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Awareness and Apprehension Among General Population for Dental Treatment During COVID-19 Pandemic - A Cross Sectional Study



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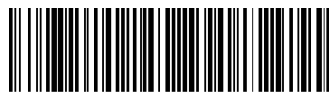
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ABSTRACT

Introduction- COVID-19 pandemic is caused by single-stranded ribonucleic acid viruses known as Coronaviridae which includes severe acute respiratory syndrome coronavirus 2 and severe acute respiratory syndrome coronavirus. Since the transmission of the virus occurs through close contact, droplet spread, direct or indirect contact with mucous membranes in the mouth, dental procedures are considered to be at a higher risk. **AIM-** To evaluate and assess awareness and apprehension among general population for dental treatment during COVID-19 pandemic. **Material and method-** A cross-sectional questionnaire based survey was conducted which consisted of 13 self-prepared questions. A total of 370 patients participated in this study. **Result-** Most of the population was well aware of safety measures to be taken to prevent COVID -19. However more than half of the population (54.6%) was apprehensive about visiting dentist during COVID -19 pandemic. **Conclusion-** The survey indicates that educating people about preventive measures to curb COVID -19 transmission is of utmost importance to reduce apprehension of patient for undergoing dental procedures during COVID-19 pandemic.

INTRODUCTION

The Novel Corona Virus Disease -2019 (COVID-19) pandemic has led to public health crisis globally. Emergence of COVID-19 infections were first identified in Wuhan, Hubei Province, China.¹ The novel Coronavirus belongs to a family of single-stranded ribonucleic acid viruses known as Coronaviridae which includes severe acute respiratory syndrome coronavirus 2 and severe acute respiratory syndrome coronavirus.¹ The transmission of COVID-19 pandemic has occurred at a much rapid rate than the severe acute respiratory syndrome coronavirus and middle east respiratory syndrome. This was reflected in the total tally of COVID-19 patients of nine countries which had already surpassed 50,000 in the month of April 2020.²

The transmission of the virus occurs through close contact, droplet spread, direct or indirect contact with mucous membranes in the mouth, eyes or nose and also through contaminated objects and surfaces. Apart from these, spread through faeco-oral route has also been said to be a potential mode of transmission of COVID -19.³ The signs and symptoms of COVID-19 includes flu-like symptoms- dry cough, fever, sore throat, headache, lethargy, and difficulty in breathing. Along with this, loss of taste and smell is considered as a predictor of a positive COVID-19 diagnosis.

Though COVID-19 has affected every strata of society, dental professionals are at a higher risk due to close proximity to the patient while diagnosis and treatment as well as due to aerosol generating procedures.⁴ On the other hand general population may also be apprehensive of visiting dentists during COVID-19 pandemic. This may cause them to ignore their oral health or will lead to delay in receiving dental treatment thus leaving a long-term adverse effect.

Hence dental treatment will be carried out safely during COVID-19 pandemic if patients would have optimum awareness about COVID-19, which will safeguard their health. Also, patient's apprehension for dental treatment needs to be addressed to motivate them to maintain their oral hygiene and seek dental treatment in case of any emergency. This study aims to evaluate and assess awareness and apprehension among general population for dental treatment during COVID-19 pandemic.

MATERIALS AND METHODS

A cross sectional questionnaire based survey was conducted from August 2020 to October 2020. Ethical clearance was obtained from Institutional Ethical Committee bearing registration number 4126/2020. A pilot study was conducted on 11 patients based on which the sample size was calculated keeping 5% confidence limit and using the following formula;

$$n = \frac{1.96^2 p(1-p)(DEFF)}{d^2}$$

Where p = Estimate of the expected proportion

d = Desired level of absolute precision

Keeping 5% confidence limit, for p = 0.05

$$n = 1.96 \times 1.96 (0.4 \times [1 - 0.4])$$

$$0.05 \times 0.05$$

$$n = 368.79$$

The total sample size required for the study was 368. A total of 370 patients completed the survey which was carried out through online platforms like Google forms. Informed consent was taken for all the participants before recording their responses.

Questionnaire Design:

The questionnaire included 10 self-prepared questions and had two parts. The first part had questions based on demographics: age, sex, and qualification. Based on age, participants were grouped into three groups; less than 25 years, 26-50 years and greater than 50 years. Based on qualification, participants were grouped as graduates and non-graduates. The second part consisted of altogether 16 questions of which thirteen questions were close ended with a yes/no response. And two questions were based on Likert scale.

