Turkish Journal of Public Health Dentistry
Volume 3, Issue 2, Page No: 27-32
Available Online at: www.tjphd.com

Original Article

Dental Home Care Challenges for Homebound Patients at Prince Sultan Military Medical City

Haslina Rani[1,2], Tuti Ningseh Mohd-Dom[1,2], Tew In Meei[2,3], Muhammad Syafiq Asyraf Rosli[1,2]*, Lee Zi Quan[4], Aznida Firzah Abdul Aziz[2,5], Siti Aisya Athirah Hassan[6], Nur Saadah Mohamad Aun[6]

[1]Department of Family Oral Health, Faculty of Dentistry, Universiti Kebangsaan Malaysia, Kuala Lumpur 50300, Malaysia.
[2]Family Oral Wellness Research Group, Universiti Kebangsaan Malaysia, Kuala Lumpur 50300, Malaysia.
[3]Department of Restorative Dentistry, Faculty of Dentistry, Universiti Kebangsaan Malaysia, Kuala Lumpur 50300, Malaysia.
[4]Sungai Buloh Dental Clinic, Selangor State Health Department, Ministry of Health Malaysia, Sungai Buloh 47000, Malaysia.
[5]Department of Family Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur 56000, Malaysia.
[6]Centre for Research in Psychology and Human Well-Being, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, Bandar Baru Bangi 43600, Malaysia.

ABSTRACT

This study was conducted at Prince Sultan Military Medical City (PSMMC) to assess the oral healthcare needs of homebound individuals under the care of the Home Care Department. Of the 5600 patients receiving care, 2565 were actively visited by home care staff. A dental home care survey team virtually screened all active patients. Among the 2565, 633 (25%) were identified as requiring dental home care, while 1932 were excluded due to various reasons. The patients who consented to dental screenings were grouped according to their geographic district, and home visits for dental evaluations were conducted. Patients were then classified according to the dental treatments needed. Of those screened, 63% required prosthetics, 23% required restorative procedures, and 35% required minor oral surgeries. In addition, 205 patients (12%) could not receive treatment outside of a hospital due to medical conditions or the complexity of their dental needs; however, they were eligible for follow-up visits and routine dental checkups at home to monitor for early oral infections or potential malignant diseases, while also providing education on oral hygiene. While a dental clinic remains the most ideal setting for dental treatment, domiciliary care is a viable option for certain cases. This study will contribute to the development of guidelines, resource allocation, staffing, and budgeting for services of dental home care at PSMMC.

Keywords: Home dental care, Oral health at home, Domiciliary dentistry, Homebound individuals, Guidelines for domiciliary dentistry

Introduction

The ability of elderly individuals to access dental care is influenced by various factors, including their physical and cognitive abilities, financial resources, personal behaviors, dentist-related practices, and limitations in insurance coverage or availability of local dental professionals [1-3]. However, even with insurance or nearby providers, many individuals do not receive the care they need. This could be due to a lack of awareness regarding the importance of oral health or a diminished concern for seeking dental care among many elderly adults [4]. With the growing elderly population and the increasing prevalence of chronic conditions, more people are living longer

HOW TO CITE THIS ARTICLE: Rani H, Mohd-Dom TN, Meei TI, Rosli MSA, Quan LZ, Abdul Aziz AF, et al. Dental Home Care Challenges for Homebound Patients at Prince Sultan Military Medical City. Turk J Public Health Dent. 2023;3(2):27-32.

Corresponding author: Muhammad Syafiq Asyraf Rosli
E-mail ✉ syafiqasyraf@ukm.edu.my
Received: 20/08/2023
Accepted: 29/11/2023

lives, and the complexity of oral health issues they face is also rising. Additionally, many older adults retain their natural teeth for extended periods, resulting in a wider range of dental challenges than in the past.

Although there is considerable information about the oral health needs of institutionalized elderly individuals, much less is known about the oral health and requirements of those who are homebound. A literature review for 30 years reveals a gap in studies addressing the oral health needs of homebound seniors [5].

In Saudi Arabia, the aging population is facing challenges in accessing proper oral healthcare, especially for those who experience mobility limitations or other medical or psychological conditions that make it difficult to visit dental clinics. Domiciliary care services provide a solution, allowing individuals to receive necessary dental assistance at home while maintaining their independence.

At Prince Sultan Military Medical City (PSMMC), the Home Care Department delivers a range of essential medical services to homebound individuals, supported by specialized equipment and a structured team that follows specific protocols. However, oral healthcare is not currently part of the services offered to these individuals.

The objective of this study was to highlight the oral health needs of homebound patients receiving care from PSMMC's Home Care Department. It aims to underscore the importance of integrating dental care into the services for these individuals, particularly as domiciliary care becomes a viable alternative. The findings are intended to aid in future planning for the development of guidelines, resources, and staffing required to establish dental home care services at PSMMC.

