

Covid 19: Survey on the Knowledge, Awareness, Attitude and Perception towards Dental Treatment among a Group of Indians – Pilot Study

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Abstract

The aim of this study was to assess the awareness and knowledge of a group of Indians with prior dental exposure regarding Coronavirus Disease 2019 (COVID-19) infection and their perception and attitude relating to dental treatment during the times of the outbreak. Online questionnaire was curated and circulated among 400 individuals with prior dental treatment records and contained 10 questions, divided into three sections. The first part, recorded the demographic information, second part of the questionnaire analyzed the participant's awareness and knowledge and the third part consisted of questions assessing the perception and attitude towards dental treatment in times of COVID-19 pandemic. Results: Assessing the participants' awareness and knowledge it was observed that irrespective of the demographic variance, majority of the participants follow the COVID-19 case updates, understand virus transmission in public and dental clinics, but only 52.63% of participants above the age of 65years knew completely how the virus spreads, which was significantly lower than

other age groups ($p= 0.036$). Assessing perception and attitude, majority of the participants would avoid a routine dental visit and feel that they are unsure about the risk of viral transmission in the dental clinic. The percentage of females (90.41%) who will approach a dental clinic in an emergency situation is statistically higher ($p=0.045$) compared to the males (79.53%) and post graduates (50.83%) who would readily pay for higher cost of treatments is statistically higher compared to the intermediate group (30%), $p=0.005$. Conclusion: Finding from the study demonstrate, majority of the participants were aware of the COVID-19 count and had sufficient knowledge regarding the viral transmission, both in public and dental practice. The majority of participants' perception was to avoid any kind of routine dental treatments as they were not sure of the risks involved in contracting the disease. In case of dental emergencies majority of them thought they would have to visit a dental clinic though there was mixed opinion regarding the increased dental charges.

Keywords: Coronavirus Infections, COVID-19.

Introduction

Coronavirus (CoV) belongs to a larger family of viruses that cause a wide range of diseases. Diseases ranging from the common cold to severe forms of respiratory illnesses have been attributed to the viruses belonging to this family.^[1] In December of 2019, a new coronavirus was identified as the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). The disease it causes is called Coronavirus Disease 2019 (COVID-19).^[2] In March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a pandemic.^[3]

COVID-19 symptoms vary from mild, in most cases, to advanced serious complications. Common symptoms include fever, cough, loss of smell and dyspnea. Symptoms may aggravate and advance to pneumonia, multiorgan failure and death.^[4,5] The virus spreads through close contact between people, especially through respiratory droplets. In addition, the virus can also transmit when people touch an object contaminated by infectious droplets and then touch their mouth, nose, or eyes.^[6,7]

Since the first case of coronavirus at the end of January, India has reported more than 8,83,000 Covid-19 infections and more than 23500 people have died of the infection as on 14th July 2020.^[8]

The recovery rate of the country has been above average with 62.93 per cent,^[9] and this may be attributed to the strict lockdown implemented in the country. But due to social and economic compulsions, such as the falling economy and resultant loss in incomes and businesses, the government decided to open the lockdown, in a phased manner, from May 8th 2020 onwards. Since then India has witnessed a constant rise in the number of cases reported per day leading to tremendous pressure on the health care sector.

Dental sector also witnessed a huge crisis as dental treatment procedures produce aerosols and splatters, which can contain large amounts of saliva or blood from patients and thus carry the risk of large-scale transmission of the virus.^[10] Therefore, the India Dental Association (IDA) has put forward strict Standard Operating Protocols (SOP).^[11] Such measures include screening patients, only providing emergency treatment, restricting aerosol production as much as possible, using extensive protection, and performing environmental disinfection.

During these pandemic times the general public at large has received large amount of information through regular news broadcasts, news-letters and social media platforms. Public awareness of the disease's nature and its route of transmission is the cornerstone for diminishing the spread of the infection. It is in this background that this current pilot study aims to assess the awareness and knowledge of a group of Indians with prior dental exposure regarding COVID-19 infection and their perception and attitude relating to dental treatment during the times of COVID-19 in India.

