

## Original Research Article

# Assessment of awareness level among dentist regarding COVID-19 dental practice in Jammu city: a cross-sectional study

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**Received:** 10 December 2021

**Revised:** 21 December 2021

**Accepted:** 23 December 2021

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## ABSTRACT

**Background:** Dentistry being one of the most exposed professions to COVID-19 infection, it has become necessary to establish a clinical protocol that should be applied in the working environment, to prevent the spread of virus.

**Methods:** This Cross-sectional study was carried out on 393 practicing dentist of Jammu city. A Structured questionnaire was sent via internet to all the participants. The questionnaire consisted of demographic data (6 questions) and questions evaluating awareness (15 questions) of Dentist during COVID-19 Pandemic. The total awareness score was calculated based on subject's responses. Descriptive statistics, independent t- test and one- way ANNOVA was used for statistical analysis.

**Results:** Mean age of the participants was 32±7.03 years. Out of 393 participants 329 (83.7%) exhibited high level of knowledge. Based on educational qualification, those dental practitioner with MDS exhibited more mean knowledge score than BDS practitioner (14.428±0.8091 versus 12.641±2.688, p=0.000)

**Conclusions:** Most of the study subjects had adequate knowledge regarding COVID- 19 dental practices. However, all the study participants were keen to attend educational programs/webinars to further upgrade their knowledge regarding COVID-19 dental practices.

**Keywords:** COVID-19, Dental practices, Knowledge, Questionnaire, Coronavirus

## INTRODUCTION

The WHO on March 11, 2020, has declared the novel coronavirus (COVID-19) outbreak a global pandemic.<sup>1</sup> Severe acute respiratory syndrome coronavirus 2 (SARSCoV-2) is a new virus with no vaccine or treatment, and the population currently has no immunity. The virus is primarily transmitted by direct or indirect

personal contact through airborne respiratory droplets from an infected person.<sup>2</sup>

On March 16, 2020, the American Dental Association (ADA), the nation's largest dental association, recommended that dental practices postpone elective dental procedures until April 6, 2020, and provide emergency-only dental services to help keep patients from burdening hospital emergency departments.<sup>3</sup>

The virus is transmitted through droplets, and the spread mainly occurs through coughing, sneezing, and salivary contamination.<sup>5</sup> The infected droplets are propagated through contact with infected subjects, with or without clinical signs of COVID19.

Given the widespread transmission of SARS-CoV-2, healthcare providers are at an increased risk of contracting the infection and becoming potential carriers of the disease. According to Occupational Safety and Health Administration (OSHA), dental health care personnel (DHCP) are placed in very high exposure risk category as dentists work in close proximity to the patient's oral cavity.

Dentistry being one of the most exposed professions to the infection, it has become necessary to establish a clinical protocol that should be applied in the working environment, to prevent the spread of virus. The centre for disease control and American Dental Association has raised an alert and suggested several interim guidelines to be followed in dental practice. Various personal protective measures have been recommended to avoid or minimize aerosol generating procedures.

Recently, an extensive review paper written by researchers from Wuhan University School and Hospital of Stomatology, published several recommendations for dentists and dental students to manage COVID-19 patients.<sup>6</sup> It has now become a necessity for all the practicing dentist to implement COVID-19 preventive measures and optimize their clinical practice according to the changing trends to ensure safe and risk-free practice. Therefore, the aim of the present study was to assess the level of awareness among practicing dentist regarding covid-19 preventive measures and to find out association of various socio-demographic factors with level of awareness among practicing dentist in Jammu city.

## METHODS

### *Study population and sample size*

A cross-sectional study was conducted at Indira Gandhi Government Dental College and Hospital Jammu, among dental surgeons practicing in J and K from January 2021 to June 2021. Total of 5000 dental surgeons are registered in J and K State Dental Council. So, the sample size was calculated to be 357. To compensate for non-participation 10% of the total sample size is added. The final sample size is 393. Participants who gave consent were included in the study. Interns and students undergoing BDS course were excluded from the study. A written informed consent was obtained from all the participants. Convenience sampling and Chain referral sampling method was used to collect the data. This study was performed in accordance with the Declaration of Helsinki. The questionnaire contained a consent section stating the purpose of the study, nature of the survey,

voluntary participation, declaration of confidentiality and anonymity.

### *Research instrument*

A structured questionnaire was sent via internet (e-mail and social media) to all the participants. The questionnaire was drafted for the present expert's opinion. The questionnaire was validated using content validity. Statistician evaluated the construct and content validity of the questionnaire.<sup>5</sup> A pilot study was undertaken on 10% of the study participants to check the feasibility and relevance of proforma. They were not included in the study. The questionnaire consisted of demographic data (6 questions) and questions evaluating knowledge (7 questions), attitude (2 questions) and practice (6 questions) of dentist during COVID-19 pandemic.

