

REVIEW PAPER

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Remote management of dental problems in children during and post covid-19 pandemic outbreak: A teledentistry approach

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Abstract:

The recent pandemic outbreak of COVID-19 disease has created a helpless situation worldwide in the health care systems. The transmission of COVID-19 disease could be in different modes such as contact, droplets, fomites, and aerosol generated procedures. Subsequently, the World Health Organization released recommendations regarding the transmission and precautions to all the healthcare workers, including the dentists. The COVID-19 indeed has become a pandemic, and there is a need for an innovative method to continue to provide dental care to children with minimal risk of cross-infection.

The objective of this short communication is to create special attention on the teledentistry model in pediatric dentistry and to guide the management of children with dental problems during this pandemic outbreak of COVID-19.

Teledentistry is a feasible method, and its use can overcome such challenges in the present situation. Remote assistance of dental care by providing guidance, treatment plans, and follow-up with remote assistance dental care through the use of information technology, instead of the face-to-face contact with any patients, could be possible through the teledentistry approach.

Keywords: dentists, coronavirus, COVID-19, SARS-Cov-2, Practice management.

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INTRODUCTION~~Introduction~~

—Teledentistry is a form of telemedicine explicitly dedicated to dentistry. Teledentistry utilizes electronic dental records, information and communication technology (ICT), digital dental photography, and the internet for consultations, supervision, and continuing dental education. Usage of mobile phones in teledentistry has become an attractive innovation due to an increase in ease of availability, improved digital photography capabilities, and the data processing of smartphones that ~~allowing the~~ users to ~~perform~~ multitasking with access to affordable and secured cloud storage. The smartphone camera can be useful in dental photography, in recording a baseline preoperative oral health status, and in facilitating ~~diagnoses~~ and appropriate treatment plans. BecauseAs smartphones can be easily carried and used at any time, they are useful into ~~improving~~ patient-centered care delivery as point-of-care devices. A teledentistry model can facilitate screening, data collection, and primary prevention.¹ With minimal training, ~~the~~ parents, teachers, or other caretakers can collect and share required digital data from children at home or school, using a user-friendly mobile technology for remote evaluation by a pediatric dentist.²

—After the recent outbreak of SARS-Cov-2 or COVID-19, the World Health Organization (WHO) released recommendations regarding transmission and precautions to all ~~the~~ healthcare workers, including ~~the~~ dental professionals.³ These include different transmission modes, such as contact, droplets, fomites, and aerosol generated procedures.^{3,4} As dentistry is a profession that involves face ~~face-to-~~face contact with patients and attendants in a closed setting, as per the current information, there are high chances of contracting this disease.⁵ Furthermore, almost all ~~the~~ dental procedures involve aerosols in the dental operator.⁴ The WHO also makes it clear that, based on~~from~~ available data and experience, the key is to limit close contact between infected people and others to break the chains of transmission of COVID-19.³ This risk is higher in pediatric dentistry, as the affected children are usually asymptomatic or have~~with~~ mild to moderate clinical viral infection.⁴ Hence, community-based COVID-19 transmission may involve children of different age groups. As there are no available

universal guidelines for pediatric dental procedures during the COVID-19 pandemic outbreak, a routine dental procedure~~actice~~ should be deferred, and only acute dental emergencies should only be treated. In acute emergencies, pediatric dentists should be aware of the recommended protocols for managing children's dental problems. It is essential to adopt these protocols to protect themselves, and children, and their parents, while preventing viral transmission.⁶ One of the best options to prevent viral transmission is teledentistry. It has been reported that there is high acceptance for teledentistry among~~st~~ patients and oral healthcare professionals.^{1,7} Teledentistry saves time, and it shortens the distance between the~~from~~ dental operatory and children and parents. Teledentistry possibly allows dental teams to examine these children in their most accustomed environments~~ambiences~~ and significantly diminishes dental anxiety and fear for children~~them~~ and their parents or caregivers.^{7,8} This type of approach is very much required now to overcome the present COVID-19 pandemic crisis. Therefore, this narrative review was planned to outline the use of teledentistry in managing children's dental problems, both during and after the COVID-19 pandemic ~~to manage children's dental problems.~~

LITERATURE SEARCH~~iterature search~~

An extensive search of the reported literature from December, 2019 to December, 2020 was conducted using PubMed databases. The keywords used in the search strategy were "COVID-19", "teledentistry", "CChildren", "dental problems," ~~and~~ "management" in various combinations. ~~A hand search was performed to identify~~ In order to identify additional data published on the use of teledentistry to manage dental problems in children during COVID-19, a hand search was performed. The search yielded 35 citations, and the details of search words and citations retrieved included (i) "COVID-19" AND "teledentistry" AND "CChildren" -1- (ii) "COVID-19" AND "teledentistry" -30- and (iii) "teledentistry" AND "CChildren" -4. The hand search did not reveal any additional data. From the retrieved data, ~~essential~~ articles were utilized for this narrative review.

DISCUSSION~~iscussion:~~

[WU2] **הערות עם:** Is the topic "the use of teledentistry in managing children's dental problems before and after the COVID", or is the topic "the use of teledentistry during and after the COVID" for the purpose of managing children's dental problems?

Teledentistry for pediatric dental practice-

During this COVID-19 pandemic, pediatric dentists can consider the use of teledentistry for the remote consultation, triage, and delivery of dental care whenever possible and applicable. Teledentistry (virtual dental visits or dental care at a distance) enables pediatric dentists to attend to the various dental care requirements while avoiding close contact with their pediatric patients. However, teledentistry must only be practiced as per the respective national or state authorities/associations' guidelines.⁸ Teledentistry encompasses various components, such as consultation, diagnosis, triage, and monitoring. Teleconsultation is the most common form of teledentistry through which the parents, caretakers, or school teachers can seek consultation for children who requires a dental appointment. It may also help with the continuation of the treatment plan and follow-up advice during the quarantine or lockdown period. Triage includes the safe, correct, and timely evaluation of the child's symptoms through a remote consultation using a pediatric dentist's smartphone or computer laptop. Similarly, the parents can also use the smartphone to communicate with the pediatric dentist, through teledentistry, by taking pictures of their children's teeth. Triage involves the decisions related to distinguishing between emergency and non-emergency dental needs and between those that require prioritization or deferment. In tele diagnosis, the smartphone can be utilized the smartphone to exchange information and photographs taken as directed by the pediatric dentist thereby facilitating the diagnosis of emergencies related to early childhood caries (ECC), dental pain, traumatic dental injuries (TDI), and facial swellings. Telemonitoring (virtual visits) can substitute regular physical visits in routine monitoring of disease progression or treatment outcomes.⁹

Benefits and barriers related to teledentistry for children

—The benefits include the ability to provide primary and specialized dental care, improved communication between the dental team and children/-parents, and the effective triage of patients.² Thus, teledentistry reduces inappropriate referrals and waiting time, aids in timely diagnosis,