Materials and Methodology

A. Study Population

400 Indian citizens with prior dental experience were enrolled in the current observational study. Sample size with 95% confidence level was calculated using the following formula,^[12]

$$S = Z^2 * p * (1-p) / M^2$$

Z – Z Score (Determined based on confidence level which is taken as 95%)

p- Population proportion (assumed to be 50% = 0.5)

M- Margin of error (taken as 5%)

S - Sample size

Online questionnaire was curated and circulated among individuals with prior dental treatment records and the data was obtained between, 30th June to 4th July 2020.

B. Questionnaire

The questionnaire consists of 10 questions, and was divided into three parts.

In the first part, demographic information was collected.

The questions in this part were as follows:

(1) Subject's gender

- (i) Male (ii) Female

(2) Subject's age range

- (i) 20-35 (ii) 35-50 (iii) 50 – 65 (iv) above 65

(3) Subject's highest level of education

- (i) Intermediate (ii) Under-graduation (iii) Post-graduation

The second part of the questionnaire analysed the participant's awareness and knowledge of COVID-19 infection with the following questions:

(4) Do you regularly follow the number of COVID 19 cases in India?

- (i) Never (ii) Occasionally (iii) Regularly

(5) Do you understand how the virus transmission occurs?

- (i) Don't understand (ii) Slightly understand (iii) Know completely

(6) How do you think corona virus spreads in a dental clinic?

- (i) Aerosols and droplets (ii) Directly through dentist or dental Assistant (iii) Both

The third part consisted of questions assessing the perception towards dental treatment in times of COVID-19 pandemic with the following questions:

(7) Would you visit a dental clinic during the present covid 19 pandemic?

- (i) No, I would not (ii) Yes I would, with prior telephonic consultation (iii) Yes I definitely would

(8) Do you think there are more chances of contracting corona virus in a dental clinic as compared to other public places?

- (i) No (ii) Not sure (iii) Yes

(9) If you are facing a dental emergency will you visit a dental clinic?

- (i) No (ii) May be (iii) Definitely yes

(10) If your dental clinic is following all the prescribed COVID 19 protocols are you willing to pay increased charges for the dental procedure?

- (i) No (ii) Will decide after a second opinion (iii) Yes, will pay readily

Statistical Analysis

Chi square tests with Bonferroni adjustment for multiple comparisons were used to compare pooled questionnaire responses by gender, age group and education level. A p-value of less than 0.05 was considered to be statistically significant.

Results

Analyzing the demographic information, the percentages of males and females were 62.7% and 37.3%, respectively. The most prevalent age group was between 20 and 35 years old (44.8%), followed by 36 to 50 years (24.4%). Most of the participants had a post-graduation degree (61.5%) followed by under graduation (29.5%). [Figure 1,2 and3]

Assessing the participants' awareness and knowledge it was observed that majority of both males (58.27%) and females (54.79%) follow the number of COVID-19 cases updates on a regular basis and both the gender groups (62.99% males, 76.71% females) believe that they understand how the virus transmission occurs. In terms of dental setup majority of the females (76.71%) and males (62.99%) believed that the virus can spread through both aerosols and the personnel of the dental clinic/hospital. Comparing awareness among different age groups it was

seen that, irrespective of age, majority of the participants followed the number of COVID-19 cases regularly. But it was seen only 52.63% of the elderly population above the age of 65 years knew completely how the virus spreads, which was significantly lower than other age groups ($p=0.036$). Majority of the participants in all age groups believes the virus can spread through different modalities in a dental setup while a smaller percentage of population above the age of 65 years believe the same (57.89%), but this was not statistically significant ($p=0.130$). Level of education did not statistically impact the knowledge and awareness of participants. But having said that, it was observed that a larger proportion of post-graduate participants (75%), believed that they completely understood the virus transmission when compared to intermediate and under-graduate participants (60%). [Table I]

