International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

AWARENESS ON USE OF TELEDENTISTRY DURING LOCKDOWN AMONG CHENNAI POPULATION

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ABSTRACT

Teledentistry is described as telecommunication about dentistry. It is a virtual communication tool which helps people to understand and resolve any dental problems encountered by them with the help of an expert opinion. The aim of this study was to create awareness on the use of teledentistry during this lockdown. A cross sectional survey was conducted among the undergraduate dental students. An online questionnaire based survey was conducted. The sample size of the study was 100. Respondents were found to have moderately adequate knowledge and awareness about teledentistry. About 75.9% were aware about teledentistry. 53.7% said that teledentistry was useful during lockdown. 77.8% feel that teledentistry improves the oral health in rural areas. 77.8% of the participants feel that teledentistry brings awareness among the illiterate people. Within the limitations of study we can conclude that among the population there is a good knowledge and awareness about teledentistry.

Keywords: Teledentistry; Consultation; Reduce fear; Anxiety; Safe; Patients details; Development; Economical development; High cost

INTRODUCTION

Teledentistry is nothing but telecommunication about dentistry. It is a virtual communication tool which helps the person to understand and resolve any dental problems encountered by them with the help of an expert opinion [1]. Advantages include increased accessibility to a dental clinic for the rural population, it reduces odontophobia, keeps records safe, and saves travel time [2]. Various platforms through which tele dentistry can take place are video call, live feeds, sms etc. it is very useful for rapid detection and immediate response to any disease outbreak or natural disasters [3].

Teledentistry helps to save time, reduce patient fear and also helps to save patient information. It has the ability to improve oral healthcare and lower its cost and time consumed[4]. Through teledentistry many dental diagnosis and treatment planning are saved carefully and given back to the patients whenever needed. It reduces the anxiety within the patients as they stay in their home and consult doctors. The Communication between the patient and doctor is good. During a pandemic situation like COVID 19, teledentistry can be made used to the fullest inorder to alleviate patient fears and also provide a dental consult.

Devina *et al* in her research article has mentioned about good awareness about teledentistry among post graduates in Kanpur Dental College [4]. Kharbanda *et al* has stated that people in India are not optimistic about tele dentistry and quoted the lack of awareness among the people as a main reason for its unpopular nature [5]. Various researches have been done in our university on different subjects like tooth hypomineralization & sensitivity, oral medicine, health discipline, microbial research, surgical research, biopsy etc [6-17]. This encouraged us to pursue our present research. The aim of this study is to evaluate the awareness and use of teledentistry during lockdown in chennai population.

MATERIALS AND METHODS

This research is a questionnaire survey among the general chennai population. The study was approved by Institution scientific review board approval. The sample size of the study is 100 . These are about 15 questions and the questionnaire were validated by face validation, pilot testing in 20 respondents, analysis of dataset, review and finally questions were prepared. Through google forms the data was collected and tabulation was done with the help of excel spreadsheet. The output variables of the study contains descriptive variable (age, sex)

and explanatery vaiables like knowldge and attitude towards tele denististry. Questions from 1 to 15 were collected as ordinal data and the data were represented as pie chart/bar diagrams. It is descriptive analysis which includes frequency and percentage.

RESULT

Total numbers of responses were 108.The questions were divided into knowledge, attitude and practice. Respondents have moderately adequate knowledge and awareness about teledentistry. About 65 % were male and 35% were female. About 75.9% of the people are aware about tele dentistry and 24.1% are not aware **[Figure 1]**. About 80.6% accepted that through tele dentistry they can provide treatment over a distance and 19.4% said No **[Figure 2]**. About 72.2% accepted that they are scared to visit a dentist due to COVID 19 and 27.8% are not scared **[Figure 3]**. About 82.4% of the people accepted that teledentistry eases the fear of visiting a dentist and 17.6% says No **[Figure 4]**. About 64.8% said that they didn't face any dental problems during this lock down and 35.2% accepted that they faced problems **[Figure 5]**. About 15.7% visited the dentist during lockdown, 36.1% used teledentistry, 22.2% had self meditation and about 25.9% not applicable **[Figure 6]**. About 53.7% used tele dentistry and were

happy about that and about 13% told it was not useful and about 33.3% told it was not applicable **[Figure 7]**.

About 35.2% of people selected that teledentistry is useful for the people whose age is between 25 to 35 years and about 34.35 selected above 55 years **[Figure 8]**. About 45.4% of people accepted that teledentistry requires complex infrastructure and about 54.6% selectec no **[Figure 9]**. about 77.85 accepts that teledentistry is improving access to oral health care in rural areas and about 22.2% said no **[Figure 10]**. About 53.7% agrees that teledentistry is cost efficient and about 46.3% said no **[Figure 11]**. About 77.8% agree that teledentistry brings an awareness among illiterate people and 22.2% say no **[Figure 12]**. About 81.3% accepted that India lags in tele dentistry development and 18.75 say no to the question **[Figure 13]**. About 89.8% said that they would recommend tele dentistry to their friends and 10.2% said no **[Figure 14]**. Chi square analysis was done to compare the questions between male and female **[Figure 15-22]**.

