PCAA
PUBLICAÇÕES CIENTÍFICAS
DE ACESSO ABERTO

Editorial

Advancements and Barriers in Teledentistry: Navigating in the Post-COVID Era

Howard Lopes Ribeiro Junior [1, 2, *]

1 Post-graduate Program in Translational Medicine, Federal University of Ceara, Fortaleza, CE, Brazil.
2 Post-graduate Program in Pathology, Federal University of Ceara, Fortaleza, CE, Brazil.

* Correspondence: howard@ufc.br.

Abstract: Teledentistry has experienced a notable surge in popularity, particularly during the COVID-19 pandemic, as it offers a safer alternative for dental consultations, reducing contagion risks while maintaining access to care. Initially, teleconsultations began with online triage, evolving into a critical component of dental care during the pandemic. Studies show positive reception among dentists and patients, appreciating teledentistry's convenience and effectiveness. Despite pre-pandemic low engagement, the pandemic era witnessed a significant rise in teledentistry's awareness and usage among dentists, suggesting a paradigm shift in dental practices. Research underscores teledentistry's potential as a long-term tool, particularly beneficial for remote or underserved areas, offering services like triage, consultations, and follow-ups. A systematic review emphasized its effectiveness, cost-efficiency, and potential integration into routine health services. Teledentistry's validity is supported by findings that it can be comparable to in-person interactions, especially in specific settings like school-based programs and rural areas. However, teledentistry's adoption faces challenges, including billing, administrative concerns, and effectiveness skepticism among some dental professionals. Factors influencing adoption include performance expectancy, effort expectancy, and social influence. A multifaceted approach addressing barriers at individual, community, organizational, and policy levels is essential for broader acceptance and integration into mainstream oral health systems. Despite these hurdles, a growing number of dentists are integrating teledentistry, motivated by patient convenience, the pandemic's impact, and accessibility. Nonetheless, concerns about reimbursement persist as significant barriers. Understanding stakeholders' diverse motivations and values is crucial for encouraging teledentistry's successful adoption. While it cannot replace all in-person dental care aspects, teledentistry has become an essential tool in the dental industry, enhancing access and offering a safer consultation alternative during and potentially beyond the pandemic.

Keywords: Teledentistry; COVID-19 pandemic; Adoption and challenges.

Dear authors,

Teledentistry has seen a significant rise in popularity, particularly after the COVID-19 pandemic, which has profoundly changed access to dental care. This shift is driven by the need to reduce the risk of contagion while ensuring effective dental treatment and symptom relief. The adoption of teleconsultations, which start with online triage, has been a critical compromise during the pandemic, limiting patient access to dental offices yet providing essential care. Research indicates that both dentists and patients have shown positive attitudes toward teledentistry, appreciating its convenience and effectiveness. A study highlighted that most patients were satisfied with the tele-dentistry experience, and dental professionals felt confident and competent after conducting video consultations [1].

Another study demonstrated that before the pandemic, the knowledge and practice of teledentistry were relatively low among dentists. However, during the pandemic, there was a notable increase in both the awareness and application of teledentistry, suggesting a shift in dental practice paradigms. Dentists have recognized the potential of teledentistry to be useful in their practice, with many expressing willingness to continue its use post-pandemic [2]. Additionally, the implementation of teledentistry includes various subunits like teleconsultation, telediagnosis, teletriage, and telemonitoring, which are vital in facilitating dental care remotely. Despite its benefits, the acceptance of teledentistry faces challenges, necessitating efforts to address concerns related to its adoption among dental professionals and patients [3]. This collective evidence underscores a broader acceptance and integration of teledentistry into routine dental practice, reflecting a significant shift towards digital healthcare in the dental field due to the pandemic.

