

Original Research Article

Knowledge and Practice of Dentists Towards Coronavirus Disease (COVID-19): A Cross-Sectional SurveySony Saraswati¹, Sweta^{2*}, Smita³, Vikas Kumar Agrawal⁴, Devleena Bhowmick⁵, Shivam Yadav⁶¹Senior Resident, Department of Dentistry, Sri Krishna Medical College & Hospital, Muzaffarpur, Bihar, India²Department of Dentistry, Sri Krishna Medical College & Hospital, Muzaffarpur, Bihar, India³Consultant Endodontist, Nalanda, Bihar, India⁴Private Practitioner, Muzaffarpur, Bihar, India⁵Senior Lecturer, Department of Oral Medicine & Radiology, PDM Dental College & Research Institute, Bahadurgarh, Jhajjar, Haryana, India⁶Reader, Department of Periodontics, Sardar Patel Post Graduate Institute of Dental & Medical Sciences, Lucknow, UP, India

Received: 13-12-2020 / Revised: 26-01-2021 / Accepted: 22-02-2021

Abstract

Background: Coronavirus Disease (COVID-19) epidemic is a public health emergency of international concern. Dentists are exposed to the enormous risk of COVID-19 infection during this epidemic. This study aims to assess the knowledge and practice of dentists toward the COVID-19 epidemic in India. **Methods:** We conducted an online survey using the snowball-sampling technique and a sample of 1000 Dentists. Information on socio-demographic data, knowledge, practice, and additional information required concerning COVID-19 were collected. **Results:** Our results showed that the majority of the Indian dentists had good knowledge (94%), and nearly half of the respondents had a good practice (58.7%) regarding COVID-19. The most common information source was the World Health Organization (77%). **Conclusion:** Indian dentists revealed good knowledge regarding COVID-19. However, dentists had limited comprehension of the extra precautionary measures that protect the dental staff and patients from this virus. Our findings have important implications for the development of strategies suitable for improving the level of practice among dentists and enhance prevention programs.

Keywords: Knowledge, Practice, Dentists, Coronavirus Disease, COVID-19

This is an Open Access article that uses a fund-ing model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Coronavirus is primarily transmitted during close contact from human to human through respiratory droplets. It is transmitted directly from person to person when a COVID-19 case coughs or exhales producing droplets that reach the nose, mouth, or eyes of another person. Other people become infected with the virus by touching fomites, then touching their face. The risk of cross-infection between dentists and patients constitute major concerns in dental clinics[1,2]. Treatment procedures which involve the use of rotary dental and surgical instruments such as handpieces or ultrasonic scalers and air-water syringes and others are a direct route for virus spread. Therefore, the standards protective measures in daily dental work are not effective enough to prevent the potential spread of coronavirus especially when a large number of droplets and aerosols are emitted from asymptomatic cases. Thus, strict infection control protocols in dental settings are urgently needed in countries affected by COVID-19[3-5]. To ensure a safe working environment and to prevent transmission of COVID-19 in dental practice, the Centers of Disease Control and Prevention (CDC) and the WHO developed guidelines, which mainly included standard precaution to control the spread of COVID-19. India is taking part in the global fight against the COVID-19 pandemic. Although there were no reported cases of coronavirus transmission in a dental setting in India, dentists must be

constantly aware of threats that challenge their current practice. Therefore, an assessment of their knowledge is important to identify existing gaps in infection control practice.

Aim and Objectives

Our aim in this study is to assess the knowledge and practice of dentists toward COVID-19 epidemic in India and to provide effective recommendations for dental practitioners.

Methods

We conducted an online cross-sectional survey using the snowball-sampling technique. As the Indian Government recommended the public to minimize face-to-face interaction and isolate themselves at home, potential respondents were invited online to participate. A link to Google form was sent to the participants including a brief introduction on the background, the objective of study, voluntary nature of participation, declarations of confidentiality and anonymity, and instructions for filling in the questionnaire[1]. We invited all Indian dentists, working in private clinics, medical centres, or hospitals to participate in the study. Any paramedical staff and dental students were not included in this survey. The sample size was calculated using snowball sampling. The questionnaire of the survey was developed by the authors after reviewing the relevant published literature and the most recent available information on COVID-19 from the international guidelines. Descriptive statistics were reported using means and standard deviations (SD) for continuous variables and frequency with percentages for categorical variables.