A growing number of individuals are becoming permanently homebound because of different health and socioeconomic challenges, preventing them from accessing regular medical and dental care. As a result, many homebound adults do not receive dental attention for extended periods, which leads to deteriorating oral health, causing pain, infections, and difficulties with eating and socializing [6]. Research by Palati *et al*. [7] revealed that homebound individuals requiring significant support care reported quality of life being super low compared to those with more moderate support needs, although both groups shared similar medical and dental conditions.

Studies highlight the substantial dental care needs and inadequate oral hygiene among homebound adults, particularly those over 65 years of age, who got home healthcare. Oral issues, including chewing difficulties and dry mouth, notably impact daily activities [6]. A study conducted in China by Zhou *et al*. [8] suggested that the home healthcare method significantly benefited older homebound adults, offering better access and affordability for care. There is potential for expanding home healthcare services to improve their quality. Ishimaru *et al*. [9] explored the factors that influence access to homebound dental care among the elderly receiving long-term care services. The need for more care, living conditions, dementia, use of other home services, and the availability of dental clinics providing homebound dental care were found to be strong predictors of receiving dental treatment at home.

In addition to the direct impact of being homebound on oral health, poor dental hygiene can also contribute to homebound status through various mechanisms. Dental problems affect both the physical and social aspects of life for homebound individuals. Oral health influences not just physical well-being, but also social interactions, food choices, and overall health. Studies have shown that poor dental health is linked to a higher risk of falls and functional disability. Furthermore, issues like tooth loss can affect one's social life by impacting speech and facial appearance. People with dental problems often experience embarrassment due to missing teeth, which further affects their social confidence and interactions [10-12].

This research was carried out at Prince Sultan Military Medical City (PSMMC) to evaluate the oral healthcare needs of homebound people under the care of the Home Care Department.

Materials and Methods

The sample for this study was drawn from patients registered in the home care department at PSMMC who met the eligibility criteria for inclusion in the program. Initially, there were 5006 patients registered, but not all received regular visits from home care staff due to the presence of respiratory therapy-dependent individuals. After excluding those, 2565 active patients remained. Following approval from PSMMC's high authority, all patient data were retrieved from the home care department, reviewed, and categorized according to their residential district areas. The collected data included the patient's demographic details, medical history, contact information, and their respective district zones.

A specialized survey team was established for the study, consisting of a multidisciplinary group of professionals. The team included three general dentists, two consultants in comprehensive restorative dentistry, three dental assistants, and three nurses. Each member of the dental home care team was required to adhere to specific guidelines. They were to be protected and chaperoned during their visits, thoroughly trained in the principles of dental home care services, and equipped with proper identification. Upon arrival at each patient's home, team members were introduced by name and their professional status to ensure transparency and trust with the patients.
The general practitioner had a crucial role in coordinating the home dental visits. Their first step was to contact the patients via phone. The purpose of this initial contact was to assess the patient's willingness to participate in a dental home visit, conduct a tele-triage to screen for COVID-19, and clarify any concerns regarding the involvement of caregivers or relatives.
For those patients who agreed to receive dental care at home, the general practitioner proceeded with a comprehensive screening process. This involved obtaining consent from the patient or, in cases where the patient could not consent, from their legal guardian. Additionally, the practitioner reviewed the patient's medical history, conducted screenings, and completed the necessary charting. All findings and actions were documented in the patient's medical records, and the general practitioner was in contact with the patient's physician for any medical consultations that might arise.
The dental assistant played an essential supportive role during the home visits. Their responsibilities included assisting in various procedures, maintaining accurate patient charts, taking radiographs, and confirming the scheduled times for visits.
The nurse's duties began upon arrival at the patient's residence, where they performed visual triage. This included measuring the patient's body temperature with a non-contact forehead thermometer and recording the vital signs. The nurse was also responsible for carrying the medical files necessary for reviewing the patient's history and contacting the assigned physician for further consultations if needed.
Lastly, the consultant's role was focused on reviewing the patient's medical records and developing an initial treatment plan. They performed consultations to determine whether dental care could be safely provided at home or if the patient required a transfer to the hospital. The consultant also discussed the proposed treatment plan with the patient or their guardian and obtained informed consent before proceeding with any treatment.

Patients who expressed their willingness to participate were grouped based on their district zone and scheduled for dental screening visits. During these visits, the dental screening team completed dental record forms, documenting essential details such as the patient's main concerns, medical and dental histories, charting, and an initial treatment plan.
The collected data was input into a computer system and used the Statistical Package for Social Sciences (SPSS). Frequency distributions were generated, and chi-square tests were performed for comparison purposes. A significance level of 0.05 was used to determine statistical relevance. Any missing data were excluded from the analysis.

