

Awareness of Tele - Dentistry among Dental Practitioners of Bathinda City: A Questionnaire Survey

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Abstract: ***Aim:** To identify the knowledge, attitude and practices of tele dentistry among dental practitioners of Bathinda city. **Materials and Methods:** 140 dental practitioners having their dental clinics in any area of Bathinda city, Punjab were interviewed through a questionnaire. Registered dental practitioners of Bathinda city with at least a Bachelors of Dental surgery (BDS) who gives consent to be a part of the study were included in the study. The questionnaire consisted of 30 questions comprising of questions of knowledge, attitude and practice regarding tele dentistry. **Results:** Almost 71.9% of the participants had heard about tele dentistry and 75.5% believed it can be helpful in - patient education. Almost every statement of attitude assessment regarding tele dentistry among participants was found to be neutral. Only 13.7% participants would not accept to give tele dentistry care and around 15% would not accept to receive tele dentistry care. **Conclusion:** Thus, awareness regarding tele dentistry should be achieved by conducting continuing dental education programs, seminars, webinars etc.*

Keywords: Tele dentistry, Teleconsultation, Teliagnosis, Telehealth, Telecommunication

1. Introduction

The World Health Organisation declared a coronavirus (COVID - 19) pandemic on 11 March 2020. Following the outbreak of COVID - 19, the government instigated lockdown and social distancing measures.¹⁻² With the advent of the coronavirus pandemic, dentistry has faced a halt as it involves face - to - face interaction with patients which had to be suspended for quite some time.³ People had been reluctant to visit dentist due to the fear of infection. The difficulties emerged from the high risk of droplet and aerosol exposure, as SARS - CoV - 2 is transmitted mostly by contact with infected droplets.⁴⁻⁶ Since the advent of telehealth technology decades ago, the fields of medicine and dentistry have seen substantial scientific advances. In that regard, tele dentistry (TD) is a form of telehealth utilizing a combination of telecommunications and dentistry, which involves the exchange of clinical information and relevant imaging over remote distances for consultation and treatment planning.⁷

Cook in 1997 defined tele dentistry as “The practice of using video - conferencing technologies to diagnose and provide advice about treatment over a distance. ” Dental professionals have used technology such as intraoral camera, in private practice for patient education and case acceptance.⁸ Tele dentistry is believed to improve dental care provided to patients and time management efficiency. In addition, tele dentistry can be a useful tool for peer education, consultations and ensures proper channelling for referrals.⁹

Tele dentistry is the way by which quality dental care can be delivered to rural patients with the help of computers, internet, and softwares.^{10, 11} However, the efficacy of this

method is largely dependent on the level of awareness amongst health professionals.¹² Awareness regarding tele dentistry can be achieved by conducting continuing dental education programs, seminars, webinars, awareness campaigns, and programs that will help in improving professional skills.¹³ Thus, a survey was conducted among dental practitioners of Bathinda regarding their knowledge, attitude and practice about Tele dentistry since March 2020.

2. Materials and Methods

Study Design: This is a descriptive cross - sectional questionnaire - based study design.

Study Sample: 140 dental practitioners having their dental clinics in any area of Bathinda city, Punjab were interviewed through a questionnaire.

Data Collection: A questionnaire comprising of 30 questions was distributed by a single investigator by visiting their respective concerned clinics and collected on the same day or next day.

The questionnaire will have two parts:

The first part will consist of socio- demographic questions like age, gender, work experience, area of practice etc.

The second part will consist of questions related to knowledge, attitude and practice regarding Tele dentistry during Covid.

Inclusion and Exclusion Criteria: Registered dental practitioners of Bathinda city with at least a Bachelors of Dental surgery (BDS) who gives consent to be a part of the

study and Dentists involved in direct dental care of patients were included for the study. Non registered practitioners who do not give consent, all those who refrain from the use of internet/ technology and Dentists not responding on the pre decided time period for submission of the form were excluded from the study.

Time Frame: This is a duration - based study which was carried out for 3 months from March to May.

Statistical Analysis

Data was collected with the help of a pre structured, close ended and pre validated questionnaire consisting of 30 questions.

