

## Review Article

# Oral health needs of the geriatric patients and the role of mobile dentistry

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## ABSTRACT

In today's times, elderly individuals are keeping their natural teeth for longer owing to the rising popularity of fixed dental restorations and dental implants. It is seen that access to oral health care reduces and dental demands rise as people get older and more dependent on medical attention. For a high quality of life in terms of dental health, it is critical to have a functional dentition. A skilled oral health care provider is required for the geriatric population due to complex connections between dental health, some systemic illnesses, and medication side effects. For more than a century, there have been mobile dentistry services available as a way to help the underserved in society. Initially geared towards children, these services are now frequently used by adults and the elderly, particularly those in nursing homes, people with special needs, and those who have disabilities. When treating dependent elderly patients, it has been shown that home dental treatment is more economical than traditional dental care. Four distinct mobile dental service models by which a dental healthcare professional contacts a patient include the mobile dental vehicle model, portable equipment model, fixed equipment model, and the hybrid model. The services provided by the public sector in most countries employ a range of models, including the hybrid model, portable equipment, and fixed equipment, but the private sectors mostly use portable equipment to provide a mobile dental service. Dental care provided by university-based services ranges from routine to complicated procedures, whereas basic, routine care is mostly offered by the commercial sector. Mobile and portable dental models offer a practical substitute for typical dental clinic visits or when the fixed setup is not present. Mobile dental services also have shown utility for data gathering, strategy creation, and investigations on the potential effects of preventative and oral treatment provided by these services.

**Keywords:** Mobile dentistry, Domiciliary dentistry, Geriatric dentistry

## INTRODUCTION

A vital sign of general health, happiness, and quality of life is oral health.<sup>1</sup> According to studies, elderly individuals are keeping their own teeth for longer because to the rising popularity of fixed dental restorations and dental implants.<sup>2</sup> For a high quality of life in terms of dental

health, it's critical to have a functional dentition, whether natural or artificial.<sup>3</sup> However, elderly individuals are more prone to take multiple medications and to have chronic illnesses like diabetes and heart disease. A skilled oral health care provider is required for this population due to the connection between dental health, some systemic illnesses, and drug side effects. Professional dental care

has been shown to prevent morbid illnesses like aspiration pneumonia, a leading cause of hospitalization and morbidity in elderly individuals in nursing homes who are dependent on others.<sup>4</sup> Despite these unmistakable benefits, research has shown that as people get older and more dependent on medical attention, access to oral health care reduces and dental demands rise.<sup>5</sup> A sizeable section of the population of Saudi Arabia is aging, just like the rest of the globe. For more than a century, there have been mobile dentistry services available as a way to help the underserved in society.<sup>6</sup>

Initially geared at children, these services are now frequently used by adults and the elderly, particularly those in nursing homes, people with special needs, and those who have disabilities.<sup>7</sup> When treating dependent elderly patients, it has been shown that home dental treatment is more economical than traditional dental care.<sup>8</sup> Studies have shown that, albeit by a very tiny margin, clinic-based examinations tend to discover more dental illness than home-based examinations, with the same studies indicating that home-based tests continue to be performed in the absence of any other viable or available options.<sup>9</sup> According to studies, older residents of nursing homes who regularly use mobile dentistry services have better oral health.<sup>10,11</sup> According to a study conducted in Switzerland, it is crucial to establish dental services in geriatric and palliative care hospitals.<sup>12</sup> A recent study found that dependent elderly people living in nursing homes or at home had poor oral health and rarely use of dental services. The study came to the conclusion that mobile dental services could help these people.