Results

The study included 1000 dentists working in private clinics, medical centers, or hospitals with a mean experience of 11.3 ± 8.1 years.

*Correspondence

Dr.Sweta

Senior Resident, Department of Dentistry, Sri Krishna Medical College & Hospital, Muzaffarpur, Bihar, India.

E-mail : sasysweet@gmail.com

Their mean age was 36.92 ± 9.2 years ranging from 25 to 60 years. There was (59%) male Dentist and 41% female Dentists. By designation, more than half of the dentists (61.2%) were specialists. The majority of the dentists reported that they didn't get any training on COVID-19 (95 %). Table 1 describes the dentists' answers regarding COVID-19 knowledge. Out of the 1000 dentists, the majority (94 %) had good knowledge. The mean total knowledge

score was 15.56 ± 1.09 . The most common information source was the World Health Organization (77%). Our results showed that the majority of the Indian dentists had good knowledge (94%), and nearly half of the respondents had a good practice (58.7%) regarding COVID-19.

Table 1: Dentists' knowledge toward COVID-19 (N = 1000)

Items	Response		
	Correct n (%)	Wrong n (%)	Don't know n (%)
The incubation period of Coronavirus is 1–21 days	35	62	3
The main symptoms of Corona are fever > 38 °C, cough, sore throat, runny nose and shortness of breath	94	5	1
Corona virus does not infect children	88.3	6.4	5.3
Covid-19 can be prevented by administration of a vaccine	95.3	1.1	3.6
Covid-19 is transmitted through direct contact with respiratory tract secretions	86.0	13.1	0.8
Covid-19 can persist on surfaces for a few hours or up to several days	91.1	7.3	1.7
The disease cannot be transmitted from asymptomatic patients	88.3	9.2	2.5
The use of Personal protective equipment (including masks, gloves, gowns and goggles or face shields) is recommended to protect skin and mucosa from (potentially) infected blood or secretions	96.4	1.4	2.2
Hand hygiene has been considered the most critical measure for reducing the risk of transmitting of Coronavirus to patients	98.9	0.8	0.3
All surfaces contaminated by the patients with Covid-19 infection should be cleaned with diluted (5%) bleaching solution	35.2	50.8	14.0
Dentists should take strict personal protection measures and avoid or minimize operations that can produce droplets or aerosols	98.1	1.1	0.8
PPE donning sequence: (1) gown (2) mask (3) gloves	64.8	23.2	12.0
PPE removal sequence: (1) gloves (2) gown (3) mask	38.5	47.2	14.2

Discussion

To the best of our knowledge, this is the first cross-sectional survey conducted to assess the knowledge and practice of dentists toward COVID-19 in India. Our results showed that the majority of the Indian dentists had good knowledge while approximately half of the respondents had poor practice regarding COVID-19. The main common information source was the World Health Organization. The study also highlighted the fear of getting infected while working during the current viral outbreak [6-9]. Moreover, our results showed that specialist dentists who completed training on COVID-19 with a high level of knowledge had better practice. In the present study, nearly half of the respondents (60 %) followed precautionary measures. The poor practice of our dentists was observed in terms of providing patients with alcoholic disinfectants and masks in the waiting rooms (66 %). Besides, there was a lack of disinfecting surfaces and fomites every 2 h with the appropriate sterilizer (62 %). These gaps lead to a further viral spread in the community. The Indian order of dentists should release the appropriate recommendations to all registered dentists during the crisis to make sure that they are well informed and aware of the appropriate practice. Moreover, dentists need to adhere to the practice guidelines in order to provide safe environment to themselves and their patients. For example the PPE may create an efficient block against most potential dangers of aerosols produced from the operative area, the protective glasses or face shield should as well as a higher level of respiratory protection should be considered by the oral surgeon and the dental team to confront the novel virus. After each patient's visit, surfaces should disinfect inert surfaces using chemicals confirmed against COVID-19 and keep a dry atmosphere to mitigate the 2019-nCoV spread. It was observed that the specialist dentists reported better practice compared to the general practitioner. Kamate et al [10] reported in his study that good practice was associated with qualifications. The possible explanation might be that specialist dentists perform research that updates the dentist's knowledge based on recent guidelines and evidence-based practice. The current study

