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Awareness of Teledentistry Amongst Dental Professionals in India Amid COVID-19 Pandemic. A Cross-Sectional Study

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Abstract

Background: COVID-19 has become a crisis across the country these days, which likewise changed living of individual to entity contact and its spread. There the presentation of Teledentistry will be the solitary solution that will have the option to treat patients quickly and expertly. **Aim:** The current study aims to assess the awareness of dental professionals towards teledentistry during COVID-19 crisis in India. **Methods:** A cross-sectional descriptive survey was conceded on over all 142 dentists. A self-organized, close-ended questionnaire containing 20 questions was appropriately assembled and distributed. Data collected from the survey was examined in terms of frequency (yes/no). One Way Anova test was used to exemplify statistical variances and result came as significant at $p < 0.05$. **Results:** The responses from specialist dental professionals (with or without practicing) responded (57%) and dentist working in a private sector (68%) having clinical experience of about 5-10 years (36%). **Conclusion:** Dentists were well aware of this advanced technique and due to feasibility, most of them were ready to practice it in future.

Keywords: COVID-19, Dentist, Teledentistry

1. Introduction

The victory of novel coronavirus (COVID-19) is dependable and it is getting inconvenient to day by day life. The present general wellbeing emergency is just cresting right now hereafter; telehealth partnerships have been an inestimable apparatus for clinical experts and patients. The presence one of this new framework known as Telemedicine is viewed as a useful guide for the patient who uses photos and e-mails to counsel specialist[1]. The expression "Tele" is gotten from a Greek word signifying "separation" and "mederi" is a Latin word signifying "to mend". Teledentistry is the reflection of telemedicine is a blend of broadcast communications and dentistry[2].

At the point when the emergency arrives at where general wellbeing authorities are requiring individuals to remain at home, dental specialists should assess and give upkeep to numerous patients utilizing teledentistry. Attributable to the ascent in victory of coronavirus, dental specialists have seen a sudden drop in their day by day arrangements as patients and groups laborers have been progressively stressed over this irresistible malady uniquely from a dental facility where wherever pressurized canned products are far reaching along these

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lines it can forestall or decrease the spreading of oral sicknesses[3].

Teledentistry has given general dental specialists forte work in both urban and the provincial regions. Be that as it may, there are constrained investigations directed in India among the dental specialist for the assessment of information, mindfulness, and mentalities in regards to teledentistry. From this point forward, the current examination was led among the dental experts towards teledentistry during COVID-19 emergency in India to assess their mindfulness towards teledentistry.

2. Methods

The present study was an expressive cross-sectional survey. A pretested, self-directed, close ended questionnaire comprising of 20 questions was comprised to assess the awareness amongst the dentists practicing or in academics or both of 161 dental professionals who were members of IDA (Indian Dental Association). Response rate reported was 80%. The estimated variance was taken as 0.5 and precision taken was 0.05 and confidence level of 95%. Sample size was derived using the formula:

$$n = \frac{\left(\frac{P[1-P]}{\frac{A^2}{Z^2} + \frac{P[1-P]}{N}} \right)}{R} \quad (1)$$

Where:

n = Sample size required; N = Number of people in the population; P = Estimated variance in population, as a decimal; A = Precision desired, expressed as a decimal; Z = Based on confidence level: R = Estimated Response rate, as a decimal.

The sample size thus derived was 142 dentists from India. In the current investigation, all the dental experts who were eager to enroll in the examination were incorporated and the individuals who were absent at the hour of information assortment all through or dental experts who were not in a concordance to take an interest in the investigation were prohibited from the investigation. The questionnaire consisting of 20 questions written in a simplified form of English was distributed by a single investigator and who was well with versed it.

The respondents were stated to approach the investigator directly in case of any doubts regarding any of the questions in the questionnaire. The questionnaire encompassed the following parts as;

Sociodemographic details, Questions relating to awareness regarding teledentistry, Means of inter–communications.

Data was assessed using statistical package for social sciences version 22.0. The one-way ANOVA test was used to exemplify statistical differences was made among numerous groups. The f-ratio value was 4.9307, p-value was 0.013 and the result was significant at $p < 0.05$.

3. Results

A total of 142 dental professionals, practicing or in academics or both were asked to contribute in the study. Socio-Demographic data disclosed that predominantly males (54%) were present on comparing to females (46%), between the age group of 30-40 years (46%). Specialist Dental professionals with or without practicing responded (57%) and dentist working in a private sector (68%) having clinical experience of about 5-10 years (36%) (Table 1).

Majority of the dentists (91%) were having very good knowledge about teledentistry. About (92%) of them accepted there is very much control over infections.

