ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)

IJDSIR : Dental Publication Service

Available Online at: www.ijdsir.com

Volume – 4, Issue – 3, May - 2021, Page No. : 265 - 270

Knowledge, attitude and practice about Teledentistry among general population in Kerala during covid-19 outbreak: A cross –sectional online survey

[1]Joby Peter, [2]Vijai. S, [3]Krishna Kumar, [4]Anaswara MS, [5]Litty Prince.P

[1-5]Department of Pedodontics and Preventive Dentistry, Malabar Dental College & Research Centrel,Malappuram,Kerala, India

Corresponding Author: Krishna Kumar, Department of Pedodontics and Preventive Dentistry, Malabar Dental College & Research Centrel,Malappuram,Kerala, India

Citation of this Article: Joby Peter, Vijai. S, Krishna Kumar, Anaswara MS, Litty Prince. P, "Knowledge, attitude and practice about Teledentistry among general population in Kerala during covid-19 outbreak: A cross –sectional online survey", IJDSIR- May - 2021, Vol. – 4, Issue - 3, P. No. 265 – 270.

Type of Publication: Review Article

Conflicts of Interest: Nil

Abstract

Aim: The aim of the study was to evaluate the knowledge, attitude and practice about Teledentistry among general population in Kerala during COVID-19 outbreak.

Materials and methodology: A self-administered, structured, pilot-tested questionnaire was made available using online mode as Google forms and the link was circulated among the public. A total of 410 participants completed the questionnaire.

Results: Among 410 participants majority of the general population (99.8%) in Kerala were aware of COVID-19/ corona virus disease. Large number of people (62.2%) are aware about Teledentistry and among them most of the participants (87.8%) had taken Tele/Video consultation with their dentist before.

Conclusion: More than half of general population were aware about Teledentistry and had taken Tele/Vedio consultation with their dentist before. Thus we can conclude that Teledentistry can help the public to maintain their oral health care during this COVID pandemic period.

Keywords: COVID-19, Tele/Video consultation

Introduction

In early 2020, a new fatal disease called coronavirus disease 2019 (COVID-19) broke out in Kerala, India[1]. World Health Organization (WHO) announced that the COVID-19 outbreak had become a public health emergency of international concern on January 31, 2020[4] and then categorized it as a pandemic on March 11, 2020.[2]The infectious agent of COVID-19 has been identified as a coronavirus called 2019-nCoV, which is similar to the 2003 SARS-CoV[1]. India has thus developed a high standard for measures aimed at preventing the spread of the virus. The most effective measures were social isolation to avoid rapid virus propagation, the protection of older people and patients with chronic diseases and low immunity and the

implementation of health assistance to COVID- 19 patients via the rapid support of health workers from all over India[1].

One of the potentially viable solutions to address geographical hurdles and the unavailability of dentists is mobile teledentistry.[1] Teledentistry is a domain of telemedicine that emerges from the combination of information communication technology (ICT) and dentistry. Teledentistry is the use of electronic information and telecommunications technologies to support long distance clinical oral health care, patient and professional health related education, public health and health administration.[3]Teledentistry strives to combine telecommunication technology and dental care.[4] The term "Teledentistry" was used in 1997, when Cook defined it as "the practice of using videoconferencing technologies to diagnose and provide advice about treatment over a distance[5]."

Telemedicine has a variety of applications in patient care, education, research, administration, and public health along with advantages like ease of access to remote areas, time conservation, and costs of transporting the patient[6]. Monitoring home care and ambulatory monitoring of patients can be done using telemedicine[7,8]. Telemedicine improves communication between health providers who were relatively inaccessible before. Mainly two types of Telehealth programs are practiced, 'the store and forward method' and the 'videoconferencing method.' The former is used in case of non-emergency situations when images and information are collected and mailed to the specialist for consultation. This is the most commonly used system in dentistry and has found an effective use for orthodontic consultations. The latter method involves the use of videoconferencing equipment at both locations for a 'real-time' consultation to take place[5].