Assessing perception and attitude, it was seen majority of males (76.72%) and females (67.12%) would avoid a routine dental check-up in these times of COVID-19 infection. The percentage of females (90.41%) who will approach a dental clinic in an emergency situation is statistically higher ($p=0.045$) compared to the males (79.53%) but they are not keen to readily pay the increased dental charges, and would prefer taking a second opinion. Comparing the perception in different age groups it was seen that 71.43% of 35-50 age group, would not go for a routine dental checkup which was statistically high compared to elderly (above 65 years) where only 47.37% will not visit ($p=0.0013$). This observation coincides with large percentage of population above 65 years (36.8%) thinking that there is no additional risk of contracting COVID-19 in a dental clinic compared to a very small proportion of 35-50 yrs (4.08%), $p<0.0001$. When it comes to dental emergencies and the additional cost involved, majority of the participants, irrespective of

their age groups, will visit a dental clinic and readily pay for the treatment. Level of education did statistically influence the percentage of subjects visiting dental clinic for routine purposes. It was seen that post- graduate group (70%) was not inclined to visit dental clinics for routine check-ups when compared to the undergraduates (50%), $p=0.009$. But when it came to dental emergencies the percentage of post graduates (50.83%) who would readily pay for higher cost of treatments is statistically higher compared to the intermediate group (30%), $p=0.005$. [Table II]

Discussion

Patients' form a very special and essential part in any dental practice and this online observational survey was conducted with two main purposes. The first was to evaluate the awareness and knowledge about COVID-19 infection, and the second was to evaluate the perception and attitude towards dental treatment in the current situation.

Awareness and knowledge

COVID 19 is an infectious disease and public level of awareness contributes towards halting the spread of disease. The Central and State Government, alongside private stakeholders, have taken significant steps to spread awareness among the general public both through online and offline modes. Among the respondents in our survey, majority of them irrespective of gender, age and education were well aware of the number of cases spreading in India. With respect to knowledge, majority of them did understand the modes of viral transmission, and this can be attributed to the aggressive spread of information on a daily basis through multiple modes. However, only 52.63% of the population above the age of 65 years thought that they completely understand the viral transmission mechanism which was significantly lower compared to other age groups. But given that the risk for

severe illness increases with age and there exists a direct correlation between mortality and age (in the age group of 60 to 69 years the mortality rate is at 3.6%, at 70 to 79 it is at 8%, and at 80 years or above it is at 15%)^[13] there is a need to communicate and provide target information specifically to the elders.

The COVID-19 virus can spread through saliva, bodily fluids, faeces, and airborne droplets when people cough or sneeze and it forms the major route of disease transmission.^[14,15] Since dental practice involves considerable saliva or blood splatter from the patient, and dental health care professionals work in close proximity to patients, it becomes important to be aware of the risks involved with dental treatment.^[16,17] In our study it was seen that irrespective of gender, age and educational qualifications majority of the participants believed that both aerosols along with the dentist and dental assistant can pose a risk of disease transmission. But still the percentage of population above 65 years, aware of this combined risk (57.79%) was lower compared to other age groups. This reinforces the fact that we need to strengthen the communication system with all age groups alike, especially with the elderly people as they definitely fall in the high risk category.

Attitude and Perception

It is regarded that knowledge shapes up the attitude which further bring about action. Based upon the data obtained it was observed that majority of the participants, irrespective of their gender, age and education qualification, would avoid any kind of routine dental visits and would prefer to postpone their elective dental procedures. This is in accordance with the guidelines provided by the statutory bodies during the lockdown phase.^[18,19] But still 47.35% of the participants above age of 65 years may want to visit a dentist on a routine basis, which co-incides with the increased oral health care needs at that age.^[20]

