of dentists who work in Himachal Pradesh, regardless of their place of work, either in Private clinics, Colleges and Hospitals, or Health Centres. The main instrument to collect data was an online questionnaire using Google forms. Responses were sought from only those dental professionals who were having patient dealing and not from other students or any kind. **Results:** A total of 263 participants took part, submitting the questionnaire i.e. students (44.4%), College Faculty or Govt. Employee (26%) and Private practitioner (46%). The result clearly shows that dental practitioners across the state have high knowledge and awareness (96.9%) about COVID-19 even though they are in a state of anxiety and fear while working in their respective fields due to the COVID-19 pandemic effect on humanity. Our study clearly shows that student practitioners were more apprehensive as compared to faculty or private practitioners, who were more confident to treat patients who had COVID-19 like symptoms. **Conclusion:** Dentists in Himachal Pradesh are aware of COVID-19 symptoms, mode of transmission, and infection controls and measures in dental clinics. However, dentists had limited comprehension of the extra precautionary measures that protect the dental staff and other patients from COVID-19. National and international guidelines should be sent by the regional and national dental associations to all registered dentists during a crisis, including the COVID-19 pandemic, to make sure that dentists are well informed and aware of best practices and recommended disease management approaches. In reality, not much is known about Coronavirus and misinformation generally creates a panic like situation. So, as more authentic information is relayed to health care providers then this anxiety and fear will also lessen.

**Keywords:** COVID-19, Infection, Dentist, Infection control, Fear and anxiety, Precautions

**Abbreviations:** COVID-19-Novel Coronavirus Disease 2019, OSHA-Occupational Safety and Health Administration, DHCP-Dental Health Care Professionals, RTI-Respiratory Tract Infections, MOHFW-Ministry of Health and Family Welfare

### Introduction

World is currently going through a major pandemic of corona virus. New CoV infection epidemic started in Wuhan, China in late 2019. First it was called as 2019-nCoV and later renamed by WHO as COVID-19 on 11<sup>th</sup> February, 2020 [1]. WHO in March 2020 declared the outbreak as pandemic [2]. Considering challenges when comparing data across nations, COVID-19 mortality in some countries is significantly higher than in others.

Several factors may play a role in this discrepancy, including disparities in the proportion of the elderly in a community, general health, health care accessibility and efficiency and socio-economic status. Structural, COVID-19 is a ~350 kilobase-pair (kbp) enveloped

ss-RNA virus [3]. A possible route of transmission between humans is by airborne droplets, touching or bringing into contact with an infected person or a contaminated surface. In addition, other routes such as blood or saliva have not been explored, but are possible due to documented blood-borne infectious diseases such as HIV/AIDS, hepatitis C and hepatitis B viruses. These trading volumes express concern about a similar transmission route for COVID-19 in dental settlement.

According to the WHO situation report 158 (26<sup>th</sup> June 2020) update on COVID-19, there have been more than 9,473,214 reported cases and 484,249 deaths worldwide [4]. By imposing a nationwide lockdown, India has curtailed the spread of this virus to a certain extent; however,

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the total number of reported cases has crossed 490,401 with approximately 15301 deaths and these numbers continue to rise and approx 864 confirmed cases in Himachal Pradesh with 349 active cases while around 494 recovered also (Figure 1)[4,5].



Figure 1: Himachal Pradesh COVID-19 update of June 2020.

According to the Occupational Safety and Health Administration (OSHA), Dental Health Care Professionals (DHCP) is put in a very high risk category because dentists work near to the oral cavity of the patient [6]. Dental clinics across the country have been shut for over two months. With the pandemic still on the growth curve, there is no hope of revival anytime soon, compounded by zero earnings by dental practitioners and staff at some clinics. Dental treatments include the use of rotary instruments, such as handpieces and scalers, which produce aerosols. Therefore, a greater understanding of the virus structure, transmission modes, clinical characteristics, and testing methods is required that can help shape protocols for dental practices to distinguish cases and avoid further spread of infection to patients and to DHCP. Under these conditions, it may be common for dentists to develop a fear that their patients if exposed to virus may infect them too.

