

**Awareness and attitude of patients regarding teledentistry during the COVID 19 pandemic****Mukesh Kumar<sup>1</sup>, Leena Priya<sup>2</sup>, Ram Prasad Sah<sup>3\*</sup>, Gopal Kumar Yadav<sup>4</sup>, Kumar Pushpanshu<sup>5</sup>**<sup>1</sup>Assistant Professor, Sri Krishna Medical College & Hospital, Muzaffarpur, Bihar, India<sup>2</sup>BDS, MDS, Aaradhya Dental Care, Kankarbagh, Patna, Bihar, India<sup>3</sup>Senior Resident, Sri Krishna Medical College & Hospital, Muzaffarpur, Bihar, India<sup>4</sup>BDS, Maa Gahil Dental Care Centre, Madhepura, Bihar, India<sup>5</sup>Head of Department, Associate Professor, Sri Krishna Medical College & Hospital, Muzaffarpur, Bihar, India

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**Abstract**

**Background:** During COVID 19 virus outbreak, teledentistry has stepped up into the spotlight. It has emerged as a critical technology to bring medical care to patients while attempting to reduce the transmission of COVID 19 among patients, families, and clinicians. **Objective:** The study aimed to evaluate the awareness of teledentistry and to determine how beneficial it can be to the community. **Methods:** A total of 100 participants were included in our study who met our inclusion and exclusion criteria. A pretested, self-administered, close-ended questionnaire was included to evaluate the knowledge, attitudes, and awareness among the participants. The completed questionnaire was collected and subjected to statistical analysis. **Results:** The mean age of the study population came to be 31.54 years with 59% females and 41% males. 29% visited dental OPD during Covid pandemic. 28% of participants were observed to have awareness regarding teledentistry. 33 concurred that teledentistry cannot truly help in wellbeing and isn't a good alternative to visiting dental clinic. **Conclusion:** Thus from our results we can conclude that regardless of multiple benefits of teledentistry in various aspects of the field of dental practice, its use is still limited due to relative unawareness among the general population. Teledentistry can be a potential approach in providing oral health care to the community during Covid 19 pandemic times as consultation, diagnosis, and treatment planning in teledentistry provides a safe approach in accommodating patients.

**Keywords:** Covid 19 pandemic, Novel, Teledentistry.

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**Introduction**

A new public health crises threatening the world is the emergence and spread of 2019 novel coronavirus (2019-nCoV) or the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It originated from Wuhan City of Hubei Province of China to the rest of the world. Coronaviruses are enveloped positive sense RNA viruses ranging from 60 nm to 140 nm in diameter with spike like projections on its surface giving it a crown like appearance under the electron microscope; hence the name coronavirus.[1,2] Globally, over 106 million cases of the coronavirus were reported as of February 7, 2021. The first case of Covid 19 in India was reported on 30 January 2020.

India reported over 10.8 million confirmed cases of the coronavirus (Covid 19) as of February 7, 2021. Out of these, over 10.5 million patients had recovered, while 155 thousand cases were fatal.[3,4] Phylogenetic analysis suggests that although bats may act as the original reservoir for SARS-CoV-2. All ages are susceptible. Infection rates appear to be similar between children and adults; however, children develop a milder illness with a low CFR (<0.1%).[5]

Infection is transmitted through large droplets generated during coughing and sneezing by symptomatic patients but can also occurs from asymptomatic people and before onset of symptoms. Studies have shown higher viral loads in the nasal cavity as compared to the throat with no difference in viral burden between symptomatic and asymptomatic people.[6]

The clinical features of COVID 19 are varied, ranging from asymptomatic state to acute respiratory distress syndrome and multi organ dysfunction. The common clinical features include fever (not in all), cough, sore throat, headache, fatigue, myalgia and breathlessness. In a subset of patients, by the end of the first week the disease can progress to pneumonia, respiratory failure and death.[7]

