

Knowledge, attitude and practices of dentists of Aligarh and Mathura regarding Covid -19 pandemic : A cross-sectional survey.

Abstract:

This study was carried out to analyze knowledge, attitude, and practice (KAP) of Dentists of Aligarh and Mathura regarding the Covid-19 pandemic. This cross-sectional study used a 16-item pre-tested and validated questionnaire based on the Covid 19 pandemic, which was then disseminated through the internet to all dentist members of the Indian Dental Association, Aligarh and Mathura during November, 2020 . The 'General part-A' of the questionnaire covered the individuals' socio-demographic and professional informations (age, gender, educational status, type of practice etc.). Part B comprised of 16 questions pertaining to COVID-19 knowledge, attitudes, and practises. A total of 260 dentists participated in the survey. The study included a higher percentage of females, BDS, and practitioners with fewer than 10 years of expertise. The participants' average knowledge, attitude, and practise score was 13.21 ± 1.67 . In the current study, socio demographic factors such as gender, educational level, experience in dentistry, and professional affiliation were found to have statistically significant ($p \leq 0.05$) relationships with mean knowledge. Although there were notable deficiencies in some key areas, the results of this investigation revealed that the majority of the subjects had adequate knowledge, a positive attitude, and took precautions when dealing with patients, although there were notable deficiencies in some key areas. As a result, ongoing educational initiatives/webinars should be planned on a regular basis.

Key words: COVID-19, dentist, Questionnaire, knowledge, attitude.

Introduction :

The outbreak of coronavirus disease 2019 (Covid-19) in Wuhan, China, has quickly escalated into a public health disaster, with ramifications in other areas of the world. Covid-19 was declared a pandemic by the World Health Organization (WHO) on March 11, 2020 [1]. COVID-19 is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) coronavirus , which causes pneumonia with symptoms that range from minor to fatal. Infection with SARS-CoV-2 can result in a cytokine storm and respiratory failure [2,3].

Severe Acute Respiratory Syndrome Coronavirus 2 is transmitted through respiratory droplets among persons in close proximity and contaminated surfaces. Aerosol

inhalation of respiratory droplets is the most common mode of transmission. COVID-19 transmission can be minimized by employing strict infection control measures such as precise and repeated hand cleanliness, preventing the contact of one's

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face, thorough disinfection of surfaces, wearing facial covers, and maintaining enough physical distance from others [4]

Because of the close contact with patients, dental clinics have a higher risk of transmission of infection. The viral load in the saliva is a major concern in dental practice. The rate of infection in Covid-19 patients' saliva can approach 91.7 percent. Recurrence was documented during the convalescence phase, even after the patient had recovered. SARS CoV-2 enters the cell by the same pathway as SARS coronavirus, namely the angiotensin converting enzyme2 (ACE2) cell receptor, which may facilitate human-to-human transmission [5,6]. As a result, it's vital to reduce the danger of transmission through dental operations by adequate knowledge and actions. Dentists should be familiar with SARS-features CoV-2's as well as the new infection control standard [7]. Several government agencies have developed Standard Operating Procedures that should be followed.

This study uses a questionnaire-based survey to analyze dental practitioners' knowledge, attitude, and practice (KAP) regarding the Covid-19 pandemic.

Methodology:

This cross sectional survey was conducted utilizing a questionnaire based on Covid 19 pandemic which was distributed to all dentist members of the Indian Dental Association, Aligarh and Mathura during November, 2020. The questionnaire was prepared in English language. The questionnaire was created using Google Docs and then disseminated via the internet. Participants were given a URL where they could access the questionnaire.

A unique study ID ensured confidentiality of all self-reported data. The participants' responses were stored, and scored and saved. Informed consent was obtained from all the participants before the start of the study. This study was approved by the Institutional Review Board.

Sample size was calculated using the formula:

$$n = Z^2(1-\alpha/2) S^2/d^2$$

Z - the standard normal score with 95% confidence interval (CI) ($\alpha=0.05$);

S - the standard deviation of the variable;

d - maximum acceptable error

Taking account of probable errors and sample loss, a final sample size was estimated to be 258 which was rounded up to 260.

The questionnaire was divided into two sections: The 'General part- A 'contained the subjects' socio-demographic and professional information (age, gender, educational status, type of practice etc). Part B consisted of 16 questions depicting knowledge, attitude and practices regarding COVID-19 pandemic (common symptoms, mode of transmission, various preventive measures, etc.).

The questionnaire was developed and confirmed after review by a panel of experts. The questionnaire was pre-tested for validity and was revised according to the feedback. Construct validity of this questionnaire was done through intense discussion. The reliability of the questionnaire was statistically scaled as alpha Cronbach = 0.66. The participants were asked to choose one answer to each question. They were given four weeks time to respond to the questionnaire and were reminded once after first week to respond to the questionnaire. Each negative response received a "0" score, while positive responses received a "1" score. The aggregate of all responses, which ranged from 1 to 16, was used to calculate the participant's overall score. A maximum overall score of 16 was expected, with a minimum score of 0.