Most of the participants were aware of teledentistry which was in consensus with the result of boring *et al* where 66.33% health professionals were aware of teledentistry **[18]**. Awareness is more in our study because

of the influence of the media. This was also vouched by another author where 92.86% of the participants became aware of teledentistry only through the media because of the advertisements [19]. About 53% said tele-dentistry was useful in lockdown because many are afraid to go meet dentists and tele-dentistry helped to reduce this anxiety especially during COVID 19. Covid 19 pandemic has raised the fears of patients to visit the dentist. Teledentistry has eased this fear by allowing them to consult with the dentist from the comforts of their homes. Most people who used teledentistry also found it to be cost effective.

From this study the main advantages found was that teledentistry is cost effective, easily accessible, less waiting time and reduced travel time. About 58% people are afraid to visit a dentist due to COVID - 19 it is due to the general increase in anxiety to patients [20]. About 75% of them recommended tele

density to others [1]. Once the advantages of teledentistry is experienced the participants start to recommend it to their peers and family members. About 80% of people do not have any kind of dental problems during this lockdown because of less consumption of junk foods due to closure of many supermarkets which has reduced the visit to the dentist. With the help of teledentistry we can know the diet we must consume and what all exercises we must do through a general consultation with the dentist [21].

In teledentistry the photos of the patients and the treatment done is the most important [22, 23]. With increase in technology and science in future teledentistry will help in early diagnosis and reduce waiting time for consultation at dental clinics. The limitation of this study is not having much quantitative data and this study contains small sample size.
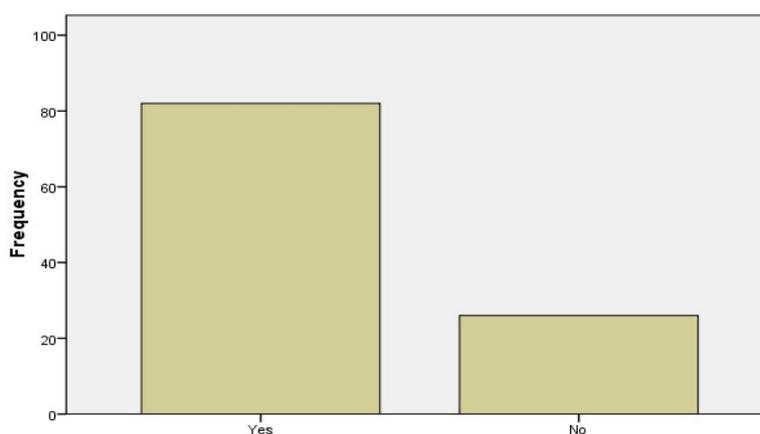

Figure 1: Bar graph depicting the response to the question on awareness about teledentistry. X axis represents awareness about teledentistry and Y axis represents the number of responses. 76% responded "yes", 24% responds "no".
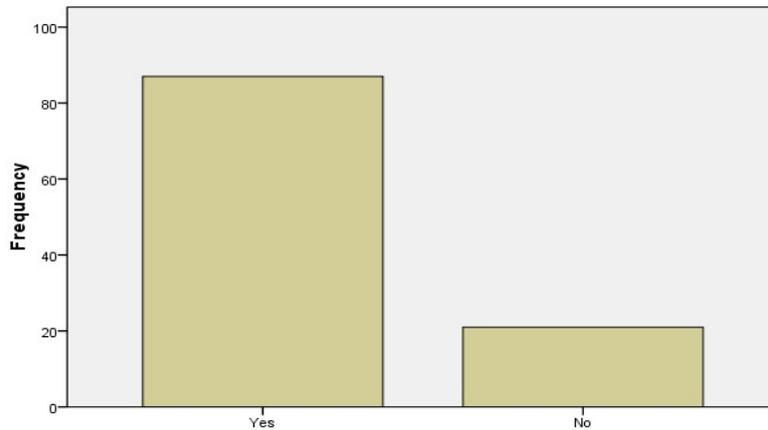
Figure 2: Bar chart showing responses to the question on knowledge regarding the definition of teledentistry. X axis represents the knowledge regarding the definition and Y axis represents the number of responses. 81% people responded " yes", 19% people responded "no"
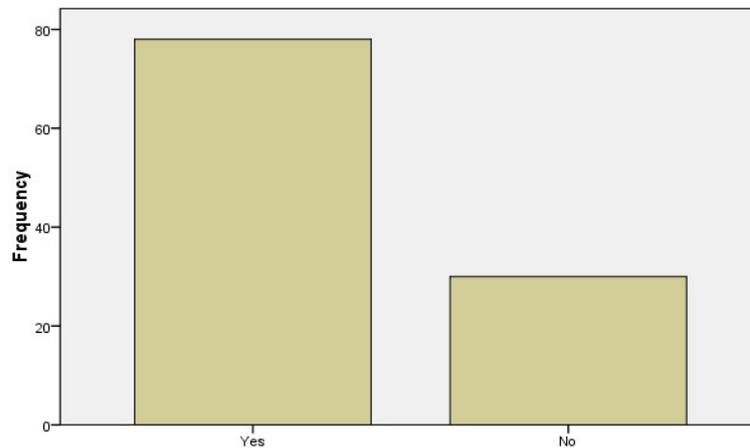