Table 1. Socio-Demographic details of the study

SOCIO-DEMOGRAPHIC DETAILS	FREQUENCY	%
Age (in years)		
20-30	31	22%
30-40	66	46%
>40	45	32%
Gender		
MALES	76	54%
FEMALES	66	46%
Education level		
DENTAL PROFESSIONAL BDS (with/without practicing)	61	43%
DENTAL PROFESSIONAL MDS (with/without practicing)	81	57%
Place of work		
PRIVATE	96	68%
GOVERNMENT	46	32%
Working experience		
< 5 YEARS	48	34%
5-10YEARS	51	36%
>10 YEARS	43	30%

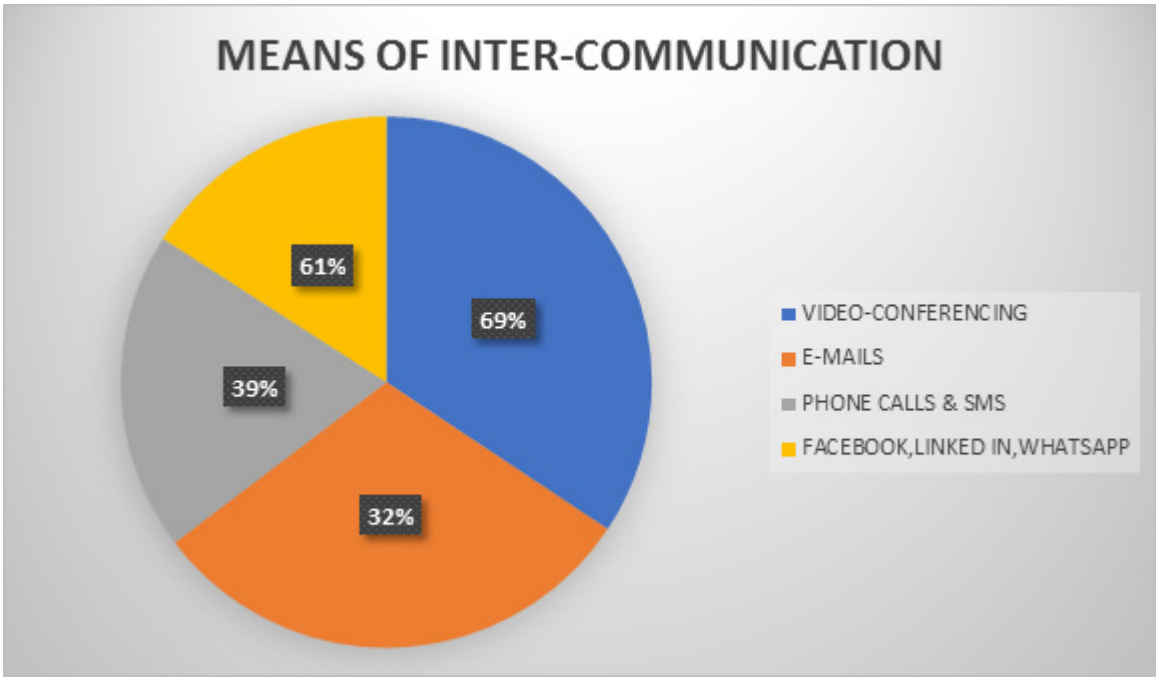
According to the majority, it is good in decision making and referring to the appropriate specialist (87%), useful in early and easy consultations of oro-facial disease with the specialist (85%) and useful in diagnosis & management of oral diseases. They showed positive attitude towards this new approach as it saves time (84%), it is cost effective (81%) and is convenient form of oral care delivery (86%). On conflicting, in India around (80%) found it difficulty in rural areas. Out of all the sources, video conferencing was found to be more useful means of intercommunication (69%) (Graph 1). Overall, dental professionals were ready to practice teledentistry in future (89%) (Table2).

4. Discussion

Dental center set up is unsafe for the consistently move of 2019-nCoV contamination attributable to the particularity of its activities, which envelops up close and personal correspondence with patients, and standard colleague to spit, blood, other body liquids, and treatment

Table 2. Awareness by Dental Professionals

S. NO.	CATEGORY	CORRECT	%	MEAN	STD DEV.
	Knowledge			124.4	5.4589
1.	About Teledentistry concept.	129	91%		
2.	Useful in diagnosis & management of oral disease.	118	83%		
3.	Useful in early & easy consultation of orofacial disease with specialist.	121	85%		
4.	Decision in making & referring to appropriate dental specialist.	123	87%		
5.	Control of Infections	131	92%		
	Attitude			108.8	12.9112
6.	Saves time	119	84%		
7.	Cost effective	115	81%		
8.	Convenient form of oral hygiene care delivery which makes dental examination easier.	120	86%		
9.	Accessible to rural population				
10.	Through video conference students can be educated & staff trained effectively.	92 98	65% 69%		
	Apparent challenges to the usage			81.6	22.8429
11.	Violate patient's privacy	63	44%		
12.	Worried about data entry mistakes	56	39%		
13.	Illiterates, population below the poverty line and lack of infrastructure	113	80%		
14.	Improvement in communication with Insurance industry	85	60%		
15.	Improvement in communication with dental laboratories.	91	64%		
	Means of Intercommunication among Dental Professional for health-related purpose			82.4	32.6389
16.	Usage of video conference as a means of inter communication.	98	69%		
17.	Usage of E- Mails	87	61%		
18.	Phone calls & SMS	56	39%		
19.	Facebook,LinkedIn,WhatsApp	45	32%		
Perspective towards Teledentistry					
20.	In the future, will you practice tele dentistry.	126	89%		



