

Covid-19: Preparedness Of Dental Surgeons In Clinical Practice In India: A Cross-Sectional Study

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Introduction

Aim: This study is aimed to assess the level of knowledge, attitude and preparedness of dental surgeons in clinical practice towards COVID 19 – The Global Pandemic.

Material and Methods: An online questionnaire using Google forms was sent to a sample of dentists in April 2020. The questionnaire had 4 sections namely knowledge about the disease, screening process of the disease, infection prevention and control and how to work in clinic post covid-19 state. Filling of the forms was entirely

independent of any compulsions and was purely voluntary.

Results: A total of 248 dentists aged 24-63 years were included. Awareness about the clinical symptoms of COVID-19 was found in 94% of the dentists. The survey confirmed that knowledge about the screening process of this virus was high, with 97% correctly responding to most of the questions in this section. The knowledge regarding sanitization of the clinical setup was found only in 42.7% of the dentists however the remaining 47.3% did not know about the measures of proper sanitization. The

knowledge about how to work in clinic post covid-19 state was observed in 90.3% of dentist.

Conclusion: Dentists had limited comprehension of the extra precautionary measures of infection control and prevention that protect the dental staff and other patients from COVID-19 in dental clinics. However, with implementation of guidelines provided by Dental Council of India, as to how to work in clinics in post COVID-19 phase, dental care can be delivered to the patients in the safest possible manner.

Keywords: COVID-19, pandemic, infection control

Introduction

Corona virus disease 2019 (COVID-19) is defined as illness caused by a novel corona virus now called severe acute respiratory syndrome corona virus 2 (SARS-CoV-2; formerly called 2019-nCoV), which was first identified amid an outbreak of respiratory illness cases in Wuhan City, Hubei Province, China.¹ It was initially reported to the WHO on December 31, 2019. On January 30, 2020, the WHO declared the COVID-19 outbreak a global health emergency.^{2,3} On March 11, 2020, the WHO declared COVID-19 a global pandemic, its first such designation since declaring H1N1 influenza a pandemic in 2009.⁴

The presentation of this highly infectious disease includes the main clinical symptoms as fever, dry cough, fatigue and dyspnoea. In severe stages it is characterized by acute respiratory distress syndrome (ARDS), septic shock, metabolic acidosis, and bleeding and coagulation dysfunctions.

Human to human transmission has been reported through air borne droplets and by coming in contact with contaminated surfaces. As this virus is also found in the salivary droplets, this route of transmission increases the concern of spread of COVID-19 in the dental setting. Dentists and other healthcare professionals that perform

aerosol-generating procedures may be unknowingly providing direct care for infected but not yet diagnosed COVID-19 patients, or those considered to be suspected cases for surveillance.

The CDC advises that nonpharmaceutical interventions (NPIs) will serve as the most important response strategy in attempting to delay viral spread and to reduce disease impact.⁵ The Ministry of Health and Family Welfare has stated that more cases of COVID-19 are likely to be confirmed in India in the near future as the testing facilities will improve. They also anticipate widespread SARS-CoV-2 community spread in case the population does not follow the preventive guidelines recommended by the government.

In light of this there are certain practical guidelines recommended to dentists and dental staff by the Centre for Disease Control and Prevention (CDC), American Dental Association (ADA) and WHO. It is mandatory to be aware of these guidelines and to strictly adhere to them for the dentists as well as the patient's safety. Hence this study is aimed to assess the preparedness of dental surgeon in clinical practice in India during COVID-19 pandemic.

Materials and Methods

A structured, self-administered, closed ended questionnaire was used to assess the knowledge, attitude and preparedness of dental surgeons in clinical practice towards COVID 19 – The Global Pandemic.

An online questionnaire using Google forms was used to collect the data. A total of approximately 880 forms were circulated via WhatsApp and e-mail to dental practitioners out of which 248 responses were received. Filling of the forms was entirely independent of any compulsions and was purely voluntary.