Fear and anxiety are emotional responses that can be correlated by social, digital, and mass media with the growing coverage on the COVID-19 pandemic. Mild anxiety is normal and encourages actions in a protective and healthy manner [7]. Considering the current rapid spread of infection, the Ministry of Health and Family Welfare (MOHFW) Government of India highlighted key steps to be taken by dentists in addition to the standard universal precautions such as taking patients' recent travel history; assessing signs and symptoms of RTI; recording patients' body temperature; mouth rinsing with 1% hydrogen peroxide prior to commencement of any procedure; using a rubber dam and high volume suction during procedures; and frequently cleaning and disinfecting public contact areas including door handles, chairs and, washrooms [8]. While the MOHFW has issued preventive recommendations, most dentists are still hesitant to treat patients in such a situation and feel afraid. In addition, the new recommendations may not be known to most dentists. So we conducted a questionnaire-based study to determine the response of dentists in Himachal Pradesh.

The goal of this study was to assess what impact have it made on dental professionals to tackle the outbreak of the novel Coronavirus disease (COVID-19). Additionally, the fear of being infected was assessed during the ongoing global pandemic.

## Material and Method

Our study population consisted of dentists who work in Himachal Pradesh, regardless of their place of work, either in Private clinics, Colleges & Hospitals, or Health Centres. This survey was conducted in June 2020. The main instrument to collect data was an online questionnaire using Google forms and it is available at: <https://forms.gle/sevkGOEKf5UTJxjXA> and validated through intra-class correlation with a strong relation of 0.76. Upon clicking on the link, the form description assured the confidentiality of data, informed the dentists of the study objectives and stated that the study participation was purely voluntary.

The dentists' consent to participate in the study (inclusion criteria) was implied when they clicked on the 'Submit' button after answering the questionnaire, and they had complete freedom either to decline or answer the questionnaire. Responses were sought from only those dental professionals who were having patient dealing and not from other students or any kind.

The study carried out in June 2020 and both convenience sampling method (researchers themselves persuaded dentists to take part in the study) and snowball sampling method (the interested dentists were asked to forward the questionnaire to their colleagues) was used to ensure full participation. The questionnaire was distributed personally via various social media platforms like Facebook and WhatsApp.

The questionnaire consisted of pre tested; pre-validated self-administered 15 closed-ended questions. They were concentrated on dentists' fear of being infected with COVID-19 and were intended to collect information about their practice changes to combat COVID-19 outbreak in compliance with the recommendations of the Centres for Disease Control and Prevention (CDCP) and ADA (American Dental Association) practice. This also analyzed anxiety of treating patients in the wake of the spread of this deadly disease. They were also assessed on their knowledge of various safety precautions that need to be taken to carry out treatment safely and to guarantee their patients and they are safe and did the COVID-19 have any effect on their social life as well. The study was approved by an ethical review board (HDC/E/03/2020/20), and statistical analysis on version 25 of Statistical Package for the Social Science (SPSS) was performed. A Chi-Square and Spearman correlation test was used to monitor confusers and assess the relationship between dentists in terms of gender and education.

## Results

A total of 263 participants took part, submitting the questionnaire (Figure 2). The majority gender of the participants was males (62.9%), and females (37.1%). Approximately one half (46.9%) of the responding dentists were private practitioners, and the remainder (43.8%) were students (BDS and MDS), whilst other respondents (9.4%) were College Faculty or Government Employees (Table 1).

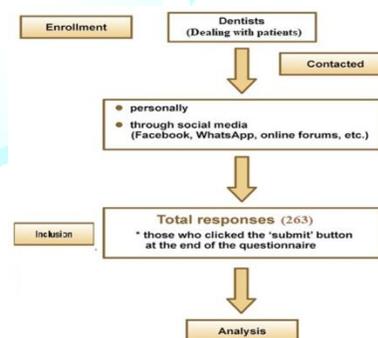


Figure 2: Enrollment and inclusion.