For the statistical analysis, SPSS 16 was used. Data were analyzed using descriptive statistics as mean and standard deviation and categorical variables were expressed as frequencies and percentages. The response rate to the study was 98.12%. Participants who did not answer all the questions were excluded from the study. To find the statistical significant association between knowledge, attitude and practice score with sociodemographic characteristics among various groups chi square test was applied. The ($p \leq 0.05$) was considered statistically significant.

Results:

A total of 260 dentists participated in the survey. Socio demographic and professional affiliation of the study participants has been shown in table 1. The age of the participants ranged from 20 to 65 years with the mean age as 39.6±5.2 years. More number of females (61.15%) than Males participated in the study. Most of the participants were having BDS qualification (66.53%). 66.15% of the participants were having the experience less than 10 years. There was more number of practitioners than the academicians among the participants of the study.

Profile	Number (260)	Number (Percentage)
Age	Less than 35 years	168(64.61)
	More than 35 years	92 (35.38)
Gender	Male	101(38.84)
	Female	159(61.15)
Educational status	BDS	173(66.53)
	MDS	87(33.46)
Experience	Less than 10 years	172(66.15)
	More than 10 years	88(33.84)
Work profile	Practitioner	162(62.30)
	Academician	98(37.69)

Table 1. Socio demographic and professional affiliation of study participants.

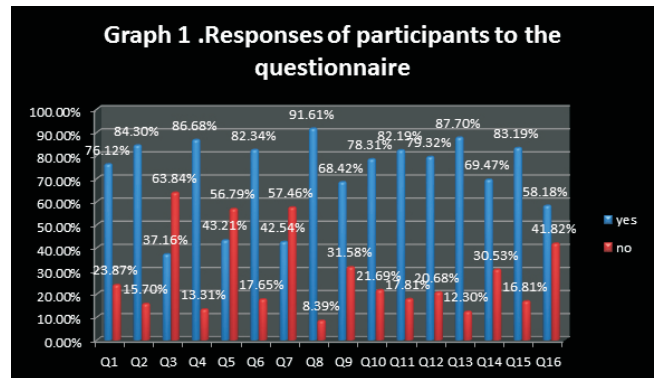
Question	Yes	No
Knowledge		
Q1	76.12%	23.87%
Q2	84.30%	15.7%
Q3	37.16%	63.84%
Q4	86.68%	13.31%
Q5	43.21%	56.79%
Attitude		
Q6	82.34%	17.65%
Q7	42.54%	57.46%
Q8	91.61%	8.39%
Q9	68.42%	31.58%
Q10	78.31%	21.69%
Practices		
Q11	82.19%	17.81%
Q12	79.32%	20.68%
Q13	87.70%	12.30%
Q14	69.47%	30.53%
Q15	83.19%	16.81%
Q16	58.18%	41.82%

Table 2. Responses of participants

Table 2 showed the responses of the participants for various questions in knowledge, attitude and practice domain. Mean knowledge, attitude and practice score of the participants was 13.21 ± 1.67 and minimum and maximum scores varied from 5 and 16 respectively.

Socio-demographic characteristics	Number of participants	Knowledge, Attitude and Practice score	
		Mean±SD	P value
Less than 35 years	168(64.61)	11.65 ±1.76	0.12
More than 35 years	92 (35.38)	12.23± 1.37	
Male	101(38.84)	11.67 ±1.51	0.01
Female	159(61.15)	12.41± 1.89	
BDS	173(66.53)	10.15± 1.94	0.00
MDS	87(33.46)	13.61± 2.62	
Less than 10 years	172(66.15)	10.29 ±3.06	0.00
More than 10 years	88(33.84)	13.01 ±2.19	
Practitioner	162(62.30)	9.98 ±2.81	0.03
Academician	98(37.69)	12.78 ±2.56	

Table 3. Association of socio-demographic characteristics and overall mean knowledge



Gender, educational level and experience in dentistry practice and professional affiliation were among the socio demographic characteristics in the current study that revealed statistically significant associations with mean knowledge (Table 3). In the present survey Female participants were found to have more knowledge than male dentists (12.41± 1.89 Vs 11.67 ±1.51) . Dental practitioners with MDS displayed more knowledge than BDS practitioners (13.61± 2.62 Vs 10.15± 1.94), while practitioners with more than 10 years of experience exhibited more knowledge than those with fewer than 10 years of experience (13.01 ±2.19 Vs 10.29 ±3.06) similarly academicians demonstrated more knowledge than practitioners (12.78 ±2.56 Vs 9.98 ±2.81). On the other hand, the participants' age revealed no significant differences in knowledge. Graph 1 showed the responses of the participants to the questionnaire.

Discussion:

COVID 19's global epidemic has posed unprecedented challenges around the globe. Dentists are frequently the first line of diagnosis for oral illnesses, and they work closely with their patients. SARS-CoV-2 nosocomial transmission has been a source of concern for dentists, as it poses a risk of infection to both patients and dentists [8]. In previous studies

also it has been observed that Dental practitioners are at a higher risk of contracting SARS-CoV-2 infection [9,10].