Despite these advantages, research has also revealed that providing dental services to such a dependent population is fraught with difficulties for dentists and other dental specialists. Limitations include a shortage of instruction regarding how to handle individuals' cognitive, medical, and behavioral issues, insufficient dental equipment to provide effective dental care, and low pay.<sup>13</sup> Although multiple studies have demonstrated that an integrated strategy encompassing healthcare practitioners and auxiliary health personnel in addition to dental care providers is the cornerstone to cooperative care and support for the dependent older patients, an insufficiency of cooperation between various care providers also frequently acts as an obstacle to providing proper oral health care to this community.<sup>14,15</sup>

Under this approach, the current study presents results about four distinct mobile dental service models that detail the various methods by which a dental healthcare professional contacts a patient instead of the patient having to contact the dental care professional. Such models encompass portable equipment model (any devices used in the providing dental care that is transported to and used temporarily at an out-of-office location, along with, but not restricted to, patients' residences, education institutions, hospices, or other institutions); the fixed equipment model (any self-contained hub in which dental care will be

performed, that can be relocated, or transferred from one site to another); the mobile dental vehicle model (any self-contained unit in which dental care will be provided) and the hybrid approach (a combination of portable equipment and mobile dental vehicle).<sup>16</sup>

## **METHODS**

This study was based on a comprehensive literature search conducted on October 16, 2022, in the Medline and Cochrane databases, utilizing the medical topic headings (MeSH) and a combination of all available related terms, according to the database. To prevent missing any possible research, a manual search for publications was conducted through Google Scholar, using the reference lists of the previously listed papers as a starting point. We looked for valuable information in papers that discussed the information about the oral health needs of the geriatric patients and the role of mobile dentistry. There were no restrictions on date, language, participant age, or type of publication.

## **DISCUSSION**

The public sector services employ a range of models, including the hybrid model, portable equipment, and fixed equipment, but the private sectors mostly use portable equipment to provide a mobile dental service. Dental care provided by university-based services ranges from routine to complicated procedures, whereas basic, routine care is mostly offered by the commercial sector. Universities and the commercial sector both recognize the necessity of strengthening partnerships with various healthcare providers. Age and care dependency-related declines in dental service use are not correlated with the actual need for dental care and treatment.<sup>17</sup>

Although the corporate and academic sectors agree that mobile dental services should be established in many nations, the reception of these services differs. These findings are consistent with earlier research, where there were initially noted challenges, such as securing the participation of senior home operators, while other studies found that over time, the services were warmly received by their communities.<sup>18-20</sup> Other obstacles, such as dental treatment costs, may prevent older persons from obtaining dental care in addition to the physical and cognitive limitations that frequently restrict their access to dental care. The severity of the financial barrier to the elderly might vary depending on the socioeconomic position of the patients, according to studies conducted throughout the world.<sup>21-23</sup>

According to a study on mobile services launched by several organizations in Switzerland and the United States, models are used in a variety of configurations.<sup>7</sup> Fixed dental offices offer the benefit of being able to provide all dental services and having access to all dental equipment. In contrast to portable equipment, mobile dental vehicles and hybrid versions have the capacity to carry a full

complement of dental tools. However, they are expensive to put up and keep maintained.<sup>24</sup> According to studies, dental care delivered with portable equipment- the kind most frequently employed by the private sector in Switzerland- primarily comprises diagnostic, prosthetic, and emergency care.<sup>25,26</sup> Although using portable equipment has its drawbacks and may not give the dentist with the optimum working environment, it is inexpensive to set up and convenient to travel.<sup>24</sup> According to one survey, mobile dental services were offered by dentists and dental hygienists on an average of 2.6 days each month. According to a research conducted in Canada (n=302), almost 20% of dentists saw patients in nursing homes on one day each month.<sup>27</sup>

According to research from Australia, half of the participants (n=122) offered dental treatment in nursing homes for an average of one hour each month, while another Australian study found that almost 30% of responders (n=413) did so for fewer than two hours a month.<sup>28,29</sup> According to these results and the research that has been done, there is a difference between the time allotted for patient care and the well-established oral health needs of senior patients in nursing homes, which may mean that those needs are not being satisfied. Participants in the interviews expressed a desire to see more dentists offering in-home dental treatment. Yet, the majority of them admitted that it is challenging working in this profession. The absence of dental equipment in care facilities, difficult patients, and low pay are just a few of the challenges oral healthcare professionals face while offering mobile dentistry services, based on various studies conducted throughout the world.<sup>27,29,30</sup>

