Teledentistry As A Solution In Dentistry During The Covid-19 Pandemic Period: A Systematic Review

HARUN ACHMAD¹, MARIA TANUMIHARDJA², YUNITA FEBY RAMADHANY³

¹Department of Pediatric Dentistry, Faculty of Dentistry, Hasanuddin University, Indonesia
²Department of Conservation, Faculty of Dentistry, Hasanuddin University, Indonesia
³Dentist, Faculty of Dentistry, Hasanuddin University, Indonesia

E-mail: harunachmader@gmail.com
Received: 27.07.20, Revised: 15.08.20, Accepted: 04.09.20

ABSTRACT

Introduction: Dental practice during the COVID-19 pandemic became an obstacle for dentists to treat dental patients. This is due to the spread of the COVID-19 virus which poses challenges in providing dental care. Teledentistry was originally a new field of dentistry based on electronic, telecommunications, Internet, and imaging technologies to connect patients living in rural areas. However, during the COVID-19 pandemic, teledentistry services are very useful for all groups with the aim of avoiding direct contact with patients.

Objective: To explore the benefits of teledentistry as a solution in the field of dentistry during the COVID-19 pandemic.

Methods: In this systematic review, the articles search was performed on Google Search and Pubmed. Studies published on 2020. 130 were articles assessed, including 115 articles from the electronic databases, 0 from the manual hand search. 60 records screened, 50 records excluded, 40 full-text articles assessed for eligibility and 15 full text articles included.

Results: There are 15 articles about teledentistry as a solution in dentistry during the COVID-19 pandemic period.

Conclusion: Based on 15 articles show that consultation through teledentistry is a solution as dental health services and is very useful in this COVID-19 pandemic situation.

Keywords: Teledentistry, COVID-19, Pandemic

INTRODUCTION

Dental practice during the COVID-19 pandemic became an obstacle for dentists to treat dental patients. This is due to the spread of the COVID-19 virus which poses challenges in providing dental care. The uncertainty of future dentist candidates due to this virus has disappointed dental professionals. Dental practice ranks highest among all medical professionals in contracting the disease because this transmission route has a significant involvement in dental practice. Aerosols and droplets produced in many dental procedures can make the infection vulnerable to the spread of COVID-19.¹

Based on the WHO definition of a pandemic, the American Dental Association and the Iowa Dental Board recommend all dental practices to stop dental procedures from March 16th, 2020 and allow only emergency dental services. In dealing with this dental emergency, it was decided to initiate a system of phone calls to patients with the teledentistry application and schedule patients to consult a dentist.²

Teledentistry was originally a new field of dentistry based on electronic, telecommunications, Internet, and imaging technologies to connect patients living in rural areas. However, during the COVID-19 pandemic, teledentistry services are very useful for all groups with the aim of avoiding direct contact with patients. Through the use of telecommunication and computer technology, interactive access to dentists is now provided that is not limited by time or space limitations. The dentist then enters the teledentistry service by listening to patient complaints and determining the diagnosis and treatment plan.³,⁴ The purpose of writing this systematic review is looking for and explore the benefits of teledentistry as a solution in the field of dentistry during the COVID-19 pandemic.

METHODS

Search Strategy
A search was performed on Google Search and Pubmed. Studies published from 2020. Pubmed terms and keywords used for the search included various combinations of the following: “Teledentistry”, “COVID-19”, or each of the searches, the titles and abstracts were screened and the full text versions of articles that met criteria were downloaded.

The flowchart in Figure 1 identifies the included and excluded articles at each stage. 130 were assessed, including 115 articles from the electronic databases, 0 from the manual hand search. 65 records screened, 50 records excluded, 40 full-text articles assessed for eligibility and 15 full text articles included.

**Fig. 1:** A flow chart describing the search methodology and numbers of articles included/excluded at each stage

**RESULTS**

In this systematic review there are study selection: inclusion criteria for this review were: 1) Article
2020 year, 2) English Language, 3) All study designs and publication types were considered. Exclusion criteria were, studies that is not about the Teledentistry as a solution in dentistry during the COVID-19 pandemic period.