Results and Discussion

Table 1 presents the distribution of patients by gender in the study. The dental home care conducted virtual surveys with 2565 patients, including 1576 females and 989 males **(Table 1)**.

Table 1. Percentage of the patient's sex included in the study

Sex	Frequency	Percent
Male	989	38.6
Female	1576	61.4

Table 2 displays the patients who agreed to and declined a home visit. Out of the 2565 patients, 1698 individuals, or 66%, expressed willingness to get dental home care, as confirmed by the patient or their guardian.
On the other hand, 867 patients (34%) declined participation and were excluded from the study due to various reasons, including death, relocation outside Riyadh, outdated or incorrect contact information, tube feeding, hospitalization, or being fully satisfied with their dentures **(Table 2)**.

Table 2. Frequencies of patients willing and not willing for a dental home visit.

Total number of patients	Willing for Dental Home Visit		Not willing/excluded	
2565	1698	66%	867	34%

Table 3 presents the distribution of age groups among the study participants. All eligible individuals from different age ranges were in the survey, as they were all recipients of services from the PSMMC Home Care Department. The participants are categorized by age in **Table 3**.

Table 3. Frequencies of various age groups among study participants

Age group (years)	Frequency	Percentage
< 15	26	1.5
16-25	35	2
26-35	28	1.6
36-45	116	7
46-55	196	11.5
56-65	340	20
66-75	347	20
76-85	305	18
86-95	263	15
> 95	42	2.5

Table 4 outlines the different types of dental treatments required by the patients. Among the participants, 205 (12%) could not receive treatment outside of hospital settings due to their medical conditions or the complexity of the dental procedures required. However, these individuals could still benefit from home visits for regular follow-ups, dental check-ups, early detection of oral infections or serious diseases, and guidance on oral hygiene practices.

The patients who qualified for dental home care were grouped based on the specific dental treatments they needed.

Table 4. Frequencies of various types of dental treatment required for patients

Type of Dental Treatment	Frequency	Percentage
Dental hygiene and education	515	30
Periodontal treatment	97	6
Restorative treatment	394	23
Minor oral surgery	596	35
Prosthodontic treatment	1075	63
Oral medicine consultation	37	2
Endodontic treatment	54	3
Orthodontic treatment	6	0.4
Pedodontics	17	1
Emergency treatment	260	15
Follow-up and regular examination	236	14

Table 5 presents a comparison of dental treatment needs between male and female patients. The Chi-square test revealed that there were no significant differences between male and female patients in terms of their dental needs or the types of treatments required **(Table 5)**.

Table 5. Comparison between male and female patients regarding the needs for dental treatment

Variables	Males	Females	p-value
Needs dental treatment	Yes: 22.6% No: 77.4%	Yes: 25.9% No: 74.1%	.060
Type of dental treatment			
Oral surgery	Yes: 8.3% No: 93.4%	Yes: 9.4% No: 90.6%	.132
Prosthodontics	Yes: 11.9% No: 88.1%	Yes: 14.1% No: 85.9%	.119
Periodontics	Yes: 3.4% No: 96.6%	Yes: 3.5% No: 96.5%	.913
Restorative	Yes: 7.6% No: 92.4%	Yes: 9.5% No: 90.5%	.086
Root canal treatment	Yes: 1.1% No: 98.9%	Yes: 0.9% No: 99.1%	.680
Scaling	Yes: 6.4% No: 93.6%	Yes: 8.5% No: 91.5%	.068
Oral medicine	Yes: 0.4% No: 99.6%	Yes: 0.1% No: 99.9%	.440

Because of the lack of information on the number of disabled or homebound individuals who may require domiciliary dental care at PSMMC, this survey aimed to gather information from patients under the care of the Home Care Department at PSMMC. The goal was to assess the demand for this service and identify the types of dental treatments needed.

The findings revealed that 66% of participants expressed willingness to get home dental care, with various dental procedures required. Of these, 22.6% of male patients and 25.9% of female patients needed home dental services. When comparing these results with those from a study by Rabbo *et al*. [13], it was found that the dental care level provided to institutionalized or home-based elderly individuals, as well as the resources available, were reported to be insufficient. The primary barriers to delivering dental care in these settings, according to facility managers, were staff shortages, residents' lack of interest, and financial constraints [14].

The results also indicate that approximately 15% of home-based patients require some form of dental care. Johnson *et al*. [15] highlighted that there is a significant unmet need for dental treatment in home care patients. However, the mere presence of dental disease is not an adequate indicator of the need for care, as it does not account for the complexity of cases or the shift towards a patient-centered approach to care rather than a disease-focused one. To effectively assess oral health needs in care homes, it is essential to consider treatment requirements and complications.