STATISTICAL ANALYSIS

Data obtained was compiled on a Microsoft office excel sheet (v 2019, Microsoft Redmond

Campus, Redmond, Washington, United States) and was subjected to statistical analysis using Statistical package for social sciences (SPSS v 26.0, IBM). Comparison of frequencies of categories of variables with groups was done using chi-square test. For all the statistical tests, $p < 0.05$ was considered to be statistically significant, keeping α error at 5% and β error at 20%, thus giving a power to the study as 80%.

RESULTS

Total 381 participants were included in the study. The response rate was 100%. Table 1 describes demographics of participants [Table 1]. Out of 381 patients, frequency of population below 25 years of age group was 44 (11.5%), between 25- 50 years were 155 (40.7%) and rest 182 (47.8%) were above 50 years. Among respondents, 128 (33.6%) were females and 253 (66.4%) were males. Majority of respondents about, 301 (79%) were graduates.

When asked how often they visit dentists, 299 people (78.5%) responded that they visit dentist only when they have complaint regarding teeth or gums like pain or bleeding. Only 44 people (11.5%) reported that they do a periodic dental check up every 6 months. Table 2 shows response of population to this question, according to age and sex and education. About 208 (54.6%) agreed that they were afraid of visiting their dentist during COVID-19 pandemic. Apprehension for visiting dentist was more for males (81) than females (Table 3). Table 4 shows that about 76.4% of the population were well aware of the fact that there is an increased risk of transmission of COVID-19 by dental procedures.

Majority of population including graduates and age group beyond 50 years [225,59.1%] did not prefer teleconsultation for dental treatment (Table 5). There was a statistically significant difference in response between age groups, education and gender. However more females than males agreed to opt for teleconsultation. 312 (81.9%) out of total respondents were aware of tele-triage with a statistically significant response from age group above 50 years (Table 6).

Most of the population agreed that there should be thermal screening before entering dental clinic. (368, 96.6%). However, there was no statistically significant difference between the groups for the responses (Table 7). When asked regarding what all types of masks they were aware about, only 8 (2.1%) were about all kinds of masks available. And majority (215,56.4%) knew about N95 masks. Statistically significant differences in responses were seen between age

groups and education. Most graduates were aware about use of N95 (Table 8).

Table 9 and 10 described awareness of masses regarding new recommendations for the use of valved masks. 185 (48.6%) of population were aware that non-valved masks should be used in the hospital, with statistically significant responses obtained from males. About 290 (76.1%) patients responded with a 'NO' for undergoing COVID -19 testing if required for an emergency dental treatment with a higher frequencies of NO among population above 50 years (Table 11). When enquired about the mode of transaction, 278 (73%) agreed that they would opt for online mode of transaction. There was statistically significant difference in responses among graduates and non-graduates. Most graduates responded positively to the question (Table 12).

Majority of the population (73%) majorly above 50 years disagreed that increase in expenditure of dental treatment in covid-19 era is justified considering the increased cost borne by the dentist (Table 13). However, about 211(55.4%) people agreed that dental treatment should be included in insurance policies with statistically significant responses obtained from age group above 50 years (Table 14).

DISCUSSION

COVID-19 transmission majorly occurs through spread of larger and fine droplet.⁵The virus may be transmitted through saliva directly or indirectly,⁶ and via aerosol production that occurs during certain medical and dental procedures. As dental treatment becomes one of the main source of infection, it's important to evaluate awareness of general population towards precautionary measures taken to prevent spread of COVID-19.

Conversely, COVID-19 has affected dental practice, as only emergency procedures were recommended by CDC, to prevent spread of COVID -19 infection. But this may deny oral care to patients and also result in some patient's neglecting their oral health. As dental practice protocol will be undergoing a considerable change in post COVID era to reduce the apprehension of patients as well as to give effective treatment with all safety precautions.⁷Ashok et al (2016), had done a similar study wherein they evaluated knowledge and apprehension of dental patients regarding middle east respiratory syndrome outbreak.⁸

Though dentistry has undergone revolutionary changes in its treatment strategies, the state of

awareness is still lacking. This has been reflected in the responses received, wherein 78.5% of population said that they visit dentist only when they experience discomfort like pain or bleeding gums. Among 54.6% of population, males appeared to be more apprehensive of visiting a dentist during COVID-19 pandemic than females. This has been in accordance with the study by Porter et al, which concluded that males were more apprehensive about cross infection.⁹ It was highly appreciable that both the age groups 26-50 and greater than 50 showed greater awareness regarding increased risk of transmission of COVID-19 by dental procedures. This positive response could be attributed to mass media and social media efforts in increasing awareness against COVID-19.