Table 1: Article about teledentistry as a solution in dentistry during the COVID-19

<table>
<thead>
<tr>
<th>No.</th>
<th>Author</th>
<th>Year</th>
<th>Title</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Saeed B. Alzahrani, Adel A. Alrusayes, Mohammed S. Aldossary</td>
<td>2020</td>
<td>Impact of COVID-19 Pandemic on Dental Education, Research, and Students</td>
<td>The COVID-19 pandemic period will leave a lasting transformation in dental education, with the advancement of research protocols, teledentistry, and clinical trials with flexible approaches to solutions. The effects of the pandemic period COVID-19 are profound and may forever change how future dentists are educated.</td>
</tr>
<tr>
<td>2.</td>
<td>Muhammad Imran Khan Niazi, Sarah Ghafoor</td>
<td>2020</td>
<td>Teledentistry and COVID-19; Today and Tomorrow</td>
<td>Tele dentistry is a great innovation and demands forward thinking, though it would not substitute in-person clinical dental care but it can provide some advantage.</td>
</tr>
<tr>
<td>3.</td>
<td>Leonardo Meza-Palma and Jorge Rosales-Salas</td>
<td>2020</td>
<td>Teledentistry Protocol for Patient Assistance in Dental Emergency Management. COVID-19 quarantine (SARS-CoV-2). Remote Categorization of Dental Emergency And Assistance</td>
<td>In short, the proposed protocol is viable and meets the characteristics to optimize the current teletriage process, enhancing personalized attention between dentists and patients. However, it is necessary to carry out applicability and validity studies.</td>
</tr>
<tr>
<td>4.</td>
<td>Giudice A, Barone S, Muraca D, Averta F, Diodati F, Antonelli A, Fortunato L</td>
<td>2020</td>
<td>Can Teledentistry Improve the Monitoring of Patients during the Covid-19 Dissemination? A Descriptive Pilot Study</td>
<td>In this condition, awareness is always monitored and patient participation greatly helps improve patient compliance and build relationships between dentists and patients on a remote scale.</td>
</tr>
<tr>
<td>5.</td>
<td>Ruchi Shreshtha</td>
<td>2020</td>
<td>Challenges in Geriatric Dental Patient Management in Covid-19 Pandemic</td>
<td>Tele-dentistry: Using empathetic listening and compassionate care, the dentist/hygienist should be able to encourage oral hygiene routines to be maintained &amp; evaluate urgent oral health problems.</td>
</tr>
<tr>
<td>No.</td>
<td>Authors</td>
<td>Publication Year</td>
<td>Title</td>
<td>Abstract</td>
</tr>
<tr>
<td>-----</td>
<td>---------</td>
<td>------------------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>6.</td>
<td>S. Saccomanno, V. Quinzi, S. Sarhan, D. Lagana, G. Marzo</td>
<td>2020</td>
<td>Perspectives of tele-orthodontics in the COVID-19 emergency and as a future tool in daily practice</td>
<td>Tele-orthodontics has proven to be an effective service for orthodontic treatment in the midst of an emergency, and is considered the right solution, while reducing treatment time and costs.</td>
</tr>
<tr>
<td>7.</td>
<td>Maspero C, Abate A, Cavagnetto D, Morsi ME, Fama A, and Farronato M</td>
<td>2020</td>
<td>Available Technologies, Applications and Benefits of Teleorthodontics. A Literature Review and Possible Applications during the COVID-19 Pandemic</td>
<td>The potential of teleorthodontics which is very useful in remote consultations worldwide without the constraints of distance or scheduling of appointments between dentist and patient.</td>
</tr>
<tr>
<td>9.</td>
<td>Ramdurg P, Naveen S, Mendigeri V, Sande A, Sali K</td>
<td>2020</td>
<td>Smart app for smart diagnosis: Whatsapp a bliss for oral physician and radiologist</td>
<td>Teledentistry services are proven to be efficient and effective in long-distance specialist consultations.</td>
</tr>
<tr>
<td>10.</td>
<td>David E. Hayes-Bautista, Paul Hsu and Giselle Hernandez</td>
<td>2020</td>
<td>Teledentistry and Tele-Orthodontics: Increasing Access and Affordability While Improving Quality and Safety</td>
<td>The current COVID-19 pandemic opened the way to expand the use of telemedicine services to increase both access and safety simultaneously. It is appropriate and beneficial to apply the learnings from telemedicine to the field of teledentistry and teleorthodontics to increase access and affordability of such care.</td>
</tr>
<tr>
<td>12.</td>
<td>Community Catalyst</td>
<td>2020</td>
<td>Addressing Oral Health Inequities During COVID-19 and Beyond</td>
<td>The availability of teledentistry services can help the system of providing dental and oral health care to people around the world.</td>
</tr>
<tr>
<td>13.</td>
<td>Vinod Krishnan</td>
<td>2020</td>
<td>Coping with COVID-19: The life changing pandemic</td>
<td>It should be remembered that the habits of patients, such as regular dental examinations every 6 months, will give them optimal and quality dental health.</td>
</tr>
<tr>
<td>14.</td>
<td>Tulika Wakhloo, Gosla S. Reddy, Ashi Chug, Mridul</td>
<td>2020</td>
<td>Relevance of teledentistry during the COVID-19 pandemic</td>
<td>Teledentistry (TD) offers key advantages in the dental management of patients</td>
</tr>
</tbody>
</table>
DISCUSSION