Figure 3: Bar chart showing response to the question regarding the fear of people visiting the dentist during lock down. X axis represents the response for fear of people visiting the dentist during lockdown (Yes or No) and Y axis represents the number of responses. 72% of the participants responded " yes"; 28% of the participants responded "no"
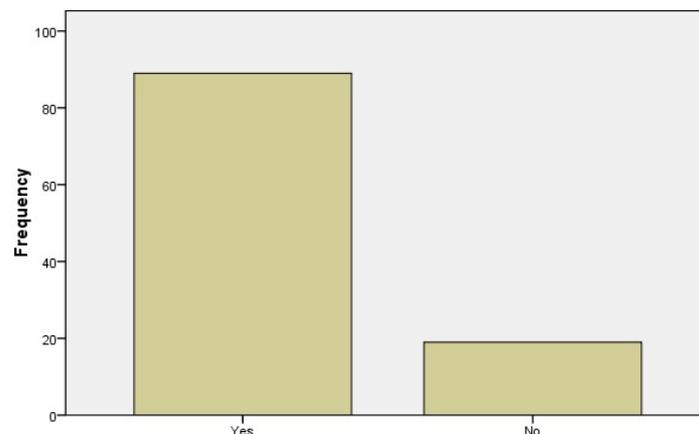
Figure 4: Bar chart showing response to the question," Does teledentistry reduce the fear by consulting from home" .X axis showing the responses to whether fear is reduced by consulting from home and Y axis showing the number of responses. 82% participant responded "yes", 18% participants responded "no"
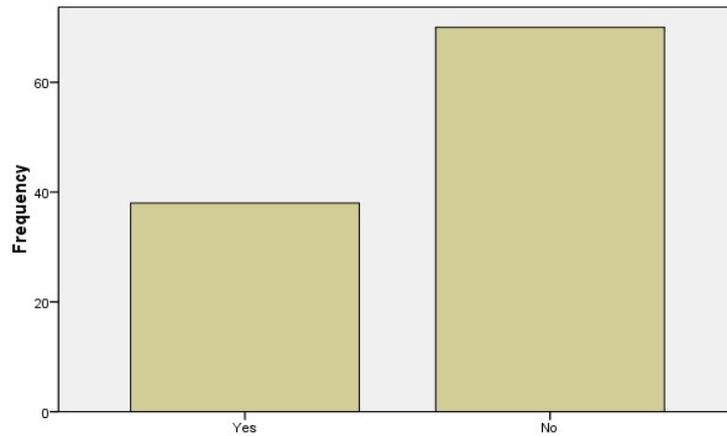
Figure 5: Bar chart showing response to the question," If Participants were affected by dental problems during this lockdown". X axis showing the whether the participants were affected by dental problems during this lockdown and Y axis represents the number of responses. 35% participants answered "yes"; 65% participants answered "no"
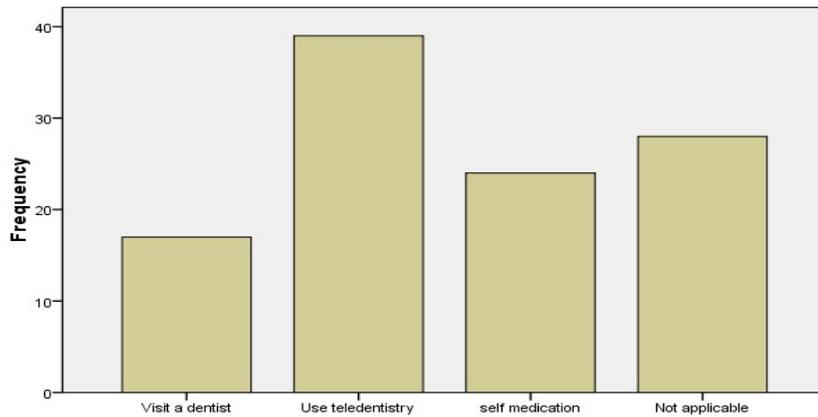

Figure 6: Bar chart showing response to the question," what remedy was opted for dental problem during lock down". X axis represents the remedy of dental problems during lockdown and Y axis the number of responses.16% of the participants responded to visit a dentist, 36% used teledentistry, 22% of the participants self medication, 26% not applicable.
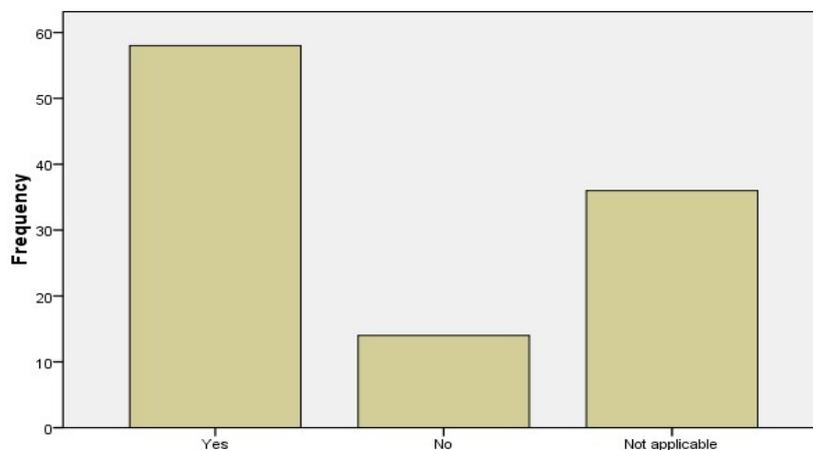