The most important concern in dental clinics/hospitals is the transmission of SARS-CoV-2 virus. Despite all the precautions taken, it is almost impossible to reduce droplet and aerosol production to zero during dental procedures, promoting an increased risk of cross infection.^[21,22] Based on the observation, majority of the participants irrespective of their gender, age and education were not very sure if dental practice poses more danger of virus transmission compared to other public places. The role of the dentist and dental team is highly crucial in such circumstances. Dentists need to find the right way of articulating knowledge and information to prevent fear-mongering amongst patients, but at the same time create awareness by being honest and transparent.^[23]

Dental problem that need immediate treatment for cessation of bleeding, pain alleviation,^[24] or to save a tooth is considered as a dental emergency. This consideration also applies to severe odontogenic infections that can be life-threatening. Handling dental emergency requires a good amount of skill and this skill set has to be upgraded during the present COVID-19 pandemic. Although, irrespective of the demographic status majority of the participants will definitely visit a dentist during a dental emergency, but it was observed that the percentage was significantly higher in case of females (90.41%) compared to the male (79.83%) counterpart. This observation can be correlated with the finding where the level of pain and anxiety, experienced by female patients are greater when compared to males and dental pain impacts the quality of life, higher in case of females.^[25,26]

A true challenge in the COVID-19 era is the increase in the cost of oral health services due to the additional burden of using extensive protection, and performing constant environmental disinfection. This adds on to the total treatment cost which can limit the patient access, and denial of essential dental treatments.^[23] In the present

observational study it was seen that majority of the females (49.32%) prefer taking a second opinion rather than readily paying the increase charges. Similarly majority of the participants above the age of 65 years (42.11%), and those with only intermediate (55%) or under-graduation degree (51.67%) were apprehensive of paying the increased charges and prefer a second opinion prior to taking the treatment. This can mainly be attributed to the financial limitations that elderly age group and people with lesser educational qualifications can have.^[27]

Despite the limitations of this pilot study, this study is one of its kinds, for comprehensive understanding of awareness and knowledge toward the current global crisis. Also the study helps to understand the perception and attitude of subjects with past dental experience and their current perception of dental treatment in the COVID-19 era.

Figures and Tables

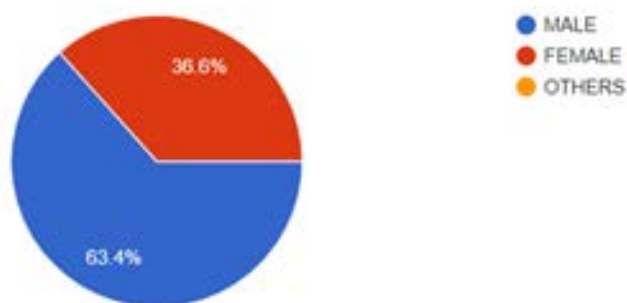


Figure 1: Gender

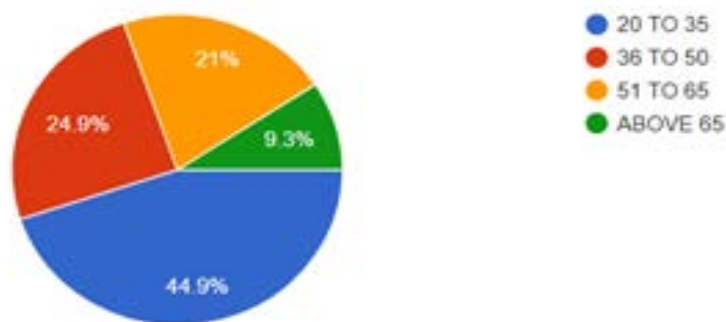


Figure 2: AGE (in years)