Although telemedicine programs have been in place for more than the last 40–50 years, the use of this technology in dentistry is very minimal[5]. The major applications of teledentistry programs have been for specialist referrals and for consultations[6]. There have been previous efforts to use this technology for the diagnosis of pathological conditions [7]. For a long time, dental caries detection has been done by visual and tactile examination. Few studies have evaluated the use of intraoral photographs or digital images for the diagnosis of dental caries. Mobile Teledentistry is a subset of telemedicine that incorporates cellular phone technology and store-and-forward telemedicine into oral care services.

During the COVID-19 outbreak, people have received a large volume of information that could lead to confusion, for example, contamination risks during dental appointments from announcements of administrative districts and dentist associations. It is important to know if there are any misconceptions, so that dental professionals can help improve hospital measures as well as patient education. Thus, the present study aimed to evaluate the knowledge, attitude and practice about Teledentistry among general population in Kerala during COVID-19 outbreak.

Materials and methods

The study was conducted in Department Of Pediatric And Preventive Dentistry, Malabar Dental College And Research Centre, Edappal. An online survey was carried out among the population of Kerala and their participation was completely voluntary. A semi-structured questionnaire written in English and regional language was made by a research expert for the study. The questionnaire was pre-tested for validity and was revised according to the feedback. The questionnaire was made available using online mode as Google forms and the link was circulated among the public using mail Id's and what's

app. A pilot study was done on 30 subjects and sample size required for the study was calculated using Cochrane's sample size as 400.The final questionnaire consisted of demographic data (5) and the (22) questions regarding knowledge , attitude and practice about Tele-dentistry during this COVID-19 was included. (Table 1). The collected data was tabulated in excel and descriptive statistics were performed. The distribution of responses is presented with frequency and percentage.

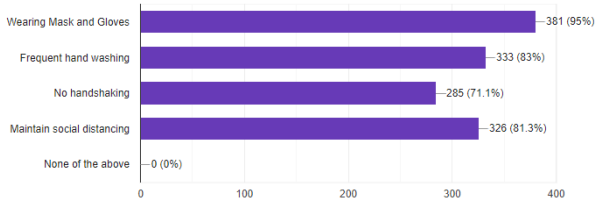
Results

Four hundred and ten participants completed the survey questionnaires. The majority of the participants were females (72.6%).The majority of the participants age ranged from 25 years to 50 years (49.1%).Among the participants 52.9% were graduate, post graduate (34.9%), higher secondary (10%), high school (5%). The summary of the frequency & percentage of responses on awareness regarding the COVID19 pandemic is shown in (Table 1).

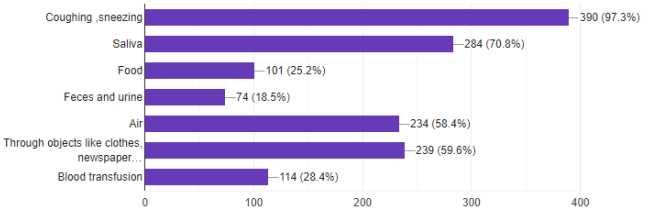
Table 1

Q No	Questions	% of yes	% of No
2	Are you aware of COVID 19/ coronavirus disease?	99.8	0.2
5	Do you think that COVID-19/ corona virus can spread, while undergoing a dental treatment?	91.4	8.6
6	Are you afraid of taking dental treatment during this COVID-19 outbreak?	73.6	26.4
7	Are you aware of Teledentistry?	62.6	37.4
10	Have you taken any Tele/Video consultation with your dentist before?	87.8	12.2
12	Do you find any difficulty in communicating with dentist and finding remedies for your dental problems through telephone, internet etc ?	62.6	37.4
13	Do you prefer Teledentistry to find remedies for your dental problems after COVID -19 outbreak?	50.4	49.6
14	Are you willing to take dental treatment only after COVID vaccines are ready and marketed to use?	53.5	46.5
15	Are you taking pre-appointment before consulting a dentist using Teledentistry ?	67.5	32.5
16	Are you willing to visit dental clinic only if you suffer from severe toothache, swelling, accidental injury etc during this COVID -19 outbreak?	90.5	9.5
17	Have you come across any dental problems during this COVID -19 outbreak?	68.2	31.8
21	Do you think that Teledentistry can increase accessibility of dentist to village and underdeveloped areas for their dental needs?	73.3	26.7
22	Does Teledentistry help to reduce cost ?	75.3	24.7
23	Do you prefer Teledentistry in future?	65	35

Various measure used among general population in their daily life against COVID-19 where also evaluated and found out that 95%of participants has adopted the habit of wearing mask and gloves, frequent hand washing (83%), no handshaking(71.7%), maintaining social distancing (81.3%).