found that the majority of dentists were afraid to get infected from patients (89%) or their colleagues (88%). The response is similar to a study conducted among dentists from various countries, where they reported their fear of getting infected while working during the current viral outbreak. Moreover, we found that fear of treating COVID-19 patients is associated with poor practice. Hence, psychological interventions to improve dentists' mental health and to enhance confidence in the dentists' ability to treat patients and return to their practice during the COVID-19 epidemic are needed in India.¹¹⁻¹³ Our study had some limitations. Due to the lockdown, we adopted the snowball sampling strategy which was not based on a random selection of the sample, and the findings did not represent all the Indian dentists and therefore our findings cannot be generalized. Also, the cross-sectional nature of the study can only demonstrate association and not a cause-effect relationship. Despite the limitations identified, we believe that the study addresses a major health problem that challenges dentists in India.

Conclusion

Dental professionals, by nature, are at high risk of exposure to infectious diseases. The emergence of COVID-19 has brought new challenges and responsibilities to dentists. Indian dentists revealed good knowledge regarding COVID-19. However, dentists had limited comprehension of the extra precautionary measures that protect the dental staff and patients from this virus. Our findings have important implications for the development of strategies suitable for improving the level of practice among dentists and enhance prevention programs. The implementation of special precautions can prevent disease spread from patients and serve as a guide for managing other respiratory diseases in the future.

References

1. Nasser Z, Fares Y, Daoud R *et al.* Assessment of knowledge and practice of dentists towards Coronavirus Disease (COVID-19): a cross-sectional survey from India. BMC Oral Health. 2020; **20**:281.

2. Wang C, Horby PW, Hayden FG, Gao GF. A novel coronavirus outbreak of global health concern. *Lancet*. 2020;395(10223):470–3.
3. World Health Organization (WHO). Novel Coronavirus (2019-nCoV): situation report, Geneva: World Health Organization, 2020.
4. To KK, Tsang OT, Yip CC, Chan KH, Wu TC, Chan JM et al. Consistent detection of 2019 novel coronavirus in Saliva. *Clin Infect Dis*. 2020; 71(15):841-3.
5. Harrel SK, Molinari J. Aerosols and splatter in dentistry: a brief review of the literature and infection control implications. *J Am Dent Assoc*. 2004;135(4):429–37.
6. Cleveland JL, Gray SK, Harte JA, Robison VA, Moorman AC, Gooch BF. Transmission of blood-borne pathogens in US dental health care settings. *J Am Dent Assoc*. 2016;147(9):729–38.
7. Centers for Disease Control and Prevention (CDC). CDC releases interim reopening guidance for dental settings, 2020.
8. Wax RS, Christian MD. Practical recommendations for critical care and anesthesiology teams caring for novel coronavirus (2019-nCoV) patients. *Can J Anesth*. 2020;67(5):568–76.
9. DaudaGoni M, Hasan H, Naing NN, Wan-Arfah N, ZeinyDeris Z, Nor Arifin W et al. Assessment of knowledge, attitude and practice towards prevention of respiratory tract infections among Hajj and Umrah Pilgrims from Malaysia in 2018. *Int J Environ Res Public Health*. 2019;16(22):4569.
10. Kamate SK, Sharma S, Thakar S, Srivastava D, Sengupta K, Hadi AJ et al. Assessing knowledge, attitudes and practices of dental practitioners regarding the COVID-19 pandemic: a multinational study. *Dent Med Probl*. 2020; 57(1):11-7.
11. Fung IC, Cairncross S. Effectiveness of handwashing in preventing SARS: a review. *Trop Med Int Health*. 2006;11(11):1749–58.
12. Jefferson T, Foxlee R, Del Mar C, Dooley L, Ferroni E, Hewak B et al. Interventions for the interruption or reduction of the spread of respiratory viruses. *Cochrane Database Syst Rev*, 2007; 4.
13. Wood A, Payne D. The action of three antiseptics/disinfectants against enveloped and non-enveloped viruses. *J Hosp Infect*. 1998; 38(4):283–95.

Conflict of Interest: Nil

Source of support: Nil