The questionnaire had a total of 23 questions divided in 4 sections. Section A consisted of 3 questions regarding the knowledge about the disease. Section B had 8 questions

related to the screening process of the disease. There were 7 questions in section C regarding infection prevention and control and section D dealt with 5 questions on how to work in clinic post covid-19 state (as per guidelines given by Dental Council of India).

Dental practitioners working in hospitals or running private dental clinics were included in the study and they were informed about the anonymous processing of the questionnaire which was prepared to maintain the confidentiality and privacy of all the information collected. This cross-sectional survey was conducted over a 1-month period of April 2020. Ethical approval for the study was obtained from the Institutional Review Board.

Results

Of the 248 dental practitioners who participated, the 49.2% of respondents were male and 50.8% were female (Figure 1) within the age range of 24-63 years. Out of this figure, 34.7% are practicing. (Fig 2.)

The average score attained by the respondents was 170 out of 230 as shown in Figure 3.

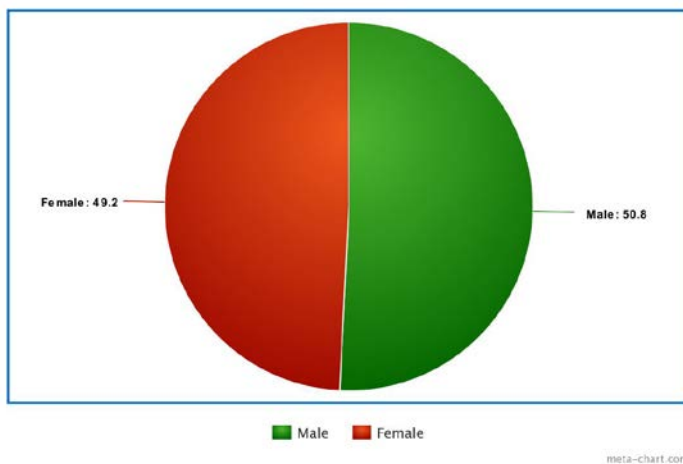


Fig. 1

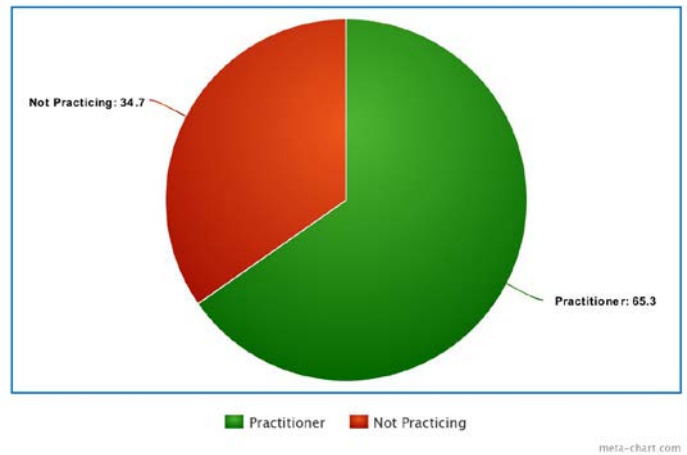


Fig. 2

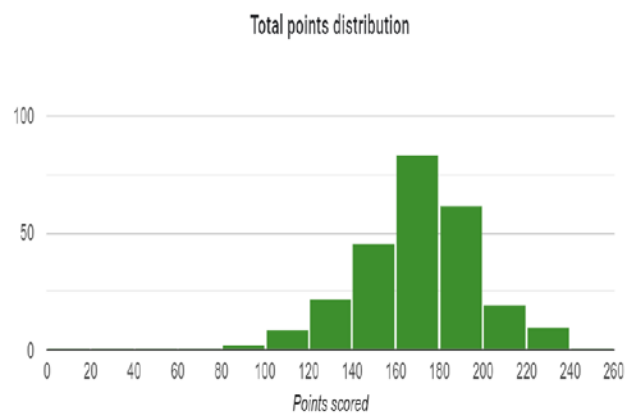


Fig. 3

About the disease

Majority of the dental practitioners (74.6%) were aware of the causative agent of COVID-19 while only 39.1% of the dentists correctly knew the incubation period of the virus. Awareness regarding the main clinical symptoms of COVID-19 was found to be among 233 dentists which formed 94% of the study sample.