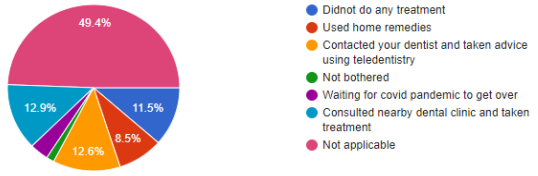


Among the participants 97.3% belived that COVID -19 virus spread through coughing and sneezing, saliva (70.8%), through food(25.2%), through urine and feces(18.5%), through air(58.4%), through objects(59.6%), through blood transfusion (28.4%) .

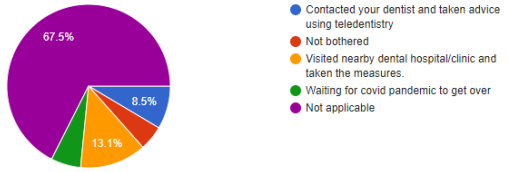


76.6% of participants believed that Teledentistry is Contacting your dentist and taking advice through telephone, internet etc , 13.2% believed that Teledentistry is Finding remedies for your dental problems through internet . Various methods for communicating with dentist in Teledentistry was evaluated and 20.7% use it through communication devices such as cell phones, tablets, computers, 7.2% Live videoconferences and 71.3% uses all of the three methods. The charges/ fee for Tele/Video consultation were Lower than normal (24.7%), Higher than normal (21.7%) and free of cost for 9.2%.

32.2% of participant comes across dental problems during this COVID -19 outbreak and the various methods adopted by them is shown in figure below.9 %of population consulted nearby dental clinic, 12.6% utilised Teledentistry.



11% of participant had ongoing dental treatment started before COVID-19 outbreak, 14% undergoing fixed orthodontic therapy and 11.2% undergoing root canal treatment and 13.1% visited nearby dental hospital and taken treatment, 8.5% used Teledentistry.



Discussion

COVID-19 is an extremely alarming, novel viral pandemic disease of global concern. Since its inception the number of cases reported have been raising exponentially. Pandemic outbreak remains the biggest threat to human beings due to high mortality rate associated with their infections.[1]

Owing to advancing disease, there has been a radical change in conveying oral health care to the patients. One such change is because of the budding field of teledentistry. It can be of different types such as: patient–dentist, dentist–specialist, dentist–data storage bank, students–dental education, and dentist–research center. Teledentistry has been developing since 1994 as a means to allow dental professionals to communicate with one another over long distances, allow collaboration by multiple practitioners, and involve the exchange of clinical information and images over remote distances for dental consultation and treatment planning.[9]

In the present study, the knowledge and awareness regarding Teledentistry was assessed among the general population in Kerala during this COVID-19

outbreak.Majority of the general population (99.8%) in kerala were aware of COVID-19/ corona virus disease. Most individuals (91.4%) think that corona virus can spread, while undergoing a dental treatment. More than half of general population (73.6%) is afraid of taking dental treatment during this COVID-19 outbreak. Similar results have been obtained in studies conducted by Sha II *et al* .[14] Large number of people (62.2%) are aware about Teledentistry and among them most of the participants (87.8%) had taken Tele/Video consultation with their dentist before. Teledentistry is a recent conception and requires gadgets such as smartphones and media, which is apparently, used more by younger generation when compared to the elderly.

Majority of general public of Kerala (62.6%) find difficulty in communicating with dentist and finding remedies for your dental problems through telephone, internet. Similar results were seen in a study conducted by Bauer *et al.* (2001)[10]. Few respondents (24.7%) believed that Teledentistry helps in reducing costs for the dental practices. The question concerning the use of Teledentistry to consult an expert about the patient's problem after COVID-19 outbreak had been agreed by half of the respondents (50.4%) and Majority of participants (73.3 %) belive that it will increase the accessibility of dentist to village and underdeveloped areas and also help to reduce the cost. Most of the individuals (65%) prefer it in future. Similar results have been obtained in studies conducted by S J Daniel *et al* .[11]

Half of the participants are willing to take dental treatment only after COVID vaccines are ready and marketed to use. The habit of taking pre appointments before consulting a dentist is followed by a large number of the Kerala population (67.3%), most of the individuals (90.5%) are willing to visit the dental clinic only for emergency procedure which significe their awareness about corona virus.