## Knowledge and Practice of Dentists about Covid-19

When asked about awareness towards sign and symptoms, method of diagnosing, mode of transmission, 96.9%, 82.8%, 96.9% respectively reported that they know about it. Table 2 reflects the ratio of dentists who registered the multiple answers about COVID-19 infection. When asked about the latest CDC or WHO Cross-Infection Prevention Guidance concerning COVID-19, 6.2% simply answered that they did not know whilst 14.1% were still not sure further having 79.7% agreeing on having proper knowledge.



Characteristics	Frequency (%)
<b>Sex</b>	
· Male	165 (62.9)
· Female	98 (37.1)
· Total	263 (100.0)
<b>Age (years)</b>	
· <30	129 (49.2)
· >30	134 (50.8)
· Total	263 (100.0)
<b>Category</b>	
· Student	116 (44.4)
· College Faculty or Govt Employee	26 (9.5)
· Private Practitioner	121 (46)
· Total	263 (100.0)
<b>Years of Perusing Dentistry</b>	
· <5	88 (33.3)
· 5-10	54 (20.6)
· >10	121 (46)
· Total	263 (100.0)

**Table 1:** Demographic characteristics of respondents of the survey.

Almost all dentists (92.2%) reported that it is important to take proper travel history before treating the patient regularly to decrease the possibility of transmitting infections to patients and to themselves. Whereas only 73.4% take patients body temperature before the treatment whilst 9.4% do not. While most (79.7%) advocated standard universal infection prevention procedures, 71.4% did not use the rubber dam isolation for each patient. That being said, 15.6% did not ask patients to rinse the mouth with antibacterial mouthwash prior to dental care and 12.5% still wonders just as 73.4% of the respondents were aware of the appropriate authority to notify if they stumbled across a patient with a suspected COVID-19 infection. Last but not the least 89.1% of the responders do speak about preventive measure to their patients about COVID-19 (Table 2).

	Yes, (%)	No, (%)	May be, (%)
Are you aware of signs and symptoms of COVID-19?	96.90%		3.10%
Are you aware of method of diagnosing COVID-19?	82.80%		17.20%
Are You Aware of the Mode of Transmission of COVID-19?	96.90%		3.10%
Are you informed about the latest CDC or WHO Cross-Infection Prevention Guidance concerning COVID-19?	79.70%	6.20%	14.10%
Do you ask the history of the travel when documenting the patient's history?	92.20%		7.80%
Are you taking the body temperature of each patient before you perform dental treatment?	73.40%	9.40%	17.20%
Do you follow regularly Universal infection prevention and control Precautions for every patient?	79.70%	4.70%	15.60%
Do you use rubber dam isolation for every patient?	25.40%	71.40 %	3.20%
Do you ask each patient before treatment to rinse their mouth with anti-bacterial mouthwash?	71.90%	15.60 %	12.50%
Do you speak to the patients about preventative steps against COVID-19?	89.10%	3.10%	7.80%
If you come across a patient with suspected COVID-19 infection, are you aware of which authority to contact?	73.40%	9.40%	17.20%

**Table 2:** Knowledge and practice of dentists about COVID-19 (n=263).

### Fear and Anxiety of Dentists about Covid-19

The nervousness and anxiousness ratios of dental care professionals towards COVID-19 are listed in Table 3; when treating a coughing or

a patient presumed of being infected with COVID-19, 79.7% were anxious and 4.7% did not find it the same. 89% percent of the respondents were worried about having COVID-19 infected by either a patient or an employee and 2% otherwise while other thinking maybe not. And around 75 % of respondents felt nervous when dealing with patients in close proximity, 82.8% were scared of taking the disease to their homes by dental office. 68.8 per cent postponed the treatment of patients with suspicious symptoms. Very few dentists (21.9%) decided to shut their dental practices until the number of COVID-19 cases began to deteriorate while 68.8% preferred to provide emergency treatment.

