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Knowledge, attitude, Practice among dentists regarding covid-19 and infection control in Dakshina Kannada: A cross sectional study

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Abstract

Aim: This study aimed to assess the level of knowledge, attitude, practice regarding covid-19 and infection control among dentists practicing in Dakshina Kannada.

Methods: The study population consisted of dentists who work in private clinics, hospitals, institutions and health centers in Dakshina Kannada. An online questionnaire was sent in the form of google forms via various social platforms. The questionnaire comprised series of questions to know the level of knowledge, attitude and practice of dentists towards Covid-19 and infection control.

Results: In This study total of 97 dentists participated, majority of them had good knowledge, optimistic attitude towards Covid 19 and its infection control protocol. The majority of dentists were aware of corona virus, symptoms and ways of how to identify patients at risk of having COVID-19, were able to correctly report known modes of

transmission though their knowledge regarding diagnostic test were comparatively low. They were aware of measures to be taken to prevent COVID-19 transmission. 78.4% dentist practised only emergency dental treatment, 99% preferred taking history of patients during Covid-19 outbreak, as this would help dentists to make decision regarding initiating treatment.

Conclusions: Dentists were aware of COVID-19 symptoms, mode of transmission, infection control and measures in dental clinic. National and international guidelines should be sent by the regional and national dental associations to all registered dentists during crisis, including this COVID -19 pandemic, to make sure that dentists are well informed and aware of the best practices and recommended disease management approaches.

Keywords: Covid-19, Dentists, surgical mask, infection control

Introduction

The novel corona virus, being emerged in Wuhan, China, at the end of 2019 ^[1] had posed global health challenge and was declared as pandemic by WHO on 11 march 2020 ^[2, 3]. Being zoonotic, it appears that SARS-COV-2 outbreak started with animal – human transmission, followed by human – human spread ^[4]. Corona virus transmits to the people in close contact with symptomatic and asymptomatic COVID-19 patients. Young children, people aged 65 years or older, women who are pregnant are at higher risk of SARS-CoV-2 infection ^[1]. Its clinical symptoms include fever, cough, and acute respiratory disease, with severe cases leading to pneumonia, kidney failure, and even death ^[2, 5].

Dentistry is the profession where the dentist are in close proximity to the patients oral cavity, are at high risk of contagion due to their exposure to saliva, blood, and aerosol/droplet production during dental procedures ^[6]. To prevent this there are practical guidelines recommended to dentists and dental staff by the Center for Disease Control and Prevention (CDC), the American Dental Association (ADA) and the World Health Organization (WHO) to control the spread of COVID-19 ^[7, 8, 9]. In addition, some guidelines and reports have provided useful information about the signs and symptoms of the disease, ways of transmission, and mechanisms, to increase dentists' knowledge and prevention practices so they could contribute – at a population level – in disease control and prevention ^[7, 10]. This study aims to assess the knowledge, attitude and practice among dental professionals regarding COVID 19 and infection control.

Methodology

This online questionnaire-based survey was conducted after the study was approved by Institutional ethical committee.

The target group were the dentists practicing in the private and public sectors in Dakshina Kannada, Karnataka, regardless of their specialities and who agreed to participate. The required sample size was calculated to be 97.

Based on previous studies, a self-administered questionnaire was developed in English (Appendix) to assess the dentists' knowledge, attitude and practice regarding COVID 19 and infection control. The questionnaire comprise a series of questions about dentists' demographic characteristics, their knowledge, attitude regarding the symptoms of the disease, mode of transmission of the COVID-19, and infection control measures for preventing COVID-19, their practice during COVID-19 outbreak.

The online questionnaire survey was conducted for 97 dentists in Dakshina Kannada. Study was given in the form of Google form questionnaire. The questionnaire forms were distributed to the dental practitioner's in Dakshina Kannada, through social media platforms (Whats App, e-mail). The study population included dentists who work in private clinics, government sectors, hospitals, and health care centers in Dakshina Kannada. Undergraduate students were excluded from the study.