Since at this time there are no approved treatments for this infection, prevention is crucial. At the community level, people should be asked to avoid crowded areas and postpone non-essential travel to places with ongoing transmission. Patients should be asked to wear a simple surgical mask and practice cough hygiene. Isolation of confirmed or suspected cases with mild illness at home is recommended.[8]

However, looking at the current increasing trend of Covid 19 cases, it does not appear that this pandemic will end anytime soon. As the Covid 19 virus wreaks havoc with the healthcare system, telemedicine has stepped up into the spotlight. It has emerged as a critical technology to bring medical care to patients while attempting to reduce the transmission of Covid 19 among patients, families, and clinicians. It is also increasingly necessary to preserve scarce resources like personal protective equipment.

Teledentistry (a subunit of telehealth along with telemedicine) is the remote facilitating of dental care, guidance, education or treatment via the use of information technology rather than through direct face-to-face contact with any patient. Teledentistry is not a new concept and one of the earliest teledentistry projects was started by US military in 1994 to serve the US troops all around the world. As dental treatment invariably involves close inspection, examination, diagnostic and therapeutic interventions of the naso-oro-pharyngeal region, dental professionals are most susceptible to get infected with coronavirus. Hence during the COVID 19 pandemic, dentistry has

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mostly been suspended. Teledentistry offered an innovative solution to resume dental practice during this pandemic.[8]

Therefore this study aimed to evaluate the awareness of teledentistry and to determine how beneficial it can be to the community.

**Methods**

The present study was a descriptive cross-sectional study carried over a period of 3 months. Inclusion criteria: The study included people of both the genders, aged 14 and above, faced any dental problem during Covid 19 pandemic and willing to participate in the study were included in this study.

Exclusion criteria: People below the age of 14 years and those who were not willing to be a part of the study were excluded from the study.

A detailed history should be obtained from the participants by requesting them to fill the screening form for COVID 19 infection which included any history of fever within the past 14 days, a recent onset of respiratory problem, travelling history to countries with documented (SARS)-CoV-2 transmission, or contact with people who have travelled to these countries. Body temperature of each participant was measured using a contact-free forehead thermometer.

A total of 100 participants were included in our study who met our inclusion and exclusion criteria. The study protocol was approved by the Institutional Review Board and ethical approval was obtained. A written informed consent form was also obtained from all the participants.

Data collection: A pretested, self-administered, close-ended questionnaire was included to evaluate the knowledge, attitudes, and awareness among the participants. The questionnaire comprised of three parts: Sociodemographic details, questions relating to

knowledge regarding teledentistry and questions relating to assess the awareness and attitudes regarding teledentistry. There was a brief description of the questionnaire's purpose with a definition of teledentistry and its benefits and possible uses in daily practice. The questionnaire was provided by a single investigator to all the participants. The participants were told to approach the investigator in case of any doubts regarding any of the questions in the questionnaire.

The completed questionnaire was collected and subjected to statistical analysis. The forms were arranged in serial number and stacked together. The bundles were labeled with ID numbers and date of recording so as to make them ready for data entry. The data entry was made on the same day so that if any discrepancy was seen it could be rectified easily. The survey forms were rechecked to assess any missing information.

**Statistical Analysis:** All data was collected and statistical calculations were then performed using SPSS version 21 (Statistical Package for the Social Sciences, SPSS Inc. USA). Meaningful distribution and presentation of data were done. Descriptive statistics included means, standard deviations, and frequency distributions. A p-value of 0.05 was used for statistical significance and values less than this were considered as statistically significant.

**Results**

A total of 100 participants were enrolled and responded in the present study. The mean age of the study population came to be 31.54 years with majority of participants in the age range of 31-40 years followed by 21-30 years. Least number of participants was seen below 20 years of age. Gender distribution showed that 59% were females and 41% were males.