The total awareness score was calculated based on subject's responses. Negative response was given "0" score and positive response was given "1". The total score was calculated by adding the sum of all responses, that ranged from 1 to 15. The expected maximum total awareness score was 15 and a minimum score of 0. Based on the collective sum of scores, subjects were considered to have high level of knowledge if the percentage score was 80%-100%, moderate level (60%-79%) and  $\leq 59\%$  as low level. Based on the sum scores, level of knowledge was classified into low level knowledge (less than 60%; 0-8 scores), moderate level knowledge (60-80%; 9-11 scores) and high-level knowledge (80-100%; 12-15 score.<sup>4</sup>

### *Statistical analysis*

The collected data were thoroughly screened and entered into MS-excel spread sheets and analysis was carried out using Statistical Package for Social Sciences (SPSS) version 20. Descriptive statistics were used to determine knowledge scores. To find out the association between socio-demographic factors and mean knowledge scores independent t- test and one- way ANNOVA was used.  $P \leq 0.05$  was considered statistically significant.

## RESULTS

The cross-sectional study was conducted among dentist practicing in Jammu city, J and K –UT. A total of 393 dentists completed the survey questionnaire. Among them 62.1% were females. (Figure 1) Mean age of the participants was  $32 \pm 7.03$  years. Out of 393 participating dentists, 47.6% of them had completed Master of Dental Surgery (MDS). (Figure 2) Frequency distribution of the responses received from the study participants are presented in Figure 3.

While assessing the knowledge scores, 101 (25.7%) of the dentist were unaware about the post covid-19 recovery time, 97 (24.7%) were not aware about the

extraoral Radiographic technique, 83 (21.1%) had no knowledge on different types of mask that provided protection against Covid- 19 during dental treatment. (Table 1) N95 Mask was the most commonly used among the participating Dentist. (Figure 4)

While assessing the attitude of dentist, it was seen that 100% of dentist were keen to attend workshop regarding

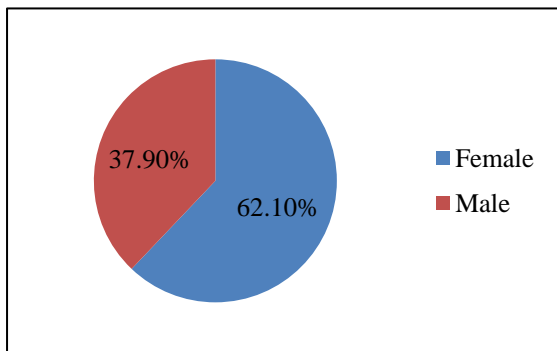
COVID-19 awareness. 100% of the dentist agreed that DCI/ IDA should issue guidelines with regard to Dental Practice during COVID-19 phase. While assessing the practice, 98% were aware about the different mouth rinsing agents used before the start of dental treatment, among them 332(86.20%) were aware about the dosage of the mouth rinse used and 53 (13.80%) were unaware (Figure 5).

**Table 1: Frequency distribution of study participants based on their responses.**

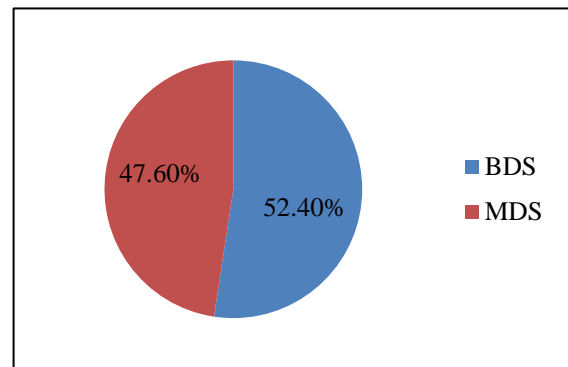
Question	Frequency	
	Yes	No
Awareness of extra oral radiographic technique	296 (75.3%)	97 (24.7%)
Awareness about post covid complications	324 (82.4%)	69 (17.6%)
Awareness about Post Covid-19 recovery time	292 (74.3%)	101 (25.7%)
Aware about mucomycorsis signs and symptoms	315 (80.2%)	78 (19.8%)
Awareness about the sequence of Donning and Doffing of PPE Kit used in the dental clinic	326 (83%)	67 (17%)
Awareness about the different types of mask that provides protection against COVID-19 during dental treatment	310 (78.9)	83 (21.1%)
Awareness about the different surface disinfectants used in dental practice that are effective against COVID -19	355 (90.3%)	38 (9.7%)

**Table 2: Distribution of mean knowledge scores among the study participants.**

Knowledge score	Number	Percentage
Low (0-8)	10	2.5%
Medium (9-11)	54	13.7%
High (12-15)	329	83.7%



**Figure 1: Frequency distribution of dentist based on gender.**



**Figure 2: Frequency distribution of dentist based on educational qualification.**

**Table 3: Distribution of mean knowledge score according to different socio-demographic factors.**

Socio-demographic factors		Mean score	SD	P value
Educational Qualification	BDS	12.641	2.6882	0.000*
	MDS	14.428	.8091	
Experience	1-5	13.620	1.9403	0.000*
	6-10	14.477	0.7812	
	11-15	14.786	0.4258	
	16-20	10.350	2.8335	

Continued.