Upon analysis it was observed that 79.4% of dentists scored more than 50% in this section of knowledge about the disease as shown in Figure 4.

Screening process

94.8% of the dentists correctly responded to the question regarding the indications of medical referral. However, the definition of close contact was known to only 68.1%. The awareness regarding the most reliable currently

available test (RT-PCR) for determining viral load was found to be among 193 responders whereas the remaining responders were not aware.

The meaning of triage was known to 88.3% of the respondents and 96.8% of them were well aware of the complications of this infection.

The knowledge about the screening process of this virus was found to be high with 97% of dentists scoring more than 50% in this section. (Figure 5)

Infection Prevention & Control

86.7% of the dental practitioners were aware about the recommended personal protection for non-aerosol/aerosol generating areas but to our surprise only 16.9% of the dentists knew the correct hand hygiene method for visibly soiled hands.

The methods for prevention of COVID-19 infection such as hand hygiene, respiratory hygiene and social distancing were known to 96.8% of the dentists while 2.8% of the dentists responded that only social distancing would provide adequate protection against the transmission.

The knowledge regarding the sanitization of environment in the clinical setup was found to be only in 42.7% of the dentists however the remaining 47.3% of the dentists did not know about the measures of proper sanitization.

A total of 94.3% of the dentists scored more than 50% in this section regarding infection prevention and control. (figure 6)

Working in Clinic post COVID phase

75.8% of the dentists were aware about the 3 As of primary care dental triage while only 66.1% of the dentists believe that extraoral scrubbing of the patient is necessary prior to any dental procedure.

A significant percentage of dentists (87.5%) believed that improved ventilation in clinic, proper scheduling of patients and four handed dentistry together comprise methods of preventing transmission of infection in the

clinical setup. 98.4% of the dental practitioners were aware of the necessary precautions to be taken after arriving home from their clinics.

Figure 7 clearly depicts that a score of more than 50% was observed in 90.3% of the dentists regarding the knowledge about how to work in clinic post covid-19 state (as per Dental Council of India guidelines).