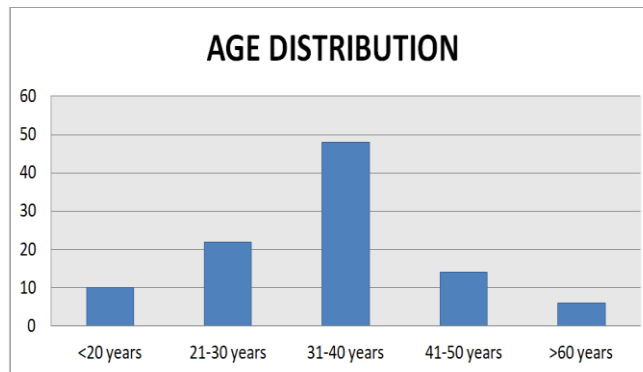


Figure 1: Age Distribution

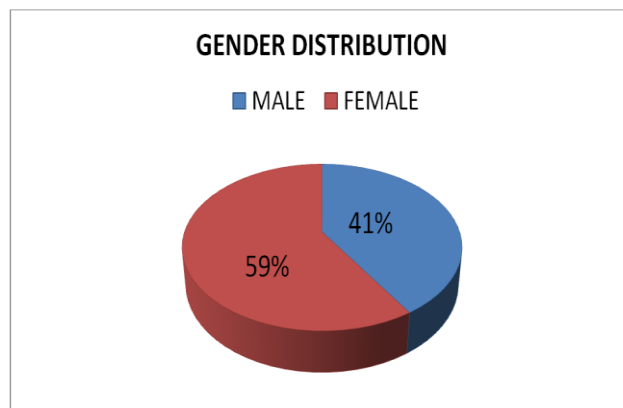


Figure 2: Gender distribution

Maximum participants i.e. 59 (59%) were educated till graduate levels and 18 (18%) were post graduates. Maximum number of study population reported to use internet (84%) on daily basis. Figure 3 shows that among the study patients, maximum participants i.e. 58 (58%) opted for self-treatment and medication, 29% visited dental OPD, 9% visited emergency general OPD, 2% used homeopathic treatment option and 2% participants did not go anywhere and problem resolved itself.

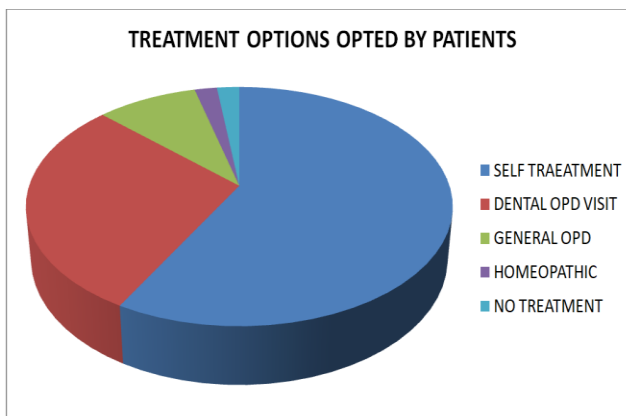


Figure 3: Treatment option opted by the participants suffering from dental problem.

When asked about the knowledge and awareness about teledentistry, 28% of participants were observed to have awareness regarding it. Most of the study population didn't know what was teledentistry and how to use it in future but most of them want to use teledentistry in day to day practice.

Figure 4 shows that greater part of participants 33 (33%) concurred that teledentistry cannot truly help in wellbeing and isn't a good alternative to visiting dental clinic. Less number of study population accounting for just 24 (24%) felt that teledentistry was valuable and can be good alternative to visit dental clinic. Rest 43 (43%) participants responded that they were not sure about it.