Data Analysis

Data were analysed using the Statistical Package for Social Sciences (SPSS). Descriptive statistical analysis was used to describe items included in the survey. Means and standard deviations were used to describe the continuous variables and percentages were used to describe the categorical data.

Results

97 responses to online -based questionnaires were received .Our results showed that out of 97 responses,39(40.2%) respondents were male,58(59.8%) were female.70.1%of

participants were less than 30 years of age and 21.6% were aged between 30-50years,8.2% were above 50years age. Out of total respondents 71.1% participants had 5years of experience, 10.3% had 5-10years of experience, 18.6%had more than 10years of clinical experience (Table 1).

Table 1

Demographic Characteristics		
1. Gender	n	%
a) Male	39	40.2%
b) Female	58	59.8%
2. Age Group		
a) <30 Years	68	70.1%
b) 30-50 Years	21	21.6%
c) >50years	8	8.2%
3. Number of years of experience		
a) <5years	69	71.1%
b) 5-10years	18	10.3%
c) >10years	10	18.6%

Participants' knowledge regarding Covid-19 And Infection Control

Figure 1 shows that 89.7% respondents knew that corona virus is a RNA virus, 99% respondents answered that virus transmitted through respiratory droplets,95.9% knew that incubation period of COVID-19 can range from 1-14 days, 76.3% respondents knew that corona virus is diagnosed by RT PCR, 67% respondents knew that safest distance to be maintained from a sick person was atleast 6 feet,97.9%respondents knew that hand hygiene,social distancing, maintaining good health all are equally important in reducing the transmissions of COVID -19,94.8% respondents knew that personal protection kit includes Respirators(N95), Goggles, Gloves, Gown.(Fig1).

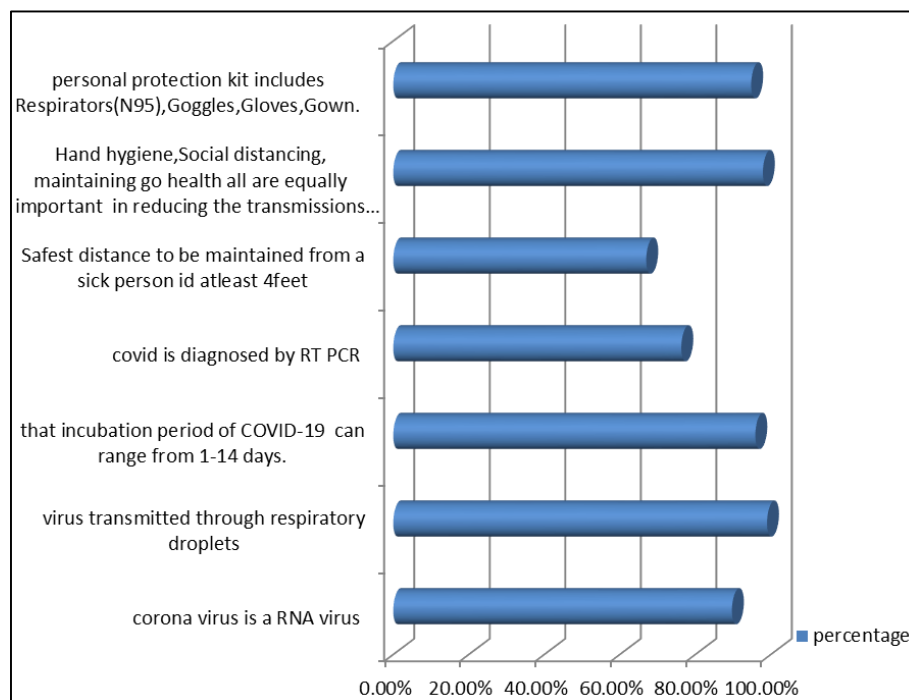


Fig 1: Participants' knowledge regarding Covid-19 and Infection Control

Participants' attitude regarding covid-19 and infection control

99% of respondents agreed that special care is needed while treating patients infected with COVID-19,99% respondents

agreed that practicing dentists are at high risk of getting infected by COVID-19, 76.35 respondents agreed that to some extent surgical mask can prevent the transmission of COVID-19,13.4%respondents agreed that To great extent

surgical mask can prevent the transmission of COVID-19, 9.3% disagreed to it, 99% of respondents believed that educating patients regarding COVID-19 outbreak and its prevention is necessary.