Graph 1. Possible Means of Inter- communication for Teledentistry

of sharp instruments too. The expression "teledentistry" was utilized as the act of utilizing video conferencing advancements to analyze and give guidance about treatment over a separation convict 1997[4]. There are two forms of teledentistry[5], Live video (synchronous) using audiovisual telecommunications technology, and Store forward (asynchronous) transmission of recorded health information through a secure electronic communications system to a practitioner, who use the information to assess a patient's condition, render a service outside of a real time or live interaction. On an additional note, to communal protocols for infection control, Teledentistry is considered to be an appreciated tool evidently for the prevention of the spread and cross contamination of the Coronavirus to unsuspicious staff and patients while treating new and prevailing patients.

In the present study, about (91%) of dentists were well aware of teledentistry but few were still in dilemma. Similar result was obtained by studies conducted by Cooper and Engeswick, Purohit *et al.*, Tomar *et al.*, Murererehe *et al.*, Pradhan *et al.* and Latif *et al.*, but controversial result was found by Ata and Ozkan[6-11]. It is a development procedure and requires devices, for example, advanced mobile phones and other wellspring of media with the goal that intercommunication turns out to be simple. It is seen that the best method for discussion is by doing video calls (69%) among all. In any case, open confronting modalities, for example, Facebook Live, Twitch, TikTok, and comparable video correspondence applications ought not to be utilized in the foundation of telehealth.

Greater part of dental specialists (77.9%) knew about the way that teledentistry is a decent apparatus for determination and the board of oral ailment (83%), in simple and early counsel of maxillofacial illnesses with its individual experts (85%) and suitable dental authorities (87%), comparative outcomes were acquired by Murererehe *et al.,* and Pradhan *et al.,*[12,13,14]. In expansion (81%) respondents accepted that it is valuable in decreasing expenses and spares the time also (84%). Comparable outcomes were found in an examination directed by Bauer *et al.,* and Pradhan *et al.*[11,13,14]

India is a creating nation, where a portion of the essential comforts of day by day schedule life are missing, especially essential wellbeing instruction and offices. About (65%) of dental specialists endorsed that principal they experience extraordinary test in country regions where it is hard for the specialists to reach because of absence of offices which was in concordance with Sen *et al.*

Knowing the way that physical contact with a tainted individual or respiratory distress is the most widely recognized method of transmission in like manner around (92%) of the dental specialists concurred with it.

In this period, way of life of individuals is turning out to be so best in class subsequently their method for adapting so around (69%) of the experts concur that it is the agreeable method for instructing the sprouting dental specialists.

While teaming up video-conferencing, understanding information is initially surveyed, which allows great correspondence and reaction between the instructor and understudies[15].

Around (44%) of the dental specialists concurred with the way that there are chances for the patient's protection to get shamed and were stressed over information section botches (39%) which was comparative with the examination done by Murererehe *et al.*[12] As referenced over that it is an extraordinary test for the specialist because of absence of offices correspondingly it is an incredible test for unskilled individuals too to comprehend (80%) in this manner measures ought to be taken so as to improve the instruction framework by improving the foundation and working up higher establishments. It has demonstrated improvement in correspondence with Insurance industry (60%) improvement in correspondence with dental research centers (64%).

With the headway of this new innovation of teledentistry, around (89%) of the dental experts concurred that it is another appearance, it has foreseen to realize capability, has given the permission to unskilled populace, has progress the nature of care, and decreases oral sickness trouble. Subsequently, they are going to rehearse in future.

These issues incorporate impact, between state licensure and unfortunate behavior, just as logical, wellbeing and other moral contemplations. The coaches of the teledentistry mentoring advancements should be very much experienced with PC information and they ought to have acceptable instructing aptitude.

5. Conclusion

The current examination displayed reasonable information about the way teledentistry is practiced and the preferences and hindrances of teledentistry among rehearsing dental specialists in India. Most of dental specialists in our investigation revealed mindfulness about teledentistry, and because of its plausibility they needed practice it in future.

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Nil.

7. Conflicts of Interest

There are no conflicts of interest.

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