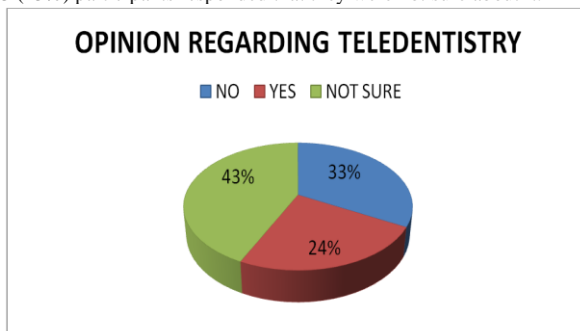


Figure 4: Opinion regarding usefulness of teledentistry

When asked about their hesitations regarding teledentistry, Over half respondents (49%) believed that teledentistry will be an expensive treatment option and was not financially savvy alternative. 26 (26%) of the participants believed that without clinical visits from and physical checkups their problem cannot be solved. Rest was not sure about it.

Among the benefits, the feedback on the potential merits of teledentistry by the participants majority were of the opinion that teledentistry system would save time on travel, car parking or in the waiting room and would be easier with work commitments.

When asked about their views regarding effect of pandemic on dental treatment, 86 (86%) were of the view that pandemic has affected dental treatments, while 3 (3%) participants were of the opinion that pandemic has not affected dental treatments while rest 11% were not sure about it.

**Discussion**

Teledentistry is the process of information-based distant communication between the oral health care provider and dental patient. Teledentistry, a system of communication involving video

and audio feedback, gathers clinical information from the dental patients. Video conferences are available for the oral health care provider to elicit consultation for the dental patient. It also involves the exchange of clinical information that may contain laboratory results, pictures, or radiographs of the dental patient.[9]

Teledentistry is derived from Telemedicine. In telemedicine, physicians use telecommunication systems to reach their respective patients in distant locations. Dentists can characterize if the dental patient's case is elective or emergency. Diagnostic procedure during the use of teledentistry is aided by software capabilities that enable dentists to know the condition of the dental patient. Treatment planning can also be accommodated in teledentistry. Through immediate feedback, teledentistry can be used to discuss methods of treatment that the dental patient may agree upon. This will therefore be helpful during the COVID 19 pandemic as it reduces the risk of exposure, spread and transmission of the coronavirus.[10]

In the present study, we observed that Most of the study population didn't know what was teledentistry and how to use it in future but most of them want to use teledentistry in day to

day practice. Only 28% of our study population was aware about its usefulness.

Discussing about the usefulness of Teledentistry from patients prospective, it provides a stress-free environment for examination and saves time and travel as well. Timely consultations can in turn reduce the number of emergency visits, which becomes important in the current time of extra burden on health care systems during this pandemic time. More importantly, in the periods of lockdown, teledentistry can provide specialist consultation to patients in absence of routine access to dental care. In the present study we observed majority of the participants were of the opinion that teledentistry system would save time on travel, car parking or in the waiting room and would be easier with work commitments.

Further, when questioned about their hesitations regarding teledentistry, majority of them were of the opinion that that teledentistry will be an expensive treatment option, followed by those who believed that without clinical visits from and physical checkups dental problems cannot be solved.

With all its advantages, some general elements limit the use of teledentistry during pandemic outbreaks. Patient awareness and education is the most important factor among this. Secondly as teledentistry distances the patient from the oral health care professional, the absence of clinical presentation is a considerable limitation. As almost every specialty in dentistry requires treatment procedures to be done inside the dental clinic, the distant feature remains is the most substantial challenge of teledentistry.[11]

Therefore, due to numerous benefits of teledentistry in improving the quality of dental care in almost every aspect of dentistry, which is backed up by adequate scientific literature, it should not be overlooked. Patient awareness and education is the most important factor associated with the acceptance of this technique as patients are having a harder time in accepting it. The satisfaction level of patients remains poor without a comprehensive physical examination. Gradually, however, this new platform is starting to be embraced and adapted by patients and medical professionals.

#### Conclusion

Thus from our results we can conclude that regardless of multiple benefits of teledentistry in various aspects of the field of dental practice, its use is still limited due to relative unawareness among the general population. Teledentistry can be a potential approach in providing oral health care to the community during Covid 19

**Conflict of Interest:** Nil

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pandemic times as consultation, diagnosis, and treatment planning in teledentistry provides a safe approach in accommodating patients.

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