Participants' Practice during Covid-19 outbreak.

Majority of dental respondents practiced Emergency dental treatment only (78.4%), 14.4% respondents conducted Dental

teleconsultation, 5.2% respondents did Treatments not producing aerosol, 2.1% respondents practiced all kind of treatments. 74.2% of respondents preferred using Surgical mask, Respirators (N95), PPE. 6.2% of respondents preferred using only surgical mask. 99% respondents took regular history before treating any patient. (Table: 2)

Table 2: Participants' Practice during Covid-19 outbreak

Questions	Emergency dental treatment only	Dental teleconsultation	Treatments not producing aerosol	All treatments
1. What kind of treatment procedure do you follow in your clinic during COVID-19 pandemic?	78.4%	14.4%	5.2%	2.1%
	Surgical mask	Respirators (N95)	PPE	All of the above
2. What kind of personal protection aid do you prefer in your practice?	6.2%	6.2%	13.4%	74.2%
		Have you had any contact with known COVID-19 patient?	Have you had fever in last 14 days?	All of the above
3. What question you will prefer to ask the patient when he/she enters your clinic.		-	1%	99%

Discussion

This survey provides an insight on level of knowledge, attitude, practice of dentists in Dakshina Kannada regarding covid-19 and its infection control during the time of Covid-19 outbreak. In our study strong association of knowledge significantly with positive attitude and practice among dentists was found. Females were predominant respondents in this study which might be explained that the number of female dentists in Dakshina Kannada are higher than the number of male dentists. Maximum respondents were less than 30 years of age (70.1%), with 5 years of experience (71.1%).

In this study majority of participants had good knowledge regarding corona virus and its infection control. 89.7% dentists responded that Corona virus is RNA VIRUS [11, 12]. It is an enveloped positive-stranded virus with a diameter of 60–140 nm, spherical or elliptical in shape, and pleomorphic that shows a crown-like appearance under an electron microscope [13]. Majority of respondents were aware of mechanism of virus transmission. Corona virus being contagious is transmitted mainly through respiratory droplets [14]. Coronaviruses which make up a large family of viruses, being zoonotic origin, the outbreak started with a single animal-to-human transmission, followed by sustained human-to-human spread [1, 15]. Human-to-human aerosol transmission is undoubtedly the main source of contagion, which happens mainly through contaminated droplets, hands or surfaces. Virus particles, which are present in secretions from an infected person's respiratory system, infect others through direct contact with mucous membranes [16, 17, 18]. Incubation period of COVID-19 ranges from 2-14 days [19]. While dentists in this study varied in their knowledge about the incubation period of the disease, it is yet essential to know the right incubation period because of its role in determining the safe period to treat suspected patients [20]. Social distancing serves an effective measure to reduce the spread of virus, the droplets produced by coughing, sneezing have a certain transmission distance, by maintaining these distance, spread of disease can be reduced [21]. Safest distance to be maintained from a sick person is recommended to be of at least 1 meter up to 2 meters (approx. 6 ft.) [14] between individuals