Tele-consultation the most common form of tele-dentistry is need of the hour, as it avoids person to person contact and helps in remote screening and diagnosing a patient.¹⁰ However tele-dentistry will depend merely on the symptoms experienced by the patient and photographic image of the tooth or the lesion which may not guarantee an accurate diagnosis, without X-ray or percussion and palpation.¹¹ This was in contrast to finding of a survey where patients showed acceptance of tele-dentistry.¹² This could be the reason for majority of population not preferring tele-dentistry. Center for Disease Control and Prevention recommended tele-triage to be followed as the new protocol in dentistry. This would not only determine the severity of dental complaint but also screen them for COVID-19 symptoms, thus avoiding unnecessary exposure of dentist as well as other patients to infection. It will also enable patients to avoid prolonged waiting of patients at the dental clinic thus maintaining social distancing norms. The respondents were well aware of tele-triage (81.9%).

Awareness pertaining to safety measures that should be taken during COVID -19 pandemic were assessed, most of the population was well aware of the necessity of thermal screening before entering dental clinic and different types of masks available with 56.4% of population being aware of N95 which was statistically significant among the graduates. When asked whether they were aware about the new guidelines regarding valved masks, only 48.6% were aware that valved masks were not recommended. More number of graduates was aware of it than non-graduates (statistically significant).

COVID-19 not only had impact on health but also came with social stigma in the initial days.¹³ This could be the reason that majority of individuals showed reluctance in getting themselves

tested for COVID -19 if they are to undergo an emergency dental procedure or surgery. This in turn may result in neglect of oral care among the masses.

The survey also evaluated perception of individuals with respect to financial aspect related to dentistry. As COVID-19 resulted in imposing nationwide lockdown, almost every sector suffered a set-back, affecting the socio-economic status of various strata of society in different ways.¹⁴ As for dentistry it resulted in increase in the expenditure borne by the dentist for the additional safety measures to be taken. Hence though majority of population agreed that increase in expenditure of dental treatment in COVID-19 era is justified considering the increased cost borne by the dentist, 55.4% of population also believed that dental treatment should be included in the insurance policies.

CONCLUSION

From the present study, it could be concluded that there was an optimum level of awareness among the population regarding COVID -19 and the respondents were well aware of all the precautions that are to be taken for its prevention. Yet there was an increased apprehension for taking dental treatment in at least half of the population that were respondents in the survey during COVID-19 pandemic. The survey would enable dentist to undertake measures to reduce apprehension of the population and motivate them for undergoing dental procedures, if required while following all the safety guidelines.

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RESULT TABLES

TABLE 1-Distribution of respondents according to age, gender and education.

Factor	No of respondents	Percentage of respondents
GENDER		
FEMALE	128	33.6
MALE	253	66.4
AGE		
<25	44	11.5
26-50	155	40.7
>50	182	47.8
EDUCATION		
GRADUATE	301	79
NON GRADUATE	80	21

TABLE 2: How Often do you visit Dentist?

Responses	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
Every 3 months	7	1.8	6	1	4	2	1	6	1
Every 3-6 months	31	8.1	16	15	5	19	7	29	2
Every 6 months	44	11.5	23	21	8	19	17	36	8
Only when there is some dental discomfort like pain, bleeding gums.	299	78.5	83	216	27	115	157	230	69
Significance			0.000		0.000			0.162	

TABLE 3: Are you afraid to visit your dentist due to covid-19 Pandemic?

Responses	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
NO	173	45.4	47	126	14	79	80	131	42
YES	208	54.6	81	127	30	76	102	170	38
Significance			0.015		0.068			0.152	

TABLE 4: Are you aware that there is increased risk of transmission of COVID- 19 by dental procedures?

Responses	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
NO	90	23.6	33	57	9	43	38	69	21
YES	291	76.4	95	196	35	112	144	232	59
Significance			0.480		0.292			0.534	

TABLE 5: Would you prefer tele-consultation for dental treatment?