Figure 7: Bar chart showing response to the question,"was teledentistry useful during lock down". X axis the opinion on whether teledentistry was useful during lockdown and Y axis the number of responses. 54% said " yes", 13% said "no" and 33% not applicable
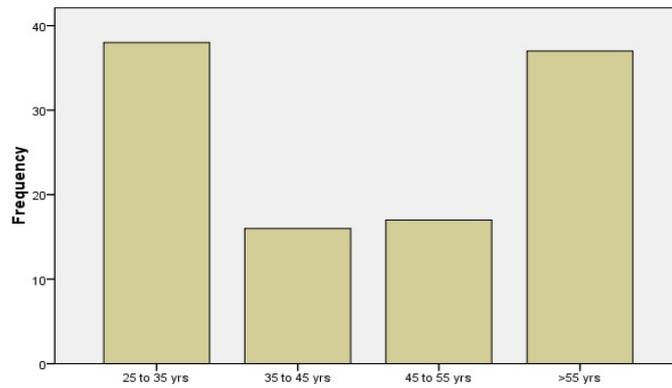
Figure 8: Bar chart showing response to the question regarding which age group opted more for services of teledentistry. X axis shows age group and Y axis shows the number of respondents. About 35% responded 25 to 35 years, 15% responded 35 to 45 years, 16% participants responded 45 to 55 years and 34% participants responded above 55 years old members require tele dentistry
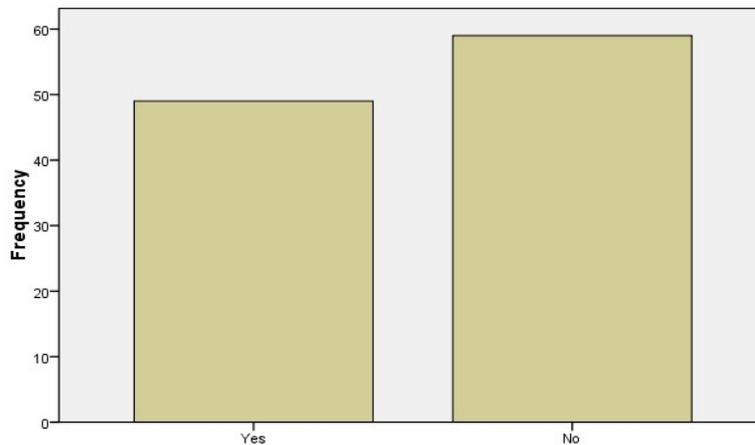

Figure 9: Bar chart showing response to the question," Whether teledentistry requires complex infrastructure development". X axis shows teledentistry opinion on whether teledentistry requires complex infrastructure and Y axis shows the number of responses. About 45% participants answered "yes" and 55% answered "no"
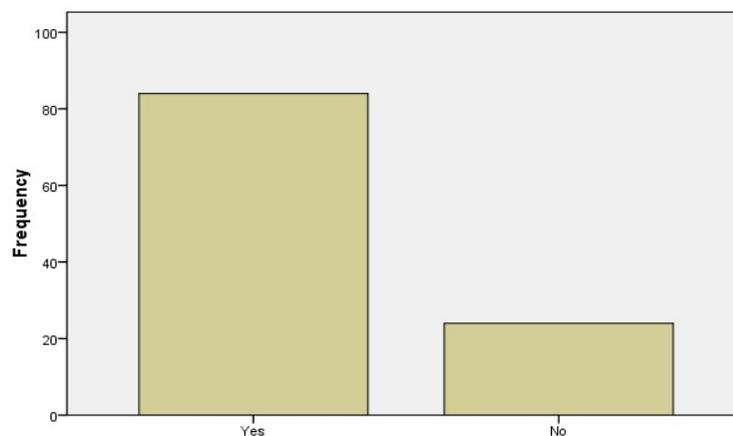

Figure 10: Bar chart showing response to the question," Does teledentistry improve access to oral health care in rural areas". X axis improves access to teledentistry and Y axis the number of responses. About 78% said "yes" and 22% said
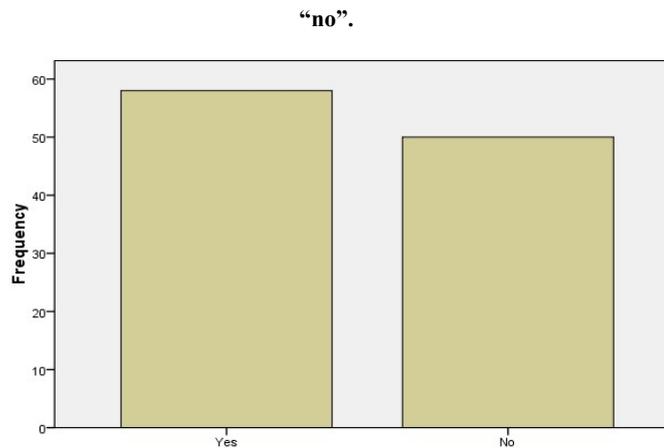
"no".