staying in the same room or outside. In our study varying results were obtained, 67% participants agreed that maintenance of 6ft distance is necessary in preventing transmission of virus. Early diagnosis of SARS-CoV -2 is necessary in order to provide required treatment to the patients and prevent spread of infection. COVID-19 is diagnosed by RT-PCR, [17] it has become the method of choice for diagnosis of Covid 19. This test uses nasal swab, tracheal aspirate or bronchoalveolar lavage (BAL) specimens. The preferred method for diagnosis is the collection of upper respiratory samples via nasopharyngeal and oropharyngeal swabs. In our study 76.3% participants knew about diagnostic test used to detect covid 19. COVID -19 Infection transmission rate is relatively high, [22] this can be reduced by maintaining proper hand hygiene, face mask, good health. Hand hygiene has been considered the most important element of self-defense and a critical factor of virus transmission between patients [23, 24]. Disease Control and Prevention (CDC) centers recommend regular and thorough washing of hands with soap and water for at least 20 seconds from the fingers to the wrist can prevent virus transmission [22, 25]. Wearing Face mask reduces the risk of transmission of airborne infection in healthy individuals, WHO advises wearing protective masks in individuals with symptoms of respiratory tract infections, it also protects all patients against uncontrolled touching of their face with their own fingers. During dental practices, dentists come in close contact with patients, the spread of oral microorganisms mostly radiating toward the dentist's face, particularly in the inner part of the eyes and around the nose occurs, which are important areas for infection transmission, therefore using Personal protection equipment becomes an out most important protocol to be followed, it includes: gloves, masks, protective outerwear, protective surgical glasses, and shields [14].

The vast majority of the participants in this study held an optimistic attitude towards the COVID-19 and infection control. The attitude of dentists regarding requirement of special care while treating patients infected with COVID-19 were positive as majority agreed on to this point, as corona virus is highly infectious. 99% participants' agreed that

dentist are at highest risk, ^[27] reason could be because they work in close proximity to oral cavity of patients, coming in contact with saliva, blood, respiratory droplets can cause transmission of disease ^[14]. Wearing a medical mask is one of the preventive measures to limit spread of certain respiratory diseases, a facemask helps block respiratory secretions produced by the wearer from contaminating other persons and surfaces, 76.35% Dentists agreed that only to some extent surgical mask can prevent transmission of covid 19 reason could that be surgical mask is loose-fitting, it provides the wearer protection against large droplets, splashes, or sprays of bodily fluids but it does not provide the wearer with a reliable level of protection from inhaling smaller airborne particles. Educating patients regarding symptoms of corona virus, measures to be taken to prevent transmission of virus, treatment available for corona virus, is crucial in order to win the battle against corona virus.

American Dental Association recommended to perform only emergency dental treatment, in high Negative-pressure treatment rooms/ airborne infection isolation rooms (AIIRs)²⁶. In our study 78.4% dentists practiced Emergency dental treatment only during this COVID-19 pandemic, 14.4% dentists preferred Dental teleconsultation, remote facilitating of dental care, guidance, education or treatment via use of information technology rather than face-to-face contact with patient, with common aim of prevention of disease transmission ^[27]. 99% participants preferred taking history of travelling, presence of fever in last 14 days, any contact with known covid positive patients, as this would help dentists to make decision regarding initiating treatment ^[14]. 74.2% respondents preferred using surgical masks, respirators, PPE during their dental practice ^[14].

Our results showed that the ability to identify patients with the disease was associated with higher odds of adopting the recommended management practices. This agrees with a recent study which investigated the factors associated with dental students' management of patients with infectious disease and concluded that better-informed professionals show better management of patients ^[28]. Despite the findings introduced here, it is important to stress that this survey had limitations, as it had short period of data collection, self-reporting should always be considered with caution since under or overestimation by the participants is likely to occur.

Conclusion

This study reflects the good knowledge, favorable attitude and practice of dental practitioners toward COVID-19. Dentists practicing in Dakshina Kannada were aware of COVID-19 symptoms, mode of transmission, infection control and measures in dental clinic. National and international guidelines should be sent by the regional and national dental associations to all registered dentists during crisis, including this COVID -19 pandemic, to make sure that dentist are well informed and aware of the best practices and recommended disease management approaches.

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