

Original Research

Knowledge, attitude and awareness of teledentistry among dental students in Ghaziabad – A cross-sectional study

¹Irfan Ali, ²Monika Kumari

¹Private Practitioner, ²Tutor, Department of Public Health Dentistry, D.J College of Dental Sciences and Research, Uttar Pradesh, India

ABSTRACT:

Introduction: Oral health is a vital part of general health and dental care is also being transformed by opportunities provided by technology and telecommunication. Teledentistry can bridge the gap between the demand and the supply of oral healthcare to an extent. Hence, this study was conducted to assess the Knowledge, Attitude and Awareness of Teledentistry among dental students in Ghaziabad. **Materials and Methods:** A questionnaire based cross-sectional study was conducted among 197 dental students in Ghaziabad. A pre-tested questionnaire was used to collect the data. The collected data was subjected to frequency distribution analysis using the Statistical Package for the Social Sciences software (SPSS) 21.0v. **Result:** According to the present study, about 94.4% previously heard about teledentistry while 92.4% were aware about what is teledentistry. 68% students believed teledentistry can help in reducing costs for the dental practices while 83.2% felt that teledentistry saves time for the dentist. About 84.8% students thought that teledentistry can increase accessibility of the specialists to rural and underserved communities for their dental needs but only 34% trust the teledentistry equipment to work. **Conclusion:** According to the present study, knowledge, attitude and awareness of dental students about teledentistry were found to be satisfactory. By appropriately undertaking, teledentistry could lead to the advancement of oral health-care delivery and overcome the oral health inequalities.

Keywords: Attitude, Dental Students, Knowledge, Teledentistry

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Corresponding author: Irfan Ali, Private Practitioner, Department of Public Health Dentistry, D.J College of Dental Sciences and Research, Uttar Pradesh, India

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INTRODUCTION

In the modern era of computers and telecommunication, health care has developed dramatically and “telemedicine”, “tele-health” or “e-health” came into reality. ^[1] Telemedicine is derived from the Greek word “Tele” meaning distance and Latin word “Mederi” meaning to heal. ^[2]

Oral health is a vital part of general health and dental care is also being transformed by opportunities provided by technology and telecommunication. ^[1] Teledentistry is a part of telemedicine which uses technology to communicate health information, provide oral healthcare, screen, and educate remotely between oral healthcare providers and patients. ^[3]

According to Cook in 1997, teledentistry is defined 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, however, teledentistry has been underused as a means of diagnosis and referral in dentistry. ^[4, 5]

Teledentistry has the potential to eliminate oral health inequalities between rural and urban communities. ^[6, 7] It helps in providing oral health care delivery to the disadvantaged populations such as children, prisoners, and the elderly and those with intellectual and developmental disabilities who have limited access to traditional dental care. Also there is a noted evidence that teledentistry is cost-effective. ^[3]

The knowledge and practices of teledentistry among future generation dentists is important since it can bridge the gap between the demand and the supply of oral healthcare to an extent. ^[8] Hence, this study was conducted to assess the Knowledge, Attitude and

Awareness of Teledentistry among dental students in Ghaziabad.

MATERIALS AND METHODS

A questionnaire based cross-sectional study was conducted among the dental students in Ghaziabad. The ethical clearance for the study was obtained from the institution review board of the college and the informed consents were taken from all the participants.

DATA COLLECTION

A pre-tested questionnaire was used to collect the data.^[2] Responses to the 20-item closed questionnaire were used for assessing the knowledge, attitude and awareness of Teledentistry among dental students. The feasibility of the study was determined

by a pilot study among 25 students. Cronbach's coefficient was found to be 0.84. A total of 197 students completed the entire questionnaire.

STATISTICAL ANALYSIS

The data were compiled and tabulated in Microsoft Excel spread sheet and were subjected to frequency distribution analysis using the Statistical Package for the Social Sciences software (SPSS) 21.0v (SPSS Inc., Chicago, IL, USA).

RESULT

In the present study, responses of 197 students who completed the entire questionnaire was recorded and analysed. 68.5% females and 31.5% males were in this study. Table 1 illustrates the demographic data of the Study participants.

Table 1: Demographic data of the Study participants

Demographic Data		Number	Percentage
Gender	Female	135	68.5%
	Male	62	31.5%
Educational Qualification	1 st year students	36	18.3%
	2 nd year students	32	16.3%
	3 rd year students	41	20.8%
	4 th year students	22	11.2%
	Interns	43	21.8%
	Post graduates	23	11.6%
Mean Age		22.11 ± 4.007	

According to the present study, about 94.4% previously heard about teledentistry while 92.4% were aware about what is teledentistry. 74.1% thought that teledentistry is good for dental education over Internet and for training primary health-care dentists. About 65.5% felt teledentistry helps to monitor the patient's oral health where as 84.3% thought teledentistry useful in improving the access to oral healthcare. 68% students believed teledentistry can help in reducing costs for the dental

practices while 83.2% felt that teledentistry saves time for the dentist.