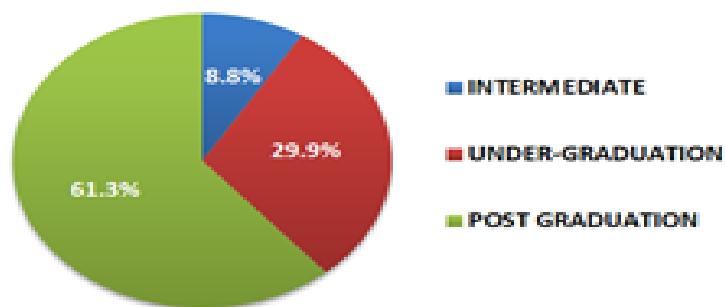


Figure 3: Education

Table 1

Demographic Data	Do You Regularly Follow The Number Of Covid 19 Cases In India? (In%)				Do You Understand How The Virus Transmission Occurs? (In%)				How Do You Think Corona Virus Spreads In A Dental Clinic? (In%)			
	Never	Occasional	Regularly	P	Don't Understand	Slightly	Completely	P	Aerosols & Droplets	Dentist & Dental Assistant	Both	P
Gender												
Male	1.57	40.16	58.27	0.684				0.095				0.086
Female	4.11	41.1	54.79		1.37	21.92	76.71		8.22	15.07	76.71	
AGE (In years)												
20-35	3.37	43.82	52.81	0.0703	1.12	22.47	76.4	0.0357	15.73	8.99	75.28	0.1291
36-50	2.04	28.57	69.39		0	30.61	69.39		24.49	15.41	60.1	
51-65	0	44.19	55.81		0	37.21	62.79		6.98	16.28	76.74	
Above 65	5.26	36.84	57.89		0	47.37	52.63		21.05	21.05	57.89	
Education												
Intermediate	0	50	50	0.1873	0	40	60	0.0669	20	15	65	0.9382
Under-graduation	1.67	38.33	60		1.67	38.33	60		18.33	11.67	70	
Post-graduation	3.33	38.33	58.33		0.83	24.17	75		16.75	14.17	69.17	

P-value of less than 0.05 was considered to be statistically significant

Table 2

Demographic Data	Would You Visit A Dental Clinic For Routine Dental Checkup During The Present Covid 19 Pandemic? (In%)				Do You Think There Are More Chances Of Contracting Corona Virus In A Dental Clinic As Compared To Other Public Places? (In%)				If You Are Facing A Dental Emergency Will You Visit A Dental Clinic ? (In%)				Are You Willing To Pay Increased Charges For The Dental Procedure? (In%)			
Gender	No	Maybe	Yes	P	No	Not sure	Yes	P	No	Maybe	Yes	P	No	After second opinion	Yes	P
Male	67.72	25.98	6.3		14.17	51.18	34.65		4.72	15.75	79.53		12.6	38.58	48.82	
Female	67.12	28.77	4.11	0.752	15.07	45.21	39.73	0.689	1.37	8.22	90.41	0.045	8.22	49.32	42.47	0.226
AGE (In years)																
20-35	68.54	28.09	3.37		14.61	49.44	35.96		3.37	13.48	83.15		5.62	46.07	48.31	
36-50	71.43	22.45	6.12		4.08	59.18	36.73		4.08	8.16	87.76		14.29	38.78	46.94	
51-65	69.77	23.26	6.98		16.28	41.86	41.86		2.33	18.6	79.07		13.95	39.53	46.51	
Above 65	47.37	47.37	5.26	0.0013	36.84	42.11	21.05	P<0.0001	5.26	10.53	84.21	0.3212	21.05	42.11	36.84	1.009
Education																
Intermediate	50	40	10		15	60	25		5	20	75		15	55	30	
Under-graduation	68.33	23.33	8.33		15	46.67	38.33		6.67	18.33	75		5	51.67	43.33	
Post-graduation	70	27.5	2.5	0.0087	14.17	49.17	36.67	0.2802	1.67	9.17	89.17	0.068	13.33	35.83	50.83	0.005

P-value of less than 0.05 was considered to be statistically significant

Conclusion

From the findings of the present pilot study, it can be concluded that majority of the participants were aware of the COVID-19 count and had sufficient knowledge regarding the viral transmission, both in public and dental practice. The majority of participants' perception was to avoid any kind of routine dental treatments as they were not sure of the risks involved in contracting the disease. In case of dental emergencies majority of them thought they would have to visit a dental clinic though there was mixed opinion regarding the increased dental charges.

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