Teledentistry offers acceptable reliability for the initial diagnosis of caries in children. The use of Teledentistry without radiographs is not as accurate as clinical examination[12]. MS Alshaya *et al* assessed both sensitivity and specificity in diagnosis of caries through Teledentistry, were constantly above 80% , it can be stated that the current model has a higher chance of false positive results than false negative results[13].

In the present study, majority (99.8%) of the general population in Kerala were aware of COVID-19/ corona virus disease. About more than half of general population were aware about Teledentistry and had taken Tele/Video consultation with their dentist before. Half of respondents agreed to use Teledentistry after COVID-19 pandemic and majority of them believe that it will increase the accessibility of dentist to village and underdeveloped areas.

Conclusion

As Kerala is yet to reach at the flatten curve of SARS CoV-2 pandemic, current situations urge proactive actions and mitigation of the misconceptions and myths prevalent among the general population. In the present study, majority of the general population in Kerala were aware of COVID-19/ corona virus disease.About more than half of general population were aware about Teledentistry and had taken Tele/Vedio consultation with their dentist before. Half of respondents agreed to use teledentistry after COVID-19 pandemic and majority of them believe that it will increase the accessibility of dentist to village and underdeveloped areas.Thus we can conclude that Teledentistry can help the public to maintain their oral health care during this COVID pandemic period.

Conflict of interest:No Conflict of interest between the authors.

Reference

1. Jin Sun,Yan Xu,Qian Qu,Wei Luo: Knowledge of and attitudes toward COVID-19 among parents of child dental patients during the outbreak. Braz. Oral Res. 2020;34
2. World Health Organization – WHO. WHO Director-General's opening remarks at the media briefing on COVID-19.
3. Marino R and Ghanim A. Teledentistry: a systematic review of the literature. J Telemed Telecare 2013; 19: 179–183.
4. Birnbach JM: The future of teledentistry . J Calif Dent Assoc. 2000, 28:141-148.
5. Dasgupta A, Deb S: Telemedicine: a new horizon in public health in India . Indian J Community Med. 2008, 33:3–8.
6. Van Hilsen Z, Jones RS: Comparing potential early caries assessment methods for teledentistry. BMC Oral. 2013, 13:16.
7. Strehle E M, Shabde N: One hundred years of telemedicine: does this new technology have place in paediatrics?. Arch Dis Child. 2006, 91:956–959.
8. Golder DT, Brennan KA: Practising dentistry in the age of telemedicine . J Am Dent Assoc. 2000, 131:734–744
9. Boringi M, Waghray S, Lavanya R, Babu DB, Badam RK, Harsha N, et al. Knowledge and awareness of teledentistry among dental professionals – A cross sectional study. J Clin Diagn Res. 2015;9:ZC41
10. Ata SO, Ozkan S. Information Technology in Oral Health Care: attitudes of Dental Professionals on the Use of Teledentistry in Turkey.European and Mediterranean Conference on Information Systems.
11. Daniel SJ, Wu L, Kumar S. Teledentistry: A systematic review of clinical outcomes, utilization and costs. J Dent Hyg. 2013;87:345–52.
12. Torres-Pereira C, Possebon RS, Simões A, Bortoluzzi MC, Leão JC, Giovanini AF, et al. Email for distance diagnosis of oral diseases: A preliminary study of teledentistry. J Telemed Telecare. 2008;14:435–8.
13. AlShaya MS, Assery MK, Pani SC. Reliability of mobile phone teledentistry in dental diagnosis and treatment planning in mixed dentition. J Telemed Telecare. 2020 Jan-Feb;26(1-2):45-52.
14. Ibad Sha , Ajin Edwin, Jyothis George, Namitha Shah, Roshna SR. COVID-19 Awareness among Final Year Medical Students in India: A Questionnaire-Based Survey. International Journal of Public Health and Safety.2020 .4:193