According to previous studies- having fixed equipment in nursing homes might motivate more dental experts to perform the work.<sup>30,31</sup> Even though the fixed equipment model is thought to be the preferred choice, it frequently happens that care facilities lack this kind of infrastructure.<sup>25,27,29</sup> Additionally, a the bulk of older adults live in the community, and not in nursing homes, in many developed countries and most developing countries.<sup>16</sup> Research findings have shown gains in the dental health status of dependent elderly patients who regularly used mobile dental services using portable equipment models, whereas other research has shown that these services may be seen as a way to bring in more patients to the practice<sup>37</sup> and gain a business edge over competition.<sup>11,18</sup> As a result, mobile and portable dental models offer a practical substitute for typical dental clinic visits or when the fixed setup is not present. With an aging population, it is more common than ever for older individuals to require care and have more teeth and elaborate dental procedures. In one study, some survey respondents who participated in interviews voiced worry about potential patients, the 'young old', who research has shown have a propensity to miss dental visits and eventually become abandoned by the practice.<sup>32</sup> Oral health issues typically begin earlier, when older individuals are still residing at home and managing their regular care more or less unaided.<sup>33</sup> According to a

Swiss study on older individuals who had just been admitted to nursing homes, the elderly patients' poor oral health upon admission was a marker that their oral health had been neglected for weeks, months, or even years. This neglect may have contributed to the elderly patients' gradual physical and cognitive decline.<sup>34</sup> As a result, oral treatment must be customized for those in the 50 to 60 age range so that issues may be identified earlier and treated more easily as they progress.<sup>35,36</sup> Several authors have noted the need for improved coordination, additional dental assistants, and improved nursing staff training.<sup>29</sup> It is crucial to provide comprehensive and long-term care to the immune-compromised older patient, dental staff, such as dentists, hygienists, and assistants, in collaboration with general practitioners and the organizations and institutions engaged in the care of older adults.<sup>33</sup>

A community-based strategy, as opposed to an individual-based one, in which neighborhoods, governments, residential care institutions, and nursing homes collaborate to provide oral care, gives benefits.<sup>25</sup> By teaching the aged, their relatives, and care facility workers and improving the elderly's oral health, a group strategy has been viewed as a proactive attitude towards the community's dental health.<sup>26</sup> However, research has indicated that practitioners are not always eager to collaborate and often prefer to work alone.<sup>25</sup> There appears to be little communication regarding these services among dental professionals, as well as among clients, their relatives, and nursing homes. While dentists are prohibited from making any objective or deceptive claims about the dental treatment they perform, medical knowledge is permitted and required.<sup>16</sup>

Knowledge should be easily accessible via channels and in styles suitable for the relevant age range, such as general practitioners, pharmacies, and other community organizations.<sup>37</sup> According to research on mobile dental services, these facilities are also utilized for data gathering, strategy creation, and investigations on the potential effects of preventative and oral treatment provided by these services.<sup>38</sup> Tutoring dental students and/or recent graduates in the area of geriatric dentistry was another alternate usage.<sup>39,40</sup> The current literature's implications point to requirement for collaborating with many parties as well as educating diverse dental team members and carers. The promotion of such a collaborative and diverse atmosphere guarantees a rise in the number of caretakers who are able to meet the fundamental oral requirements of these old individuals. A more organized patient care with better conditions for the caregivers may come from organizing these services by a participatory approach. This strategy would have to be modified, though, to take into account the demands of the local population as well as the accessibility and readiness of dental practitioners.

## **CONCLUSION**

To establish which of the mobile dental service models will prove to be the most effective in terms of access to dental care, quality of care, and costs, additional study through

intervention studies is advised. It is advised to conduct detailed interviews with dentists and dental hygienists in the private sector to learn more about their viewpoints on mobile dentistry services and how, if at all, they should be organized. To fully understand the genuine dental needs of the population and the access to oral healthcare, investigations should be expanded to include nursing home management and, whenever possible, the patients themselves. A formal assessment of the operations would reveal their impact and efficacy and make modifications to solve the problems detected.

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