Responses	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
NO	225	59.1	45	180	18	73	134	160	65
YES	126	40.9	83	73	26	82	48	141	15
Significance			0.000		0.000			0.000	

TABLE 6: Are you aware that teletriage (pre-scheduling the appointment depending upon your dental complaint) is now recommended?

Responses	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
NO	69	18.1	28	41	13	39	17	55	14
YES	312	81.9	100	212	31	116	165	246	66
			0.175		0.000			0.873	

TABLE 7: Do you think thermal screening is necessary before entering dental clinic?

Responses	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
NO	13	3.4	5	8	1	9	3	9	4
YES	368	96.6	123	245	43	146	179	292	76
			0.705		0.101			0.397	

TABLE 8: What all type of mask are you aware about that can be used to prevent spread of COVID -19 infection?

Responses	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
3 ply surgical mask	27	7.1	9	18	1	14	12	20	7
3 ply surgical mask, N95	56	14.7	17	39	5	20	31	49	7
3 ply surgical mask, N95, FFP1, FFP2, FFP3	3	.8	1	2	0	30	0	3	0
Cloth mask	18	4.7	11	7	6	6	6	11	7
Cloth mask, 3 ply surgical mask	3	.8	2	1	2	1	0	2	1
Cloth mask, 3 ply surgical mask, N95	37	9.7	18	19	11	22	4	36	1
Cloth mask, 3 ply surgical mask, N95, FFP1,	2	.5	2	0	0	2	0	2	0
Cloth mask, 3 ply surgical mask, N95, FFP1, FFP2, FFP3	8	2.1	5	3	2	5	1	8	0
Cloth mask, 3 ply surgical mask, N95, FFP3	1	.3	0	1	0	1	0	1	0
Cloth mask, N95	9	2.4	4	5	3	5	1	9	0
Cloth mask, N95, FFP2	1	.3	1	0	0	0	1	1	0
N95	215	56.4	57	158	14	75	126	158	57
N95, FFP1	1	.3	1	0	0	1	0	1	0
Significance			0.005		0.000			0.017	

TABLE 9: What type of mask can be used in clinics and hospitals?

Response	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
Both	25	6.6	13	12	6	15	4	24	1
Don't know	48	12.6	21	27	12	28	8	41	7
Non valved	291	76.4	86	205	21	102	168	224	67
Valved	17	4.5	8	9	5	10	2	12	5
Significance			0.023		0.000			0.72	

TABLE 10: Are you aware about new guidelines stating that valved masks are not recommended for use?

Responses	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
NO	196	51.4	50	146	18	74	104	141	55
YES	185	48.6	78	107	26	81	78	160	25
Significance			0.001		0.075			0.000	

TABLE 11: Would you do a COVID -19 test if you are to undergo an emergency dental surgical procedure?

Response	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
NO	290	76.1	101	189	31	110	149	224	66
YES	91	23.9	27	64	13	45	33	77	14
Significance			0.363		0.042			0.132	

TABLE 12: Would you prefer online mode of transaction at dental clinic?

Question	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
NO	43	11.3	12	31	4	13	26	26	18
YES	338	88.7	116	222	40	142	156	276	62
Significance			0.402		0.207			0.000	

TABLE 13: Do you think increase in expenditure of dental treatment in COVID-19 era is justified considering the increased cost borne by the dentist?

Response	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
Agree	278	73.0	84	194	22	99	17	211	67
Disagree	16	4.2	9	7	2	11	3	16	0
Neutral	48	12.6	18	30	13	24	11	40	8
Strongly Agree	34	8.9	15	19	6	19	9	30	4
Strongly Disagree	5	1.3	2	3	1	2	2	4	1
Significance			0.125		0.000			0.086	

TABLE 14: Do you think in the current scenario, dental treatment should be included in the insurance policies?

Question	Frequency	Percentage	Gender		Age			Education	
			F	M	<25	26-50	>50	G	NG
Agree	142	37.3	45	97	16	68	58	106	36
Disagree	2	.5	2	0	1	0	1	2	0
Neutral	26	6.8	10	16	8	12	6	18	8
Strongly Agree	211	55.4	71	140	19	75	117	175	36
Strongly Disagree	0	0	0	0	0	0	0	0	0
Significance			0.216		0.001			0.132	

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