Many patients who agree and like teledentistry services are able to streamline the correct dental referral. A higher degree of accuracy has been seen in several teledentistry studies using the intraoral digital photographic assessment method compared to direct clinical examinations. Thus, teledentistry has great potential in optimally referencing and speeding up waiting lists for consultations with dentists during the COVID-19 pandemic.

Teledentistry assess oral health status can therefore improve oral health care. With a paradigm shift in dental care practices during the COVID-19 pandemic which is currently endemic throughout the world, Teledentistry is useful for future prospects in meeting patient care needs without or at least direct patient contact. It also reduces the cost of patient care, and helps educate patients.

Teledentistry is a dental care service in providing education or through the use of information technology rather than face-to-face contact with patients who come to a dentist clinic. Teledentistry was started by the US military since its inception in 1994 with the aim of serving United States troops worldwide.

Over the years teledentistry has proven to have many benefits in terms of remote screening methods, determining diagnosis, providing patient consultations, and determining a treatment plan. In the current state of the COVID-19 pandemic with the main aim of avoiding contact with other people, Teledentistry meets the need for social distancing as recommended by the world to contain the spread of the SARS-COV-2 virus.

Based on research conducted by Khan, oral and maxillofacial surgery departments also benefit from teledentistry services. After surgical treatment, remote contact with a specialist doctor assists us in assessing and recording pain scores that have decreased during postoperative evaluation without having to come back to our clinic.

Also teledentistry in the field of pediatric dentistry will not give a sense of stress to the examination of pediatric patients. Consultation with these services reduces the number of emergencies during this pandemic in the health care system. During the period of lockdown, teledentistry can provide specialist consultations to patients living in areas far from urban areas where access to dental care is not available. Knowing that the nature of teeth in an emergency is a primary care need for dentists.

Teledentistry for the present and the future has various opportunities in serving the dental health community. Various studies that prove and the role of teledentistry is conducive to health workers who have been quarantined at home after being exposed to COVID-19.

CONCLUSION

Consultation through teledentistry is a solution as dental health services and is very useful in this COVID-19 pandemic situation.

REFERENCES

5. Alzahrami SB, Alrusayes AA, Aldossary MS. Impact of COVID-19 Pandemic on Dental Education,