Data was collected, compiled and arranged in the systemic manner and analysed in the terms of frequencies using SPSS software.

3. Results and Discussion

The present study has 139 participants, majority of the participants belonged to 30 - 40 years whereas only 2.9% above 50 years. Almost 64.7% were females.

Almost half of the participants (47.5%) had dental practice experience of less than 5 years whereas merely 5.8% has more than 20 years. Majority of the participants practiced in the city.

Almost 71.9% of the participants had heard about tele dentistry and 75.5% believed it can be helpful in - patient education. An almost equal response of yes and no were obtained when asked if tele dentistry be applied to every branch of dentistry.

Around 37.4% felt lack of resources as the main reason for poor quality care in remote and rural areas.

While looking for major factors to consider before employing tele dentistry majority of the participants (36.7%) felt patients technology literacy as the hinderance factor followed by 27.3% felt it to be internet connection issues.

Enquiring about reasons for slow adoption of tele dentistry 25.2% felt lack of professional readiness and 23.7% felt concerns about financial compensation.

Majority felt patients will have new difficulties regarding this method of care as it is new for everyone.

On the other hand, looking at the benefits of tele dentistry almost 45.4% felt the increased access to the dentist and beneficial to patients because of ease of use, being reliable and increased access to clinical services.

Almost every statement of attitude assessment regarding tele dentistry among participants was found to be neutral. (Table 1)

Table 1: Attitude assessment regarding tele - dentistry among participants

	Strongly Disagree N (%)	Slightly Disagree N (%)	Neutral N (%)	Slightly Agree N (%)	Strongly Agree N (%)
Can tele - dentistry help to improve access to oral health care?	35 (25.2)	9 (6.5)	40 (28.8)	34 (24.4)	21 (15.1)
Tele - dentistry violating patient's privacy?	36 (25.9)	40 (28.8)	51 (36.7)	9 (6.5)	3 (2.1)
Tele - dentistry saves time	18 (12.9)	18 (12.9)	43 (30.9)	41 (29.5)	19 (13.6)
Tele - dentistry increases susceptibility of specialists to rural and under deserved communities for their dental needs?	15 (10.8)	20 (14.4)	45 (32.4)	30 (21.6)	29 (20.9)
Tele - dentistry is helpful in providing good understanding of patient's oral health problem over internet?	17 (12.2)	21 (15.1)	43 (30.9)	36 (25.9)	22 (15.8)
It induces isolation of specialist by providing peer contact and specialist report?	17 (12.2)	11 (7.9)	52 (37.4)	38 (27.3)	21 (15.1)
Tele - dentistry is a convenient type of oral health care delivery for making dental examination easier?	17 (12.2)	19 (13.7)	52 (37.4)	35 (25.2)	16 (11.5)
There can be risk of data entry mistakes related to tele - dentistry?	22 (15.8)	8 (5.8)	50 (36.0)	41 (29.5)	18 (12.9)
I consider myself prepared for tele - dentistry?	16 (11.5)	13 (9.4)	61 (43.9)	36 (25.9)	13 (9.4)
Tele - dentistry can be considered effective for diagnosis?	19 (13.7)	17 (12.2)	55 (39.6)	35 (25.2)	13 (9.4)
Tele - dentistry can be considered effective for treatment?	22 (15.8)	16 (11.5)	55 (39.6)	41 (29.5)	5 (3.6)

Only 13.7% participants would not accept to give tele dentistry care and around 15% would not accept to receive tele dentistry care.

Around 31.7% participants charged for tele dentistry care provided to their patients and majority used video call as

tool for the consultation which was less than 5 times a week. The difference of experience of dental practice in years and knowledge about tele dentistry, benefits of it and acceptance to receive tele dentistry, was found to be statistically non-significant. (p=0.654, p=0.553 and p=0.269 respectively) (Table 2)

Table 2: Frequency cross tabulation of Dental experience wise difference in terms of tele - dentistry conceptualization

		Dental Experience				Chi Square	p value
		Up to 5 years	5 - 10 years	10-20 years	More than 20		
Have you heard about tele dentistry?	Yes	50	27	18	5	1.625	0.654
	No	16	13	9	1		
What are the benefits of tele dentistry?	Increased access	16	6	6	1	10.723	0.553
	Minimal cost	10	2	4	1		