Lundqvist *et al*. [16] found that the societal cost of providing dental care to elderly patients at home was lower than that of care provided in a clinic setting, and it was considered cost-effective, particularly in situations where home-based care was the only feasible option. With increasing life expectancy and higher morbidity rates, coupled with greater reliance on caregivers or hospitalization, the risk of rapid oral health decline is higher. Therefore, alternative methods for delivering oral health care to vulnerable individuals who struggle to access fixed dental clinics should be explored [17].

Further research is required to identify the factors that may hinder dentists from providing this service, especially when dental procedures are complex or when patients' medical conditions limit the feasibility of treatment.

Conclusion

A significant number of individuals at PSMMC require domiciliary dental care.

Some dental treatments are suitable for home care and can be completed using manual instruments. These include procedures in dental hygiene, periodontics, minor oral surgery, specific prosthetic and restorative treatments, and oral medicine consultations.

Proper planning, preparation of instruments, and the use of portable equipment are crucial to successfully delivering dental treatments outside a traditional clinical environment.

Acknowledgments: None

Conflict of Interest: None

Financial Support: None

Ethics Statement: None

References

1. Yamany IA. The employment of CBCT in assessing bone loss around dental implants in patients receiving mandibular implant supported overdentures. Int J Pharm Res Allied Sci. 2019;8(3):9-16.
2. El Ashiry EA, Alamoudi NM, Farsi NM, Al Tuwirqi AA, Attar MH, Alag HK, et al. The use of micro-computed tomography for evaluation of internal adaptation of dental restorative materials in primary molars: an in-vitro study. Int J Pharm Res Allied Sci. 2019;8(1):129-37.
3. Lee JH. Factors affecting the academic performance of low-and high-performing dental students: evidence from Japan. J Adv Pharm Educ Res. 2022;12(3):82-6.
4. Wilk A, LaSpina L, Boyd LD, Vineyard J. Perceived oral health literacy, behaviors, and oral health care among caregivers to the homebound population. Home Health Care Manag Pract. 2021;33(4):280-7.
5. Oliveira TF, Embaló B, Pereira MC, Borges SC, Mello AL. Oral health of homebound older adults followed by primary care: a cross sectional study. Rev Bras Geriatr Gerontol. 2021;24(5):e220038.
6. Henni SH, Skudutyte-Rysstad R, Ansteinsson V, Hellesø R, Hovden EAS. Oral health and oral health-related quality of life among older adults receiving home health care services: a scoping review. Gerodontology. 2023;40(2):161-71.
7. Palati S, Ramani P, Shrelin HJ, Sukumaran G, Ramasubramanian A, Don KR, et al. Knowledge, attitude and practice survey on the perspective of oral lesions and dental health in geriatric patients residing in old age homes. Indian J Dent Res. 2020;31(1):22.
8. Zhou R, Cheng J, Wang S, Yao N. A qualitative study of home health care experiences among Chinese homebound adults. BMC Geriatr. 2021;21(1):1-9.
9. Ishimaru M, Ono S, Morita K, Matsui H, Yasunaga H. Domiciliary dental care among homebound older adults: a nested case-control study in Japan. Geriatr Gerontol Int. 2019;19(7):679-83.
10. Cheng YM, Ping CC, Ho CS, Lan SJ, Hsieh YP. Home-care aides' self-perception of oral health-care provision competency for community-dwelling older people. Int Dent J. 2019;69(2):158-64.
11. Sterling-Fox C. Access to five nonprimary health care services by homebound older adults: an integrative review. Home Health Care Manag Pract. 2019;31(1):55-69.
12. Valla ME, Westcott RC. Mobile dental unit brings services to the young and needy. N Y State Dent J. 1996;62(4):32-5.
13. Rabbo MA, Mitov G, Gebhart F, Pospiech P. Dental care and treatment needs of elderly in nursing homes in Saarland: perceptions of the homes managers. Gerodontology. 2012;29(2):e57-62.
14. Sullivan SS, Hewner S, Chandola V, Westra BL. Mortality risk in homebound older adults predicted from routinely collected nursing data. Nurs Res. 2019;68(2):156-66.
15. Johnson IG, Morgan MZ, Monaghan NP, Karki AJ. Does dental disease presence equate to treatment need among care home residents? J Dent. 2014;42(8):929-37.
16. Lundqvist M, Davidson T, Ordell S, Sjöström O, Zimmerman M, Sjögren P. Health economic analyses of domiciliary dental care and care at fixed clinics for elderly nursing home residents in Sweden. Community Dent Health. 2015;32(1):39-43.
17. Spivack E. Dental care of the homebound patient with myalgic encephalomyelitis/chronic fatigue syndrome. 2020.