Figure 11: Bar chart showing response to the question," whether teledentistry was cost effective when compared to other methods". X axis shows opinion on cost efficiency of teledentistry and Y axis shows the number of responses About 54% of the participants answered "yes"; 46% answered "no"
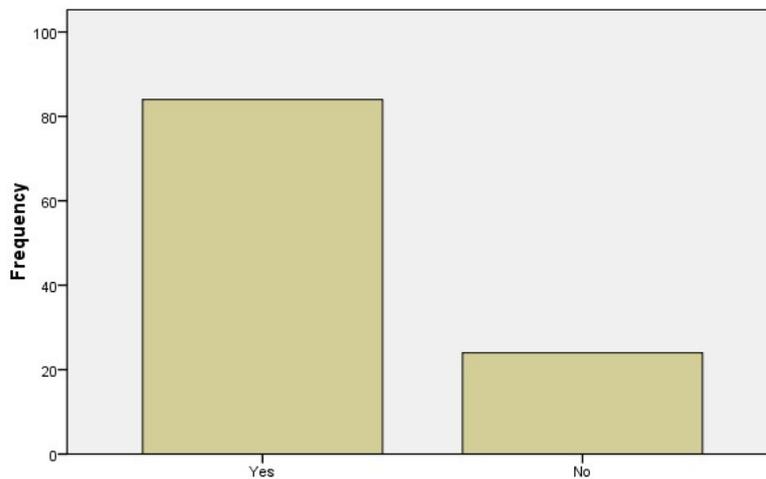

Figure 12: Bar chart showing response to the question," Will tele dentistry create awareness among the illiterate people". X axis shows the opinion on awareness among illiterate people and Y axis shows the number of respondents. About 78% of the participants answered "yes"; 22% participants answered "no"
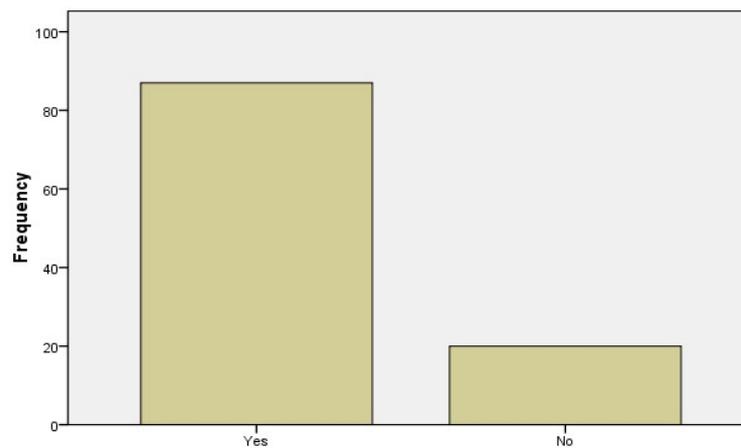

Figure 13: Bar chart showing response to the question," Does India lag in teledentistry". X axis shows the opinion on whether India lags in teledentistry and Y axis shows the number of responses .About 81% of the participants answered "yes"; 19%answered "no"
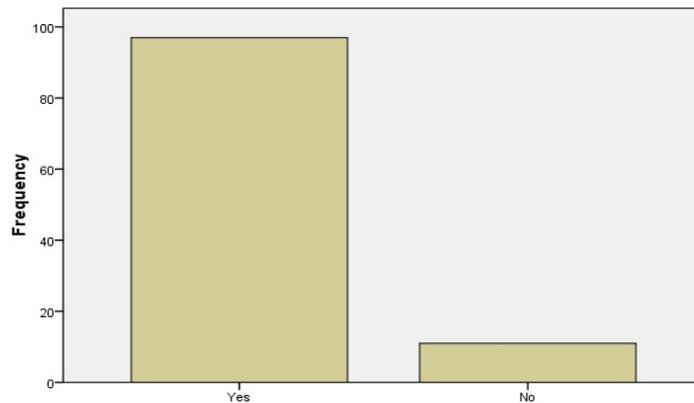
Figure 14: **Bar chart showing response to the question," would you recommend teledentistry during lockdown". X axis shows the response regarding recommending teledentistry during lockdown and Y axis shows the number of responses. About 90% of the participants answered "yes"; 10% answered "no"**
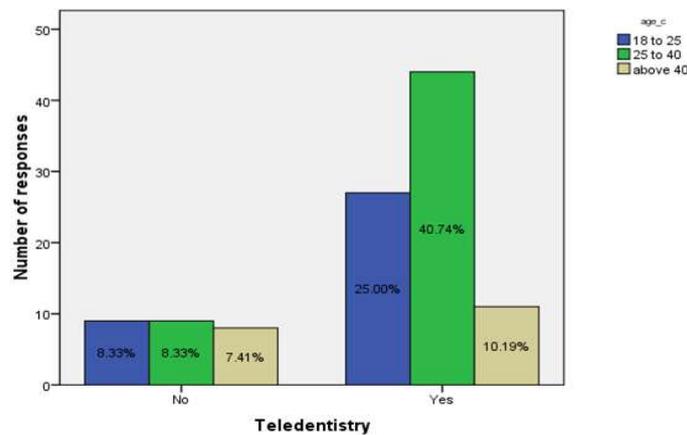