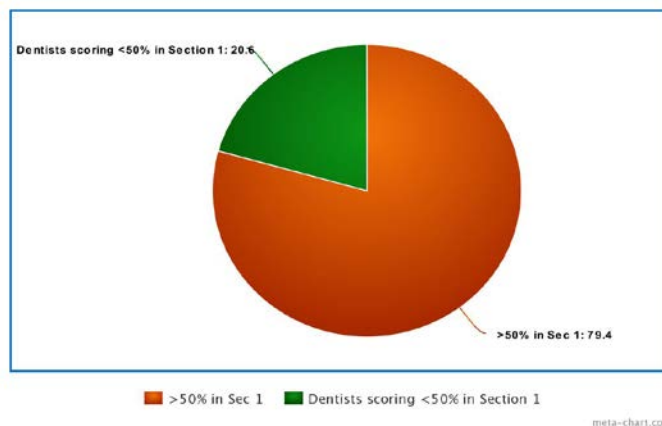


Fig. 4

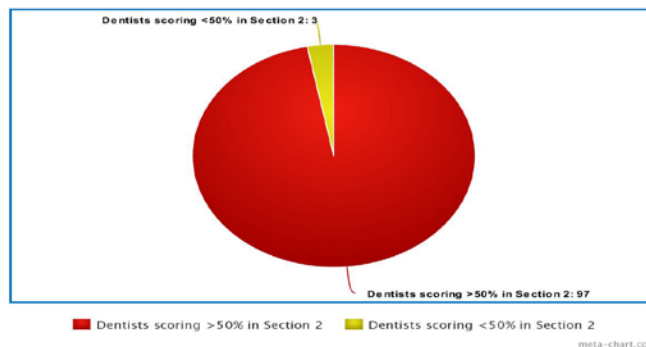


Fig. 5

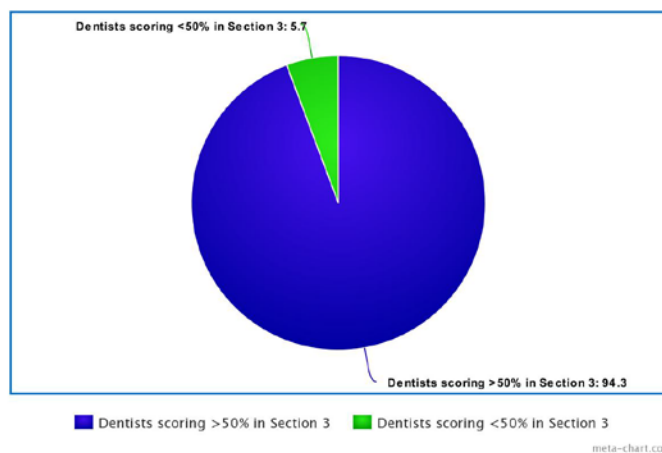


Fig. 6

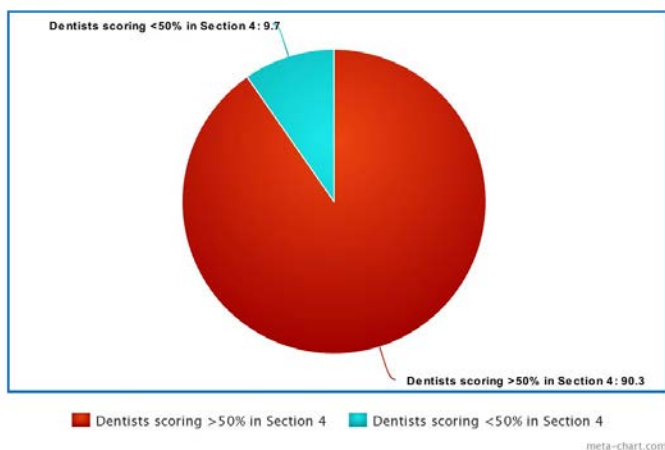


Fig: 7

Discussion

This initial outbreak in China in December 2019, the COVID-19 disease has had a serious effect worldwide. According to the WHO situation update on March 23, 2020, more than 400 individuals have been confirmed positive in India which has now reached up to a value of 182,143 on May 31st, 2020, and out of this, around 5,164 peoples have lost their life.⁶ The identification and isolation of a suspected case is the most important step in curbing the spread of COVID-19.

In our study, a total of 248 dental practitioners participated out of 880 invited dentists. Their age ranged from 24-63 years with including their years of dental practice almost ranged from 1-30 years.

248 out of 880 is a big difference, only 28.18%% of the participants had given response out of which 125 of the responders were female and 123 were male, this can be considered as a drawback of online surveys. There could be many reasons for this, like few of them do not check their emails on a regular basis, a few only check if consider it professional; participation rates varied little by practice/practitioner characteristic. Participants show least interest to take part in such type of surveys may be due to lack of time or sometimes do not consider it important to respond and if sometimes the participant gave response but did not feel important to submit.⁷

185 of the responders were aware about the causative agent of Covid-19 i.e. SARS-CoV 2 similar to a study done by Modi et al⁸, along with the definition of “close contact”. According to the US CDC, "close contact" is defined as: “being within approximately 6 feet (2 meters) of a COVID-19 case for a prolonged period of time or having direct contact with the secretions of COVID-19 case.