Socio-demographic factors		Mean score	SD	P value
	>21	8.444	1.3815	
Working profile	Clinical practice	13.682	2.0691	0.000*
	Academics	12.254	2.6247	
	Both	13.883	1.9418	

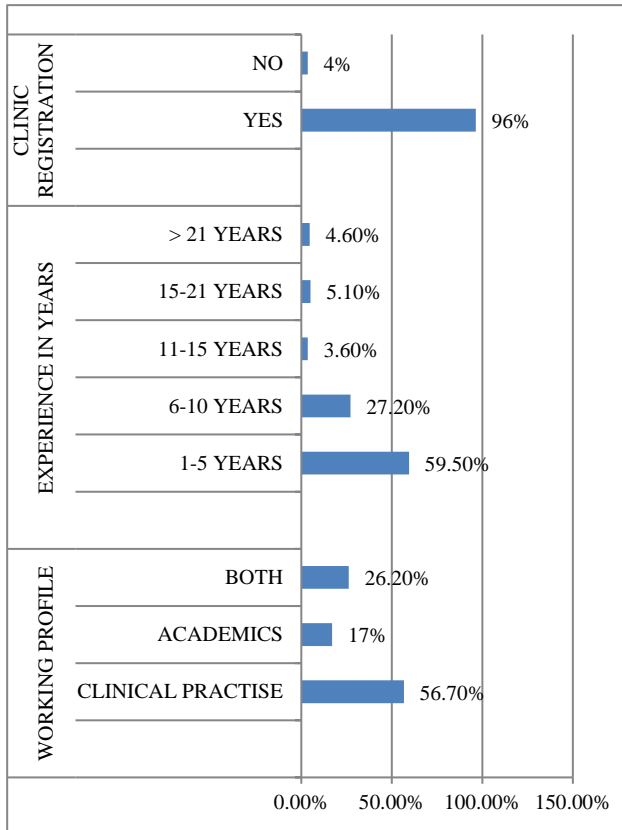


Figure 3: Professional profile of study participants.

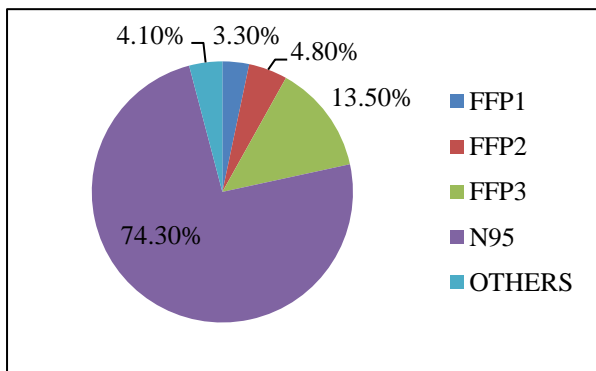


Figure 4: Frequency distribution of study participants according to the type of mask used.

Out of 393 participants 329 (83.7%) exhibited high level of knowledge. (Table 2) The association between socio-demographic characteristics and overall mean knowledge are demonstrated in Table 3. In the current study, educational qualification, experience and working profile in dental practice were the factors that showed

statistically significant association with mean knowledge scores. Based on educational qualification, those dental practitioner with MDS exhibited more mean knowledge score than BDS practitioner (14.428±0.8091 versus 12.641±2.688, p=0.000) (Table 3).

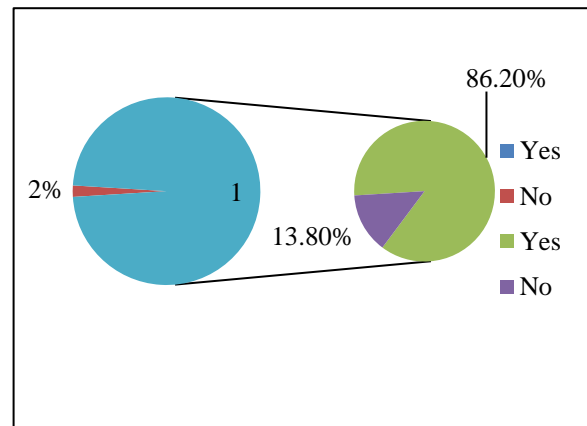


Figure 5: Frequency distribution of study participants based on their responses to use mouth wash and dosage of mouth wash.