Figure 15: Bar graph showing the comparison of responses between various age groups to the question," awareness about teledentistry". X axis represents the awareness of teledentistry and Y axis represents the number of responses. Maximum number of participants from the age group of 25 to 40 years (40.7%) answered "yes". The Chi square test was done (Chi square value 4.855) with p = 0.088 (P>0.05) which was not statistically significant.
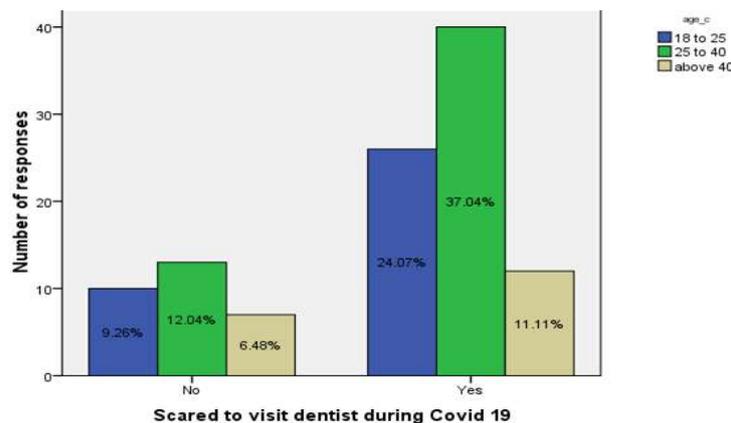

Figure 16: Bar chart showing comparison of responses to the question," Are you scared of visiting a dentist during lockdown" with age group. X axis represents response regarding the fear of visiting the dentist during lockdown and Y axis represents the number of responses. Maximum number of the participants in the age group 25 to 40 years (37.04%) answered yes. The Chi square test was analysed (Chi square value 1.057) with p = 0.589 (P>0.05) which was not statistically significant.
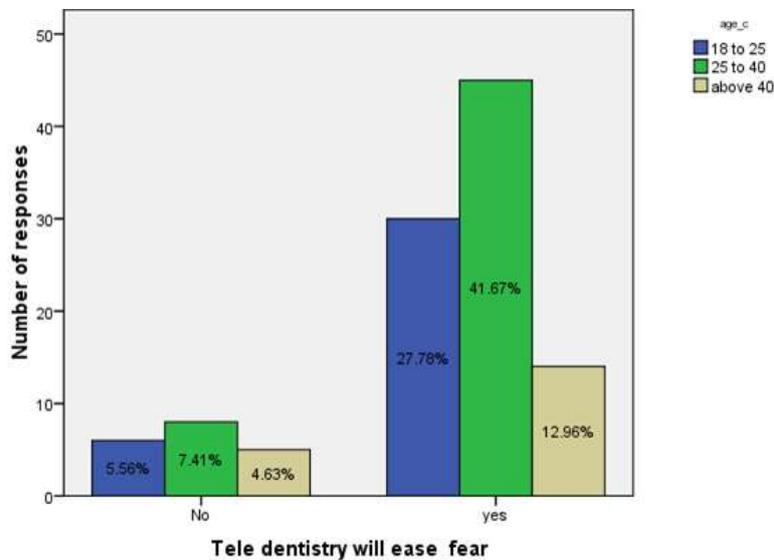
**Figure 17: Bar chart showing comparison of response to the question,"whether teledentistry will ease the fear of dentist".
X axis represents the opinion on whether teledentistry will ease the fear and Y axis represents the number of responses.
Maximum number of the participants aged 25 to 40 (41.67%) answered yes. The Chi square test was analysed (Chi
square value 1.247) with p = 0.536 (P>0.05) which was not statistically significant.**
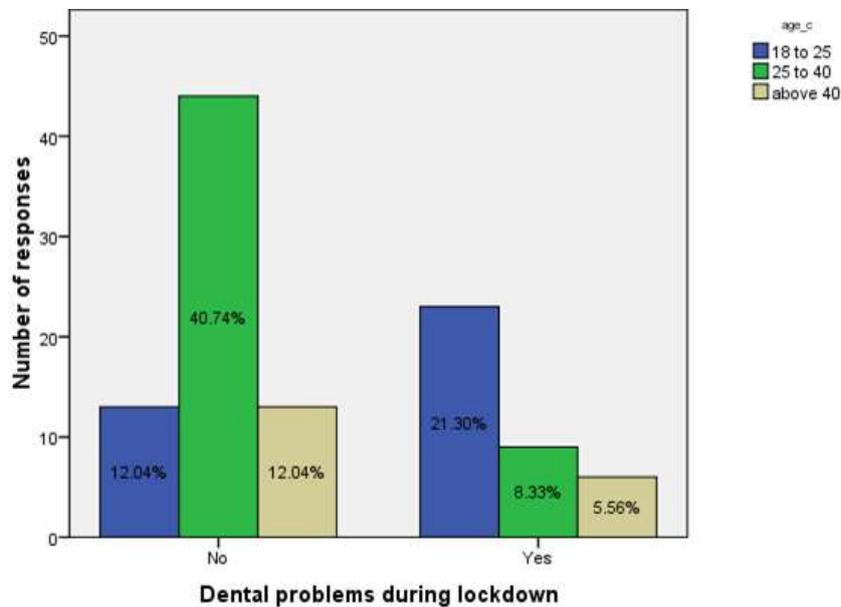