When asked about the incubation period of the disease, 97 dentists said its 6-14 days, 93 said 10-14 days, 56 said 14-21 days and 2 dentists said an incubation period of 2-4 days which is almost similar to a study done by Khader et al.⁹

Droplet infection, contaminated contact spread and airborne spread are the mode of transmission, around 206 responders has marked it correct followed by the symptoms of the disease i.e. fever, fatigue, dry cough and dyspnea which is similar to a study done by Bao-Liang Zhong et al.¹⁰

Correct hand hygiene practices play a crucial role in preventing the spread of infection. “Five Moments of hand hygiene” given by WHO is a compulsory step to be followed by all the healthcare providers for hand hygiene.¹¹ The CDC recommends alcohol-based hand rub (ABHR) in almost every situations.¹² However, the question in our survey was focused on the recommended hand hygiene technique for visibly soiled hands which is handwashing with soap and water for at least 20 seconds with the whole process lasting for up to 40-60 seconds.¹²

Awareness of the use of personal protective equipment (PPE) for suspected/confirmed COVID-19 cases was high among all groups. The CDC has provided Interim Infection Prevention and Control Recommendations for Patients with suspected or confirmed coronavirus disease 2019 (COVID-19) in Healthcare Settings for PPE.¹³ A Facemask/ N95 respirator should be used when entering

into the patient room. The N95 respirator is preferred over face mask when performing or presents for aerosol-generating procedures. Proper disposal of the used masks and hand hygiene should be performed. A clean gown with goggles or disposable face shield and clean non-sterile gloves are recommended upon entry to the patient room area.

According to a total of 235 dentists, medical referral is required for all those who has been in close contact with infected person, shows active symptoms of disease and has a recent travel history which is similar to a study done by Bao-Liang Zhong.¹⁰ Infra-red thermometers are reliable and give accurate reading if handled properly, and 149 dentists are in favour of this.

According to 52 dentists, viral load should be tested by nasopharyngeal swab, 31 dentists says oropharyngeal swab, 1 responded it as through tracheal aspiration and 164 dentists are in favour of all the three with RT PCR test as the determining tool for viral load.

Besides being aware of the required PPE, it is also important to know the correct sequence of “donning and doffing” of PPE. The CDC sequence of donning a face mask is as follows: securing ties or elastic bands at the middle of head and neck, fitting the flexible band to the nose bridge, fit snug to face and below the chin, fit-check respirator.¹⁴

Around 235 of the respondents were in the opinion that the use of a facemask/respirator is not essential or recommended for people who are well and not in contact with a suspected or infected COVID-19 patient.

Use of 3% hydrogen peroxide as fumigator and 1% sodium hypochlorite as surface disinfection is a must thing to be done as routine work for the surfaces which is in contact with known or suspected patients and this has been accepted by 106 dentists.

2 week isolation for infected person is an effective way to lower down the risk of disease and is accepted by 222 dentists followed by recommended preventions for transmission i.e. social distancing, hand hygiene and cough hygiene which is accepted by all.

Primary care dental triage should focus on the provision of the three As: Advice, Analgesia and Antimicrobials which was responded by 188 dentists. According to 61 dentists, aerosol during dental procedure can be minimized by using rubber dam and high volume saliva ejectors whereas a total of 160 dentists say aerosol procedure should be stopped and micromotor and carbide bur should be used.

To prevent our self and the operatory from getting infected, keep less appointments and well ventilated chambers where disinfection has to be done on a daily basis and proper hand washing / sanitization should be strictly followed by the clinicians as well as by the patients before and after any dental procedure and a quick bath on reaching home.

Conclusion

Most of the dentists are aware of COVID -19 infection, its symptoms, mode of transmission, the importance of social distancing, screening methods in dental clinics. However, dentists have limited comprehension regarding precautionary measures that protects themselves, their staff and other patients from COVID-19. Guidelines should be released for all registered dentists during COVID -19 pandemic, to make sure that all dentists are well known and aware of the best practices and recommended disease management approaches.

This study shows that though there is a maximum number of dentists who are aware of all the precautionary protocols to be followed in this pandemic but still there is a strong need to implement periodic educational interventions and training programs on infection control measures for COVID-19. Conducting periodic webinars

for educational intervention for all the dentists whether students or academicians including non-clinical and administrative staff, could be a useful and safe tool to create more awareness.

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