Research has shown that teledentistry is not just a temporary solution but is viewed by many dental professionals as a valuable long-term tool in dental care. This perception is particularly strong among early adopters of teledentistry, who have recognized its potential in improving access to care, especially for patients in remote or underserved areas. These dental professionals use teledentistry for a range of services, including patient triage, consultations, and follow-ups, which can significantly reduce the need for in-person visits [4]. A systematic review emphasized the potential benefits of teledentistry in enhancing effectiveness, efficacy, and cost-efficiency in oral health care. It highlighted the role of teledentistry in facilitating future decisions about integrating this technology into routine health services [5].

Another study focused on the validity of teledentistry, finding that it can be comparable to face-to-face interactions for oral screenings, especially in school-based programs, rural areas, and long-term care facilities. This indicates that teledentistry is not just a stop-gap solution but a viable long-term option for various dental care settings [6]. Furthermore, qualitative insights from dentists reveal a strong belief in the long-term value of teledentistry. Early adopters have leveraged teledentistry to provide care during the pandemic and envision its continued use post-pandemic. They appreciate its benefits in reducing chair time, enabling efficient treatment planning, and improving access to care for remote or underserved populations [4]. These findings underscore the perception among dental professionals that teledentistry holds significant promise for the future of dental care, providing effective, efficient, and accessible services.

However, the adoption of teledentistry has varied among dental professionals, with a notable portion still hesitant due to factors such as billing issues, administrative control, or skepticism about its effectiveness. Despite these challenges, the majority of dental professionals acknowledge teledentistry's reliability for triaging and follow-up care, indicating a positive outlook toward its integration into regular dental practice [7]. The adoption of teledentistry among dental professionals varies due to a range of factors. While some dental health care providers (DHCPs) recognize the benefits of teledentistry, particularly for triaging and follow-up care, others remain hesitant. This hesitation can be attributed to various challenges, including concerns about billing, administrative control, and doubts regarding the effectiveness of teledentistry. A systematic review aimed at identifying barriers and enablers to teledentistry implementation highlights the importance of understanding these factors from DHCPs' perspectives to improve teledentistry's integration into dental practice [8].

Same authors indicates that the adoption of teledentistry is influenced by factors such as performance expectancy, effort expectancy, and social influence, with a significant relationship found between these factors and the behavioral intention to adopt teledentistry [9]. Another study focusing on older adults identified multiple layers of factors affecting teledentistry adoption, including policy, community, organizational, and individual levels, highlighting the need for a multifaceted approach to address these barriers [9]. Moreover, the broader acceptance of teledentistry is complex, involving various stakeholders at individual, infrastructure, and organizational levels. The integration of telemedicine into mainstream oral health systems requires addressing these barriers to enhance its acceptance and utilization [10].

Despite the challenges, a survey by the American Dental Association Clinical Evaluators Panel found that a growing number of dentists are incorporating teledentistry into their practices, driven by factors like patient convenience, the COVID-19 pandemic, and accessibility to providers. However, concerns about reimbursement remain a significant barrier for nonusers [11]. In the UK, the adoption and implementation of teledentistry, particularly in orthodontics, have been studied through the lens of Rogers' diffusion of innovation theory. The study identified the importance of understanding the different motivations and values of key stakeholder groups, including clinicians, patients, hospital managers, and healthcare decision-makers, to encourage the successful adoption of teledentistry [12]. In summary, while there is a positive outlook toward integrating teledentistry into regular dental practice, addressing the diverse and multi-level challenges is crucial for its broader adoption and effectiveness. Finally, while teledentistry cannot replace all

aspects of in-person dental care, it has emerged as a critical tool in the dental industry, enhancing access to care and providing a safe alternative for patient consultations during and potentially beyond the pandemic.