Dentists have been recommended to take numerous personal safety precautions and restrict or prohibit aerosol-generating procedures in order to prevent the spread of infection [11-13]. In North India, there have been very few studies to assess dental health professionals' knowledge, attitudes, and behaviors addressing this dangerous condition. The present study revealed that the dentists were having fair knowledge, positive attitude and were following various preventive measures to protect the patients and themselves from COVID-19 infection.

In the present survey, a significant number of individuals (86.68%) were aware of the mode of transmission of COVID-19 infection. This information is critical since not knowing about it could lead dentists to improperly triage patients. The danger of cross infection in dental settings is significant because aerosol and spatter created during dental operations is a possible route of infection dissemination other than direct transfer. This was in line with other studies [14, 15].

In response to the question of how long it takes for a confirmed Covid-19 patient to become non-infectious after recovery, only 37.16% gave the correct answer as 30 days which is the time frame during which recurrence is observed in a patient [16].

According to the findings of this study, only 43.21% of the participants in this survey were aware of protocols issued by various agencies like CDC and ADA etc to combat COVID-19. The response rate was lower than reported by other studies [15,17]. Due to the lack of knowledge, COVID-19 diagnosis is primarily based on clinical indicators.

More than half of the participants were reluctant to assist health-care providers in the situation of a workforce deficiency. Lack of knowledge and the fear of getting infected with COVID-19 may be the reason behind the unwillingness. Therefore, Continuous educational initiatives should be used to improve their knowledge of infection control.

According to the Occupational Safety and Health Administration, tele-consultations should be considered for non-emergent patients during the pandemic [18]. Tele-consultations appear to be an appealing and adaptable approach, particularly in these exceptional times. As a result, increasing dental practitioners' understanding of tele-consultation is critical.

When asked about Covid-19 screening procedures, nearly 78 percent of dental practitioners were well aware of them and had reported contact and travel history using temperature recording alone or with pulse oximeter as the primary screening measure during the pandemic. The use of contact and travel histories can help to limit disease transmission and burden. A patient should not be given an appointment if they have a positive history of contact and/or symptoms [19, 20].

Filtering respirators are classified as N95 having the efficiency of 95% and N99 with the efficiency of 99% by the National Institute for Occupational Safety and Health (NIOSH). These respirators prevent inhalation of microscopic airborne particles due to their tight fit. Surgical masks, on the other hand, are loose-fitting and create a barrier against big drops, as well as preventing hand contact with the face [21]. Most of the dentists gave positive response for this question which suggests that dental practitioners are well aware about precautions to be taken during the treatment of COVID-19.

Around 80% participants stated the use of Pre-procedural mouth rinse to reduce the viral load during aerosol generating procedures. Considering SARS-CoV-2 is vulnerable to oxidation, a pre-procedural mouth rinse including oxidizing agents such as 0.2 percent povidone iodine or 1 percent hydrogen peroxide is recommended [22].

The use of a rubber dam to reduce airborne particles, spatter, and aerosol during dental treatments was reported by almost 70% of participants. It has been suggested that using a rubber barrier might minimize airborne particles by 70% in a 3-foot diameter operative field. Splatter and aerosol would be reduced by using a rubber dam with a high-volume evacuator [23].

To minimize bio aerosol in clinic post-COVID and prevent infection, 58.18 percent of participants employed an air purifier with HEPA filter, a high volume evacuator (Nu Bird), and ultraviolet germicidal irradiation (UVGI). A minimum of 6 air changes per hour is recommended by the guideline for airborne pollutant elimination (ACH). UVGI delivers 6 ACH with 15 minutes of use, whereas HEPA air filters produce 12 ACH with 20 minutes of use [24]. These measures used to prevent the Covid-19 pandemic will undoubtedly lower illness load.

In this study, 83.19 percent of dentists educated their assistants about the Covid-19 situation's transmission-based precautions. Dental practitioners and their assistant should be sensitized about transmission-based precaution specific to Covid-19 situation which will help defeat this pandemic [20]. When asked about COVID19 and prevention in dental settings, dental practitioners (DPs) responded with adequate knowledge. The DPs' gender, educational level, and years of experience were found to have a strong relationship with their overall scores. The results of this survey were in line with other studies [15,17].

The limitations of the present study were small sample size, cross-sectional nature of the study and short time interval of data collection. Therefore, we urge that more research be done with a bigger sample size and at multicenter.

Conclusion :

The results of this investigation demonstrated that the majority of the subjects had adequate knowledge, had positive attitude and taken precautions while dealing with the patients, although there were noteworthy deficiencies in some key areas. As the number of COVID-19 cases continues to climb, it is critical that dentists stay current on practicing approaches to tackle new illnesses. Continual educational initiatives/webinars should be planned regularly to fill in the gaps and reinforce knowledge.

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