	Yes, (%)	No, (%)	May be, (%)
Are You Afraid of Getting Infected with COVID-19 from a Patient and Co-Worker?	89%	2%	9%
Are You Anxious When Providing Treatment to a Patient who is Coughing or Suspected of being Infected with COVID-19?	79.70%	4.70%	15.60%
Do You Feel Nervous when Talking to Patients in Close Vicinity?	75%		15%
Are you afraid you might take the infection back to your family from your dental clinic?	82.80%		17.20%
Are you deferring patients with unusual signs from dental treatment?	68.80%	7.80%	23.40%
Do you wish to close or halt your dental practice till there is a drop in the number of COVID-19 cases?	Yes	No	Only emergency treatment
	21.90%	9.40%	68.80%

**Table 3:** Fear and anxiety of dentists about COVID-19 (n=263).

### Discussion

The current research documented the awareness, anxiety and fear of dentists could become infected while operating during the ongoing global pandemic. For this reason, a questionnaire based on closed-ended questions was used to collect information about the insecurity of dentists and any improvements in protocol to counter the COVID-19 virus. Questionnaire-based studies are known to acquire information about participants' interests, behaviors, opinions and experiences; however careful collecting and analysis of data is needed [9].

Psychological consequences such as anxiety and fear are common in disease outbreaks, particularly when there is a dramatic increase in the number of individuals infected and the mortality rate. Earlier researches of related infectious diseases such as Severe Acute Respiratory Syndrome (SARS) have shown multiple factors contributing to psychological distress in health professionals, including fear of infection when treating an infected patient, or infecting their own relative [10,11]. It is basically impossible to classify an individual's exposure to the virus with the extended incubation period of the coronavirus (as long as 14 days) [12]. Moreover, there is no antidote or licensed medication, which further raises fear when it comes to being sick. Health care staffs who are frequently dealing with sick people are at a greater risk of contracting infectious diseases, creating a huge psychological cost.

As it's been documented that the primary route for coronavirus distribution is through droplets and aerosols, this increases the risk of infection and further transmission of the disease among dentists and dental healthcare workers. The present research showed that a significant number of dentists are afraid their patients or co-workers may get contaminated. The reaction is close to the perception of the rest of the population, where people are frightened by the threat of a



rapidly emerging epidemic [13]. Many dentists believe any patient with unusual symptoms should be postponed for treatment. Since COVID-19 has rapidly affected such a huge number of people in nearly every country, a physician's fear of getting contaminated is rational. The extreme level of anxiety was expressed in the fact that a large proportion of dentists decided to shut down their practices, which could have major economic repercussions for dentists and dental health workers.

Furthermore, under these situations, patients who suffer from dental pain and/or follow a multi-visit treatment program might even have to experience delays with dental care. The latest COVID-19 outbreak guidelines have recommended that all non-essential dental care should be delayed, and only patients with discomfort, swelling, bleeding and trauma are urged to seek treatment [14]. There is a report published at a dental emergency department in Beijing, China, where researchers found an effect of the COVID-19 pandemic on dental care activity, which has decreased in the emergency department compared with pre-COVID-19 coverage [15].

A further real concern of dentists is that their dental procedures with infected personnel's can bring infections to their relatives. The Coronavirus can last from a few hours to a few days on different surfaces [16]. The pressure on the health sector and the expenses incurred during the treatment after being infected often imposes stress on one's mind. Health facilities all around are not nationally funded by the government and one will therefore result in a substantial financial burden.