References

1. Menhadji P, Patel R, Asimakopoulou K, Quinn B, Khoshkhounejad G, Pasha P, Garcia Sanchez R, Ide M, Kalsi P, Nibali L. Patients' and dentists' perceptions of tele-dentistry at the time of COVID-19. A questionnaire-based study. J Dent. 2021 Oct;113:103782. doi: 10.1016/j.jdent.2021.103782. Epub 2021 Aug 13. PMID: 34400252; PMCID: PMC8361006.
2. Plaza-Ruíz SP, Barbosa-Liz DM, Agudelo-Suárez AA. Impact of COVID-19 on the Knowledge and Attitudes of Dentists toward Teledentistry. JDR Clin Trans Res. 2021 Jul;6(3):268-278. doi: 10.1177/2380084421998632. Epub 2021 Feb 25. PMID: 33632011.
3. Ghai S. Teledentistry during COVID-19 pandemic. Diabetes Metab Syndr. 2020 Sep-Oct;14(5):933-935. doi: 10.1016/j.dsx.2020.06.029. Epub 2020 Jun 16. PMID: 32593116; PMCID: PMC7297180.
4. Tiwari T, Diep V, Tranby E, Thakkar-Samtani M, Frantsve-Hawley J. Dentist perceptions about the value of teledentistry. BMC Oral Health. 2022 May 13;22(1):176. doi: 10.1186/s12903-022-02208-z. PMID: 35562798; PMCID: PMC9101983.
5. Estai M, Kanagasingam Y, Tennant M, Bunt S. A systematic review of the research evidence for the benefits of teledentistry. J Telemed Telecare. 2018 Apr;24(3):147-156. doi: 10.1177/1357633X16689433. Epub 2017 Jan 24. PMID: 28118778.
6. Alabdullah JH, Daniel SJ. A Systematic Review on the Validity of Teledentistry. Telemed J E Health. 2018 Aug;24(8):639-648. doi: 10.1089/tmj.2017.0132. Epub 2018 Jan 5. PMID: 29303678.
7. Cheuk R, Adeniyi A, Farmer J, Singhal S, Jessani A. Teledentistry use during the COVID-19 pandemic: perceptions and practices of Ontario dentists. BMC Oral Health. 2023 Feb 4;23(1):72. doi: 10.1186/s12903-023-02772-y. PMID: 36739377; PMCID: PMC9899062.
8. Kengne Talla P, Inquimbert C, Dawson A, Zidarov D, Bergeron F, Chandad F. Barriers and Enablers to Implementing Teledentistry From the Perspective of Dental Health Care Professionals: Protocol for a Systematic Quantitative, Qualitative, and Mixed Studies Review. JMIR Res Protoc. 2023 Jul 26;12:e44218. doi: 10.2196/44218. PMID: 37494093; PMCID: PMC10413248.
9. Sharka R, Sedayo L, Aldahwani S, Alyamani L, Budayri R, Qari A. Factors Affecting the Adoption of Teledentistry Based on the Unified Theory of Acceptance and Use of Technology Model. Cureus. 2023 Sep 26;15(9):e46016. doi: 10.7759/cureus.46016. PMID: 37900511; PMCID: PMC10602393.
10. Estai M, Kruger E, Tennant M, Bunt S, Kanagasingam Y. Challenges in the uptake of telemedicine in dentistry. Rural Remote Health. 2016 Oct-Dec;16(4):3915. Epub 2016 Nov 28. PMID: 27893947.
11. Howell SEI, Kumar P, da Costa J, Haraszthy V, Ioannidou E, MacDonnell W, Tenuta LMA, Frazier K, Rockman R, Vinh R; Council on Scientific Affairs. Teledentistry adoption and applications: An American Dental Association Clinical Evaluators Panel survey. J Am Dent Assoc. 2023 Sep;154(9):856-857.e2. doi: 10.1016/j.adaj.2023.06.006. PMID: 37634916.
12. Patel RN, Antonarakis GS. Factors influencing the adoption and implementation of teledentistry in the UK, with a focus on orthodontics. Community Dent Oral Epidemiol. 2013 Oct;41(5):424-31. doi: 10.1111/cdoe.12029. Epub 2012 Dec 13. PMID: 23240902.