In this study, 84.8% students thought that teledentistry can increase accessibility of the specialists to rural and underserved communities for their dental needs but only 34% trust the teledentistry equipment to work. Table 2 shows the Knowledge, Attitude and Awareness of dental students towards Teledentistry.

Table 2: Knowledge, Attitude and Awareness of Dental Students towards Teledentistry

Sl. No:	Questions	Yes	No
1.	Have you heard about teledentistry?	94.4% (186)	5.6% (11)
2.	Do you know what teledentistry is?	92.4% (182)	7.6% (15)
3.	Is teledentistry about the practice of use of computers, Internet, and technologies to diagnosis and provide advice about treatment over a distance?	92.4% (182)	7.6% (15)
4.	Does teledentistry helps to consult with an expert about specific patient's problem?	58.9% (116)	41.1% (81)
5.	Do you think that teledentistry is good for dental education over Internet and for training primary health-care dentists?	74.1% (146)	25.9% (51)
6.	Does teledentistry helps to monitor the patient's oral health?	65.5% (129)	34.5% (68)
7.	Can teledentistry be applied in any branch of dentistry?	34% (67)	66% (130)
8.	Is teledentistry useful in improving the access to oral healthcare?	84.3% (166)	15.7% (31)
9.	Do you think that teledentistry is a good tool for oral hygiene training?	88.3% (174)	11.7% (23)
10.	Can teledentistry will be able to monitor your patient's condition well?	87.8% (173)	12.2% (24)
11.	Do you think that dental examinations are accurate via computers and intraoral camera as in the traditional office setting?	84.3% (166)	15.7% (31)

12.	Do you think that teledentistry is a convenient form of oral health-care delivery that makes dental examination easier?	76.6% (151)	23.4% (46)
13.	Teledentistry can be an addition to the regular care to which the dentists provide?	69.5% (137)	30.5% (60)
14.	Does teledentistry can help in reducing costs for the dental practices?	68% (134)	32% (63)
15.	Do you think that teledentistry saves time for the dentist?	83.2% (164)	16.8% (33)
16.	Do you think that teledentistry can increase accessibility of the specialists to rural and underserved communities for their dental needs?	84.8% (167)	15.2% (30)
17.	In India, major challenges in teledentistry are illiterates, population below the poverty line, and lack of infrastructure?	87.8% (173)	12.2% (24)
18.	Do you trust the teledentistry equipment to work in India?	34% (67)	66% (130)
19.	Will you support a government initiative whereby patients could obtain advice on treatment need from a central facility such as PHC connected via teledentistry?	83.8% (165)	16.2% (32)
20.	In the future, will you practice teledentistry?	91.4% (180)	8.6% (17)

DISCUSSION

Development in the modern telecommunication and information technology in India has changed the various prospect of life in the form of knowledge and awareness. These resources can have a cumulative effect in Indian population toward the transition and transformation of teledentistry.^[9] The present study attempted to assess the Knowledge, Attitude and Awareness of Teledentistry among dental students in Ghaziabad.

According to the present study, most of the students previously heard about teledentistry and were aware about what is teledentistry. These results were in agreement with the study conducted by Balsaraf SV et al where 85% dentists have heard about teledentistry.^[4]

Most of the students in this study thought that teledentistry is good for dental education over Internet and for training primary health-care dentists and this shows agreement with the study done by Nagarajappa R et al. ^[1]In this study, more than 60% of the students felt that teledentistry helps to monitor the patient's oral health and also to improve the access to oral healthcare. In a study by Nagarajappa R et al 54.3% respondents felt teledentistry helps to monitor the patient's oral health where as 84.3% assumed that teledentistry is useful in improving the access to oral healthcare.^[1]

Most of the students in this study believed teledentistry is cost effective and also saves time for the dentist. In this study, most of the dental students thought that teledentistry can increase accessibility of the specialists to rural and underserved communities for their dental needs but only a few trusted the teledentistry equipment to work. These results are in contrast with the study done by Balsaraf SV et al.

The sample size was insufficient to generalize the findings of the study and this may be a possible limitation. Owing to the fact that questionnaire based studies are susceptible to acquiescence bias and social desirability bias, these can also remain as another limitations.

CONCLUSION

According to the present study, knowledge, attitude and awareness of dental students about teledentistry were found to be satisfactory. However, only a few students trusted the teledentistry equipment to work in India. By appropriately undertaking, teledentistry could lead to the advancement of oral health-care delivery and overcome the oral health inequalities.

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