## DISCUSSION

The transmission of COVID-19 poses a higher risk for people who come in close contact with an infected individual, such as those who are in close proximity to or work near the patient, i.e. healthcare workers. The distance between the working field and the dentist is approximately 35–40 cm, and dentists undertake many time consuming procedures, which puts them at a higher risk of contracting COVID-19.<sup>6</sup> To assess the preparedness of dentists to combat the disease outbreak, various researches have been conducted across the globe.<sup>7</sup> With a similar objective, current study has included demographics like the qualification, number of years of experience and the designation of dentists practicing in J and K, to evaluate their level of knowledge and preparedness against COVID-19.

The Centre for Disease Control (CDC) American Dental Association (ADA), has issued several interim guidelines and protocols to prevent the spread of COVID19 in dental settings. The awareness of participants was evaluated based on the guidelines set by the governing bodies and in general it was observed that 75.3% dentists were aware of extraoral radiographic techniques, 82.4% had awareness about post COVID-19 complications, 80.2% were aware about Mucormycosis signs and symptoms. The awareness about the sequence of Donning

and Doffing of PPE Kit used in the dental clinic was 83%, 78.9% showed awareness about the different types of mask that provides protection against COVID-19 during dental treatment and lastly 90.3% of the dentists were aware about the different surface Disinfectants used in Dental Practice that are effective against COVID -19.

The findings of the current survey demonstrated that the majority of dentists had good knowledge (83.7%). Our result is consistent with study done by Kamate et al Nasser et al Saqlain et al in Pakistan and another study conducted by Alwazzan et al.<sup>7,10-12</sup>

When the mean knowledge score was evaluated based on it being low/medium/high, it was seen that 83.7% participants had a high mean knowledge score. Our score was lower than the previous study conducted by Kamate et al.<sup>7</sup>

Dentists with a master degree showed relatively more knowledge compared to BDS practitioners. This could be due to the fact that a dentist with a master's qualification, may undergo extensive infection control training, and get more chances for professional development. Current findings align with the results obtained by Kanaparathi et al.<sup>4</sup>

When a comparison was made in respect to the number of years of experience vs the knowledge of COVID-19 it was observed that an experience of more than 6 to 15 years had a better understanding of COVID-19 than the freshers or old practitioners. This is in accordance with study done by Alwazzan et al, where Study participants with more than ten years of experience showed higher knowledge scores.<sup>12</sup> This could be because most dental practitioners are familiar with the principle of universal precautions for cross-infection control during previous infectious breakouts like H1N1 influenza and are well aware of strict disinfection techniques. Moreover, owing to their age and risk of getting infected themselves, many old practitioners were not actively practicing during the pandemic.<sup>8</sup>

Dentists who were clinical practitioners were more aware of COVID-19 than academicians. Staying connected with academics gives practitioners an edge to stay updated with the latest guidelines, pathology and symptoms of disease, whereas practicing as a clinician gives a hands-on experience of the current state of dental practice. This could be the reason why dentists who were practicing both had relatively more awareness. Similar Results were seen in study done by Widyarman et al.<sup>9</sup>

While assessing the attitude of dentists, it was seen that 100% of dentists were keen to attend workshops regarding COVID-19 awareness. 100% of the dentists agreed that DCI/ IDA should issue guidelines with regard to Dental Practice during COVID-19 phase. Many participants emphasized on being updated with evidence-based information so as to ensure preparedness of the

dental practitioner for current and future dental practice against prevention of COVID19 and optimize safety for themselves and their patients. Similar results were seen in study done by Kanaparathi et al and Khader et al.<sup>4,13</sup>

Despite our best efforts there are few limitations in our study firstly, the low response rate, secondly, cross-sectional nature of the study and limited time frame of data collection. This could result in sampling error and therefore, our results might not have accurately reflected the true levels of awareness of dental practitioner across J and K. We recommend further studies to be carried out with larger sample and multicentre studies at various locations.

## CONCLUSION

The findings of the present study revealed that majority of the study subjects had adequate awareness regarding COVID- 19 dental practices. However, constant upgradation is required to cope up with the constantly changing situations of COVID- 19. In the present study all participants had a positive attitude and were keen to attend educational programs/webinars to further upgrade their knowledge regarding covid-19 dental practices. DCI/ IDA should issue guidelines with regard to Dental Practice during the changing COVID-19 phase.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

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**Cite this article as:** Gupta A, Chhibber N, Lihala R, Vaid P, Abrol T, Joshi A. Assessment of awareness level among dentist regarding COVID-19 dental practice in Jammu city: a cross-sectional study. *Int J Res Med Sci* 2022;10:116-21.