A significant part of this approach was that most respondents were knowledgeable of the spread and transmission mode of COVID-19. Such information is important as part of infection control procedures during dental practice. A significant part of this approach was that most respondents were knowledgeable of the spread and transmission mode of COVID-19. Such knowledge is vital as part of prevention measures during dental practice. It was also reassuring that a great number of dentists were conscious of this present recommendations released by the Center for Disease Control and the WHO on cross-infection management in dental practice including questioning for travel history of patients and documenting body temperature of patients [16]. In this research, 92.2% of dentists indicated mentioning the travel history when documenting the patient's history and this was critical in a timely diagnosis that could prevent further spread of infection.

Understandably, each of these facts will provide a reasonable understanding in dental practice of possibly contaminated patients and their preventative management. While most dentists agreed that such procedures should be followed for each patient, sadly, unfortunately for every patient a significant number of responders indicated that they did not use simple cross-infection steps such as the rubber barrier. Something like a rubber dam is an efficient means of preventing cross-infection by reducing the spread of aerosols with strong patient tolerance for dental procedures [17]. Having considered the advantages, there is no reason not to use rubber dam throughout dental procedures, especially when using rotary instruments that produce a large amount of aerosols and droplets.

Rinsing with an antimicrobial mouthwash often greatly decreases the microbial load at the initiation of any dental operation [18]. In the current pandemic, this procedure is recommended but many dentists stated avoiding it. There is currently no evidence sufficient to discuss the impact on COVID 19 of widely used antimicrobial mouth-rinses. This advice may therefore be focused on the fact that gargling has been documented to reduce the distribution of the viral load by eliminating oropharyngeal protease and related viral replication [19].

Most dentists (89.1%) offered to help raise information about the disease. Any disease danger alarms to all healthcare workers as they are at greater risk of infection and it is the essence of their job to treat their patients courageously. It was noticed that in comparison to graduates, the dentists with higher qualifications (postgraduates) documented better and substantial knowledge scores. During the ZIKV and Ebola hemorrhagic fever pandemics, a number of authors have observed similar outcomes [20, 21]. Harapan et al. stated that, contrary to our findings, general practitioners had a higher level of expertise than specialist doctors [22].

Given the discomfort and distress exhibited by the dental group towards COVID-19, it is important that psychological coping mechanisms and techniques are exercised to stay calm and work effectively. The concern dentists have about getting contaminated with COVID-19 could be significantly reduced if dentists and dental healthcare staff obey the related guidelines provided by the national agencies carefully. These include the standardized cross-infection management systems along with some extra measures in situations where patients with certain unusual symptoms exist.

A few of the drawbacks of this research are that data have been collected over a brief period of time. Given the rapid impact this epidemic had on the psychology and dental health workers. It can be speculated that dentist perceptions and knowledge could change with the evolving research and potential treatment of COVID-19. Therefore the study's universal applicability is currently minimal. Because this survey was intended to reach the dentist's in Himachal state, and because of regional differences in the way English is spoken and understood, there was an inadvertent chance that the dentists may have faced the questionnaire bias when answering the questions. However, it was established during the execution of the pilot study itself that the questions were kept as objective and clear as possible in order to prevent this kind of bias. Even though current survey included respondents from various Himachal Pradesh cities, each part of the area may have variable COVID-19 knowledge, policies, and guidelines which can directly influence respondents' responses. Likewise, some regions are more impacted than others which could impact administrative, precautionary and health-care steps taken by a particular region which further can also influence the result of a survey.

## Conclusion

In contrary, Himachali dentists are aware of the COVID-19 signs, mode of transmission, prevention of infections, and interventions. However, dental practitioners across the state have high standards of expertise and practices even though they are in a state of anxiety and fear while working in their respective fields due to the COVID-19 pandemic effect on humanity. Presently COVID-19's problems across the globe are getting worse every day. Numerous dental practices have either changed their services to emergency care only according to approved guidelines, or closed down practices for an unknown period of time. In the current scenario, it is important that preference be given to dental procedures identified as emergencies by the WHO and that all dental treatments be postponed until the period when the outbreak enters decline. That would be a reasonable move in actions to mitigate further COVID-19 spread.

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