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Facilitating oral and dental care in older people in low- and middle-income countries: The role of teledentistry



Dear Editor:

As we truly know, the world population is aging. According to WHO statements, the number of people aged 60 years and over will increase from 1 billion in 2020 to 2.1 billion by 2050. Moreover, the number of people aged over 80 years old is expected to triple between 2020 and 2050, reaching 426 million [1]. The aging population trend started in high-income countries, but now low- and middle-income countries are also experiencing this significant shift. WHO has reported that "two-thirds of the world's population over 60 years old will live in low- and middle-income countries by 2050" [1].

As people age, their physical abilities decline significantly, leading to increased frailty [2]. Common health issues that older adults often face include hearing loss, cataracts, refractive errors, back and neck pain, osteoarthritis, chronic obstructive pulmonary disease (COPD), diabetes, depression, and dementia [1]. These conditions can lead to poor oral and dental health among older people, particularly in low- and middle-income countries, due to their frailty and diminished physiological response [3].

Significant advancements in preventive and restorative dentistry have enabled older individuals to maintain more of their natural teeth. This increase in retained teeth has led to a greater demand for dental and oral health services among older patients. As a result, it is essential to comprehensively manage complex dental and oral health issues, including periodontal diseases, dental caries, root caries, xerostomia, oral mucosal lesions, and oral and pharyngeal cancers [4]. The primary benefits of teledentistry include lower dental costs, reduced oral health disparities, and improved access to oral health services for patients [5]. This issue is particularly evident in low- and middle-income countries, especially due to the lack of facilities for frail individuals [6]. The effective use of teledentistry has not yet become widespread in low- to middle-income countries, and recent research on this topic is limited. A study by Sharkawy et al. in Egypt demonstrated that mobile photography for teledentistry is a practical method for aiding oral examinations and triaging dental treatments for elderly patients residing in aged care facilities [7].

During the COVID-19 pandemic, dental and health care systems encountered numerous challenges in delivering care to patients, particularly in lower- and middle-income countries. As noted by Al-Omiri et al., teledentistry played a crucial role in providing oral health services during this time [8]. In addition, Patel et al. supported the benefits of teledentistry in reducing oral health disparities and increasing dental patients' satisfaction [9].

Emergency visits to the dental office can be challenging for older patients. Teledentistry offers a solution by helping these patients differentiate between urgent and non-urgent dental issues. Through mobile or web-based applications, teledentistry can provide diagnoses based on

established guidelines. If a problem is deemed an emergency, the service can recommend an immediate visit to the dental office [10].

Teledentistry also offers a valuable tool for older patients by facilitating video conferences for consultations and dental follow-ups. This approach is particularly useful for monitoring dental caries, significantly improving the oral health of older patients who may have difficulty traveling to a dental office. Another advantage of teledentistry is providing offline platforms for sending radiographic images and photographs of older patients before the therapeutic procedure sessions to facilitate and accelerate diagnosis and treatment [10].

Although there is limited information and research on the use of teledentistry for older and frail individuals globally, it can be concluded that increasing the adoption of teledentistry in dental and healthcare services in lower-middle-income countries can be greatly beneficial for older patients dealing with various age-related disabilities [3,11]. The establishment of specific guidelines is recommended to improve the utilization of teledentistry in preventive, restorative dentistry, and oral health services.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

Sedighe Sadat Hashemikamangar: Supervision, Investigation.
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References

- [1] <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>.
- [2] Castrejón-Pérez RC, Borges-Yáñez SA, Ramírez-Aldana R, et al. Self-reported oral diseases and their association with the frailty index among older Japanese people: four-year follow-up. *J Frailty Aging* 2024;13(3):259–66. doi:10.14283/jfa.2024.10.
- [3] Irigoyen-Camacho ME, Velazquez-Alva MC, Zepeda-Zepeda MA, et al. Relationship of frailty, nutritional status and oral health-related quality of life in Mexico City Nursing Home residents. *J Frailty Aging* 2024;13(1):10–20 PMID: 38305438. doi:10.14283/jfa.2023.29.
- [4] Tavares M, Lindefjeld Calabi KA, San Martin L. Systemic diseases and oral health. *Dent Clin North Am* 2014;58(4):797–814.
- [5] Ben-Omran MO, Livinski AA, Kopycka-Kedzierawski DT, et al. *J Am Dent Assoc* 2021;152(12):998–1011 Decembere17.
- [6] Ahip SS, Ting CY, Abdillah MAB, et al. Integrated Service Delivery model in primary care to improve frailty in older Malaysians: geKo Integrated Service Delivery. *J Frailty Aging* 2024;13(3):313–18. doi:10.14283/jfa.2024.42.

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- [7] Sharkawy MN, Mohamed M, Abbas HM. Accuracy of teledentistry versus clinical oral examination for aged-care home residents: a pilot study. *J Frailty Aging* 2025;14(1):100001. doi:10.1016/j.tjfa.2024.100001.
- [8] AL-Omiri MK, Al-Shayyab MH, Al Nazeh AA, et al. COVID-19 and dentistry: an updated overview of dental perspectives and a recommended protocol for dental care and emergency dental treatment. *J Contemp Dent Pract* 2021;22(5):572–86.
- [9] Patel SA, Halpin RM, Olson GW, et al. Global pandemic and the rise of teledentistry. *J Dent Educ* 2021;85:1158.
- [10] Hashemikamangar SS, Sooratgar A, Khayamzadeh M, et al. Design and evaluation of screening and self-care (mobile) application for oral and dental problems and emergencies. *J Oral Biol Craniofac Res* 2025(15):113–22.
- [11] Liu TC, Chang YC. A bibliometric analysis of teledentistry published in the category of dentistry, oral surgery and medicine. *J Dent Sci* 2024;19(3):1827–33. doi:10.1016/j.jds.2024.05.016.

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