**Figure 18: Bar graph showing the comparison of responses to the question," Whether the participants were affected by
dental problems during this lockdown" between age groups. X axis represents the people affected by dental problems
during this lockdown and Y axis represents the number of responses. Maximum number of the participants aged 25 to 40
(40.74%) answered yes. Chi square analysis shows statistical significance(Chi square value 20.816) with p = 0.000
(P<0.05) which was statistically significant. Significant number of participants did not encounter a dental problem
during the lockdown.**
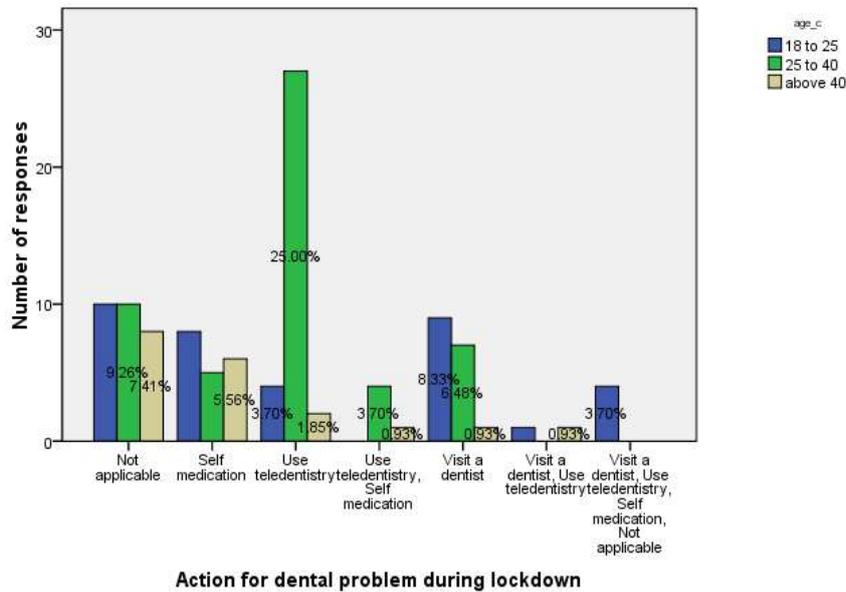
Action for dental problem during lockdown

Figure 19: Bar chart showing comparison of responses to the question,"remedy for dental problems during lock down" with age groups. X axis represents the response for remedy of dental problem during lockdown and Y axis represents the number of responses. Maximum number of the participants aged 25 to 40 (25%) answered as "used teledentistry". The Chi square test was analysed (Chi square value 38.202) with p = 0.000 (P<0.05) which was statistically significant. Showing a significant number of participants in age group 25 to 40 used teledentistry.