	Reduced cost of transportation	9	12	5	0		
	Easy access to specialist	18	8	5	2		
	All of the above	13	12	7	2		
Would you accept to receive tele - dentistry care	Would not accept	8	6	5	0	11.097	0.269
	Yes, but insecure	13	11	7	2		
	Yes, but not efficient	17	14	11	3		
	Yes	28	9	4	1		

4. Questionnaire

- 1) What is your age?
 20 – 30 30 – 40 40 – 50 Above 50
- 2) What is your gender?
 Male Female
- 3) How long have you been practicing dentistry?
 Upto 5 years 5 - 10 years
 10 - 20 years More than 20 years
- 4) What is your area of practicing dentistry?
 City Suburban Rural
- 5) Have you heard about tele dentistry?
 Yes No
- 6) Can tele dentistry help in patient education?
 Yes No
- 7) Can tele dentistry be applied to every branch of dentistry?
 Yes No
- 8) What are the subunits of tele dentistry?
 Teleconsultation telediagnosis
 Telemonitoring tele triage All of the above
- 9) Acc. To you, what is the reason for poor quality care in remote and rural areas?
 Lack of resources
 Poor access to oral screening
 Poor access to treatment
 Change in demographics
- 10) What are the benefits of tele dentistry?
 Increased access
 Minimal cost
 Reduced case of transportation
 Easy access to specialist
- 11) What are the benefits of tele dentistry to patients?
 Patient satisfaction
 Ease of use
 Reliable
 Increased access to clinical services
 All of the above
- 12) What according to you is the reason for slow adoption of tele dentistry?
 Lack of professional readiness
 Lack of appropriate intraoral imaging
 Concerns about financial compensation
 Impossibility of using radiographic examination
- 13) Can tele dentistry help to improve access to oral health care
 Strongly disagree Slightly disagree Neutral Slightly agree Strongly agree

- 14) Tele dentistry violating patient's privacy
Strongly disagree Slightly disagree Neutral Slightly agree Strongly agree
- 15) Tele dentistry saves time
Strongly disagree Slightly disagree Neutral Slightly agree Strongly agree
- 16) Tele dentistry increases chances of specialists to rural to under deserved communities for their dental needs
Strongly disagree Slightly disagree Neutral Slightly agree Strongly agree
- 17) Tele dentistry is helpful in providing good understanding of patient's oral health problem over internet
Strongly disagree Slightly disagree Neutral Slightly agree Strongly agree
- 18) It induces isolation of specialist by providing peer contact and specialist report
Strongly disagree Slightly disagree Neutral Slightly agree Strongly agree
- 19) Tele dentistry is a convenient type of oral health care delivery for mak examination easiering dental
Strongly disagree Slightly disagree Neutral Slightly agree Strongly agree
- 20) There can be risk of data entry mistakes related to tele dentistry
Strongly disagree Slightly disagree Neutral Slightly agree Strongly agree
- 21) I consider myself prepared for tele dentistry
Strongly disagree Slightly disagree Neutral Slightly agree Strongly agree
- 22) Tele dentistry can be considered effective for diagnosis
Strongly disagree Slightly disagree Neutral Slightly agree Strongly agree
- 23) Tele dentistry can be considered affective for treatment
Strongly disagree Slightly disagree Neutral Slightly agree Strongly agree
- 24) Major factors to consider before employing tele dentistry?
Image quality Lighting Internet connection Patient's technology literacy
- 25) Would you accept to give tele dentistry care?
Would not accept Yes, but insecure Yes, but not efficient Yes
- 26) Would you accept to receive tele dentistry care?
Would not accept Yes, but insecure Yes, but not efficient Yes
- 27) Will you charge for tele dentistry?
Yes No
- 28) Which tool would you use for tele dentistry?
Voice call Video call Text message Don't know Would not use
- 29) If you used, what was the frequency in a week?
Once 2 - 5 times 5 or more times
- 30) Do you think patient will have new difficulties regarding this method of care?
No Yes, only when using the virtual tour
Yes, but unsure about personal information Yes, its new for everyone

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