

The Use of Teledentistry in COVID-19: A Review Article

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Abstract

COVID-19 consider the most serious global health hazard of the decade. As the dental practice is a high-risk infection environment so, it got affected under COVID-19 restrictions. Keeping the dental service available in the time of COVID-19 and any other pandemic is important. One of the most reliable and effective solutions to continue providing the dental service in the time of pandemic and health hazard is the teledentistry. Teledentistry is the use of technologies to communicate with the dental patient and provide the dental service, for example consultation and initial diagnosis. Teledentistry can be a feasible method to provide remote dental consultations, triaging the dental patient and reducing the waiting list which will reduce the financial burden on dental clinic. Some limitations were found in using teledentistry like the limited knowledge and training among dental practitioners about teledentistry, the fear of patient of losing their privacy and the limited training in using smartphone among some of dental practitioners and patients. In conclusion teledentistry prove it efficacy and utility in providing dental service especially in the time of COVID-19.

Keywords: Teledentistry; COVID-19; SARSCoV2

Introduction

COVID-19, a virus caused by the severe acute respiratory syndrome coronavirus 2 (SARSCoV2), was first discovered in Wuhan, China, in December 2019 and quickly spread all over the world [1]. Many academics dubbed COVID-19 the most serious public health hazard of the decade as the virus expanded to pandemic proportions [2-4]. As a result, stringent quarantine measures were implemented in many nations throughout the world to combat COVID-19's fast spread and reduce human morbidity, which included staying at home and, where required applying social distance and adhering to severe limits on everyday activities [2-4]. Because the SARSCoV2 virus is spread by salivary aerosol, dental practice can pose a high potential of cross infection due to the proximity in dental treatment between the practitioner and the patients. It was discovered that the virus stayed present in the air for at least 3 hours and lived for up to 72 hours on plastic and stainless-steel surfaces. so, more infection control management processes must be implemented to ensure successful elimination of cross infection [3,5,6]. Furthermore, research suggests that dental treatment should be continued during the COVID-19 pandemic, particularly for individuals who require considerable dental follow-ups, such as geriatric patients and orthodontic patients [7,8]. As a direct consequence, telehealth, or teledentistry in the situation of dental care, is one of the suggested methods for treating this group of patients [9].

Teledentistry

Teledentistry is a branch of telemedicine specialized in dentistry, which is defined as the use of information and communication technologies (ICTs) such as the internet and smartphone to exchange clinical information and oral photographs to provide the patients with the needed consultation without the need for a clinical visit [10-13].

Teledentistry has been used previously in the US military in 1994 as one of the first experiences of using teledentistry and it proved its efficacy [14] after that till this day the tele dentistry demonstrate an advantageous alternative to face to face consultation in dental screening, initial diagnosis, dental consultation and education, in case where the traditional dental visit was unavailable such as people in remote area. It was found to be comparable to traditional dental visit [15,16].

Teledentistry has several subunits, one of the most common forms is teleconsultation which is the use of telecommunication to provide the patient with dental consultation from a dental specialist without the need for dental visit, which will decrease the number of referred cases from the primary dental health center to the higher dental centers by 45%. The use of teleconsultation would be beneficial for patients with physical or mental limitations [9,17,18].

Telediagnosis is one of the subunits of teledentistry which concerned with making the diagnosis for oral lesions using photographs. This method could be utilized in monitoring patients in remote areas and reduce the need for the actual clinical examination. Telediagnosis can offer an assessing tool in detecting the early sign of malignancy [9,19].

Teletriage is another subunit of teledentistry which the use of smart phone to remote assessing the patients symptoms and triaging the cases with the suitable time for the treatment, this is useful in case of triaging maxillofacial trauma in primary center to the main trauma center without the need for travel until time of treatment [9,20,21].

Telemonitoring is the last subunit of teledentistry, it's the use of teledentistry in monitoring the progression and treatment outcome in dental patients without the need for dental visits which will reduce the waiting list and reduce the cost [9,22].

The utility of using teledentistry during COVID-19

Teledentistry could be a feasible solution to reduce the number of dental clinic visits and reduce the waiting list, while yet maintaining high levels of dental health care comparable to the face to face traditional dental visit [10]. Some researchers have indicated that teledentistry could help to alleviate the financial burden of dental clinic visits caused by the increased expense of strictly required supplementary personal protective equipment (PPE) in dental care during the COVID-19 outbreak, as the dental practice is mostly an aerosol generating procedure which could be a source of cross infection [7].

Although the systems for telemedicine and/or teledentistry are still limited, they provide a simple, viable, and accessible technology that can benefit both health professionals and patients. This conversation could take place using instant messaging apps (WhatsApp, Telegram, Instagram, SMS, Messenger) and video calling apps (WhatsApp, Telegram, Instagram, SMS, Messenger) (Google Meet, Skype, Facetime, WhatsApp). The use of WhatsApp as a support in oral diagnosis was validated in which 82 percent of the teleconsulted cases agreed with the clinicopathological diagnosis, indicating that it is a good alternative for teledentistry [23].

According to a previous literature studying teledentistry which found that teledentistry is a successful tool for patient screening, diagnosis, evaluating emergencies, monitoring therapies, long-term follow-up, consulting, and suggesting dental treatment plans, especially in the time of COVID-19 pandemic [9].

The utility of teledentistry includes the ability to triage the dental cases without the need for face to face dental visit which will reduce the number of visit and reduce the waiting list. As a consequence the burden on the hospital and dental center will reduce as will as, decrease the risk of cross infection and spreading of COVID-19, which are transmitted by person-to-person contact [24].

Limitation and barriers

There is a limit in knowledge, awareness, and training of tele-health among clinicians, which leads them to an unwillingness to accept and perform tele-health as an effective, safe, and normal method of practicing health care. It should be included in regular practice and education to make them ready to use tele-health in every day-to-day practice, especially in emergency periods such as the COVID-19 outbreak. Insufficient funding of centers will affect the expansion of tele-health and performance for patients living in different locations, such as remote areas. Enough funds should be made available to ensure that health care reaches a wider audience [24,25].

There are some barriers that affect the use of tele-dentistry in dental daily routines, as tele-dentistry is based on virtual diagnosis experience using smartphones, Barriers that are related to individuals, such as lack of direct patient contact, resistance to learning new technology in terms of using different apps as a dental service, concerns about data security and privacy like asking for pictures and personal information. Infrastructural Barriers include a lack of internet access, particularly for those living in remote areas, the complexity of technology, the long-term viability of funding, and a lack of technical support, experience, and training. Some organizational barriers exist because tele-health is incompatible with the current health-care system, such as a lack of copy rights guidelines, malpractice and medico-legal issues, and a lack of reimbursement structure. Acknowledging the barriers that limit the initiation of tele-dentistry services is very helpful in providing valuable insight into its acceptance and in establishing a data base that may be used to influence future determinations regarding the benefits of tele-dentistry [9,26].

Conclusion

The teledentistry has proved its utility in many aspects include reduce the dental visits, alleviate the financial burden and help to provide the dental service in people in remote areas. In the time of COVID-19 the teledentistry provide an additional advantage which helping to continue the dental service during health quarantine. Teledentistry is a promising way to provide dental service.

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