Age group which prefers teledentistry
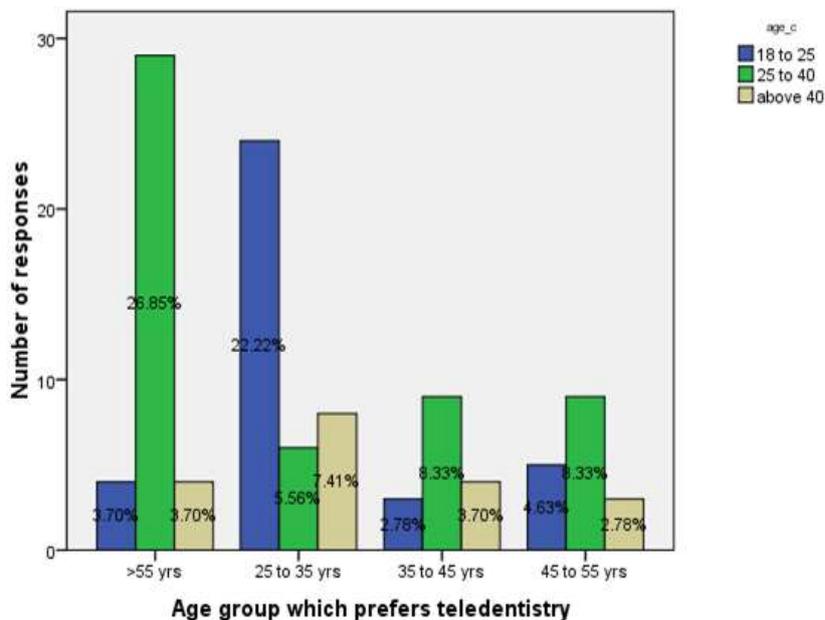
Figure 20: Bar chart showing comparison of responses to the question, "Which age group requires teledentistry" with age group. X axis represents the age group which prefers teledentistry and Y axis represents the number of responses. Maximum number of participants aged 25 to 40 (26.85%) answered as above 55 years. The Chi square test was analysed (Chi square value 33.868 with p = 0.000 (P<0.05) which was statistically significant. Significantly increased opinion that teledentistry is more preferred by >50 years of age.
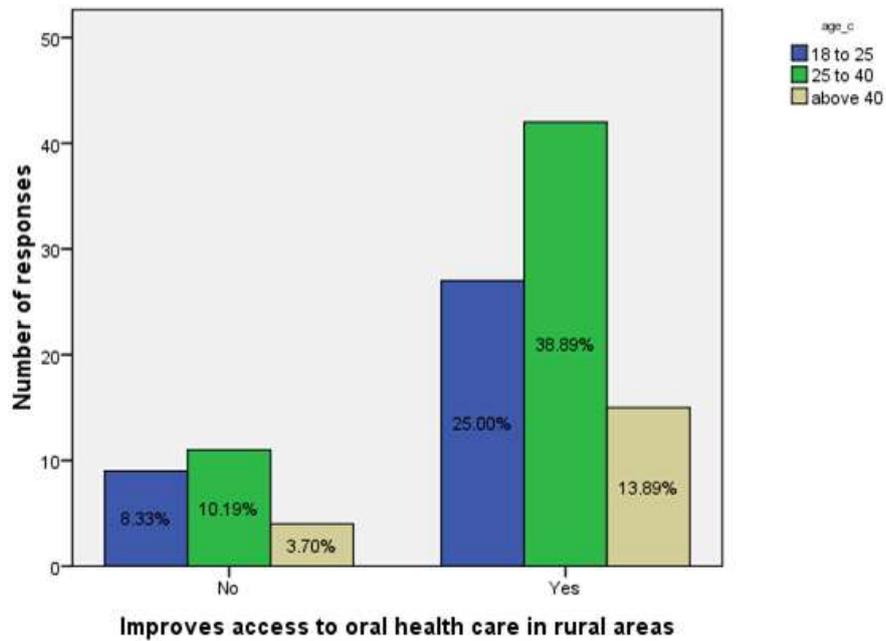
Figure 21: Bar graph showing the comparison of responses to the question," does teledentistry improve access to oral health care in rural areas" between the age groups. X axis represents the opinion on whether teledentistry improve access to oral health care in rural areas (Yes or No) and Y axis represents the number of responses. Maximum number of the participants aged 25 to 40 (38.89%) answered yes . The Chi square test was analysed (Chi square value .242) with p = 0.886 (P>0.05) which was not statistically significant.

Figure 22: Bar graph representing the comparison of responses to the question," cost efficiency of teledentistry compared to other methods " between the age groups. X axis represents the response for cost efficiency of teledentistry compared to other methods and Y axis represents the number of responses. Maximum number of participants aged 25 to 40 years (34.26%) have answered no. Chi square test was analysed (Chi square value 23.230) with p = 0.000 (P<0.05) which was statistically significant.

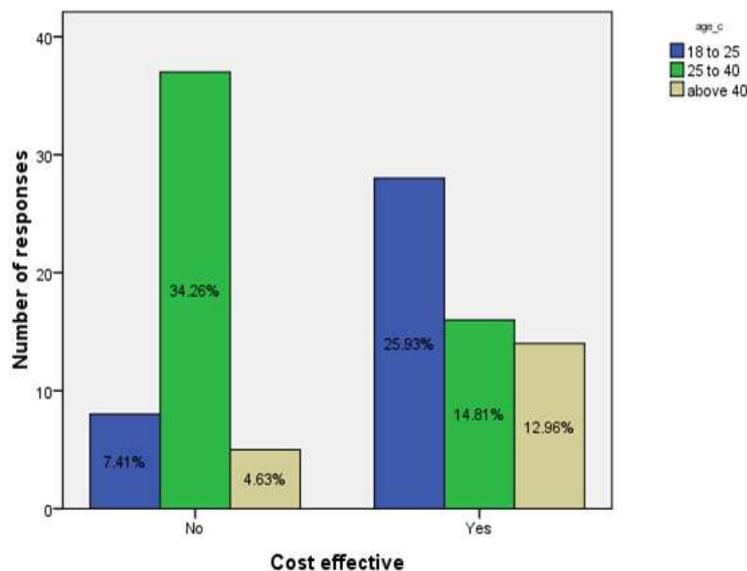## CONCLUSION

Based on the results of the study we can conclude that there is good knowledge and awareness about teledentistry especially among those belonging to 25-40 years of age. Advancement in technology can promote teledentistry to be a useful tool for consultation and diagnosis by the dentist. Teledentistry can be promoted to improve oral health care in inaccessible areas.

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