Original Article

DENTAL HOME CARE NEEDS AMONG HOMEBOUND INDIVIDUALS AT PRINCE SULTAN MILITARY MEDICAL CITY

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ABSTRACT

This study was conducted at Prince Sultan Military Medical City (PSMMC), to ascertain the need for Oral Health Care among home-bound individuals, under the care of the Home Care Department of PSMMC. Although 5600 patients were under the care of the Home Care Department, only 2565 were actively visited by the home care staff. All eligible active patients were virtually screened by the dental home care survey team. Of 2565 patients, 633 required dental home care (25%), while 1932 had multiple reasons for not being included in the study. Individuals who were willing to undergo the dental screening home visits were categorized geographically according to their district zone of residence and home dental screening was performed by the team. The patients were then recategorized according to the dental treatment needed. Of the patients, 63 %,23%, and 35% required prosthetic treatment, restorative procedures, and minor oral surgeries, respectively. Two hundred and five (12%) could not be treated outside hospital settings owing to their medical status or the complexity of the dental procedure needed; however, follow-up and regular dental examinations could be performed at home to exclude early signs of oral infection or critical malignant disease and to assist in education and oral hygiene instructions. A dental setting is the best environment to provide dental treatment; however, there are some cases in which domiciliary provision is the only reasonable alternative. This survey will help in planning the future guidelines, equipment, staff, and budget needed to provide dental home care services in PSMMC.

Key words: Dental home care, Domiciliary dentistry, Home-bound people, Domiciliary oral health, Domiciliary dentistry guidelines.

Introduction

Access to dental care by the elderly is affected by their physical as well as cognitive capacities and restrictions, financial assets, behavior or practices of the patient or the dentist, as well as restricted insurance coverage or accessibility of a nearby dentist [1-3]. Nevertheless, having insurance or proximate providers does not at all times assure that people who require services will acquire them. A purpose for this could be that several elderly adults have a reduced knowledge of their oral health and a reduced concern about obtaining care [4]. The levels of significant morbidity in the population are increasing as a greater number of individuals are living in old age and/or surviving life-limiting diseases. Furthermore, many old and infirm individuals retain their teeth for much longer; therefore, the range and complexity of oral and dental problems are greater than it has been in previous years.

Even though there have been a comparatively large number of available information detailing the oral health status/needs of institutionalized elderly during the past three decades, relatively little is recognized regarding the oral health status/needs of the homebound elderly. A review of the literature for the same period discovered insufficient published studies on the oral health status and needs of the homebound elderly [5].

The Saudi population is aging and faces challenges in the provision of adequate and appropriate oral health care for older individuals. Many individuals may also experience mobility or other medical or psychological circumstances that severely limit their ability to present themselves during dental surgery. Domiciliary care is a service provided that allows people to remain in their homes, while still receiving assistance with their personal care needs.

Prince Sultan Military Medical City (PSMMC) has a home care department that provides all the necessary medical services to eligible homebound individuals, and they have special equipment and certain guidelines that are regulated by a well-organized and systematic team. However, oral health care is not included in the list of medical services provided to these individuals.

This study aimed to shed light on the need for oral health care among homebound individuals who are under the care of the Home Care Department of PSMMC and for whom the domiciliary provision is the only reasonable alternative for future planning of the guidelines, equipment, and staff needed to provide dental home care services at PSMMC.

Literature review

Due to various health and socioeconomic factors, an increasing number of the general public are permanently home-bound and unable to access routine medical or dental care. Moreover, because home-bound adults typically do not see a dentist for years, their oral health deteriorates, resulting in pain and infection and compromised ability to eat and socialize [6]. Palati *et al*. (2020) found that home-bound individuals with substantial needs for supportive care had a lower quality of life than home-bound individuals with moderate needs for supportive care [7]. However, both medical and odontological variables were similar in the groups.

The current literature has revealed substantial treatment needs and a lack of adequate daily oral care among adults, especially above 65 years, who receive home healthcare services. Moreover, oral conditions substantially impact daily activities, as oral symptoms related to dry mouth and chewing problems were prevalent [6].

A China-based study by Zhou *et al*. (2021) advocated that the home healthcare model helped Chinese older adults, mainly homebound adults, in terms of accessibility and affordability [8]. There are prospects to increase the range of home healthcare services and enhance the quality of care. Ishimaru *et al*. (2019) examined the factors related to getting homebound dental care among older adults who used long-term care services [9]. An increased level of care need, living circumstances, dementia, usage of other domiciliary services, and dwelling in a community with a larger number of dental clinics offering homebound dental care were considerably associated with receiving domiciliary dental care.

Besides the probability that being homebound results in poor dental health, there is the likelihood that deprived dental health leads to homeboundness via several pathways. Dental health may disturb both the physical and social attributes of homebound people. Dental health influences not merely physical health status but also social aptitudes. Dental health plays a significant part in food choice and dietary consumption. Furthermore, current investigations have revealed the impacts of dental health on overall health status comprise of bigger incidence of falls and functional disability. Besides these physical health elements, dental health, comprising loss of teeth, also impacts social factors including conversation and facial appeal. Embarrassment is frequently seen when people have poor dental health concerns for example having fewer remaining teeth [10, 11].

Materials and Methods

I. The sample was selected from the patients who were registered in the home care department of PSMMC and met the eligibility criteria to be under their care.
   - The total number of eligible patients was 5006; however, not all of them were actively visited by the home care staff because some of them were respiratory therapy-equipped Patients [12].
   - The number of active patients is 2565.
   - After having permission from the high authority of PSMMC, all patients' information data were obtained from the home care department, reviewed, and divided according to the residential geographical area.
   - The data included the demographic information of the patient, district area, medical history, and patient's contact number.

II. A survey team was created and comprised:
   - three general dentists
   - two consultants in comprehensive restorative dentistry
   - three dental assistants
   - three nurses

Every member of the Dental Home Care team should be:
- Protected and Chaperoned
- Trained in the understanding, planning, and delivery of all Dental Home services
- Introduced on arrival by name and status, carry an official identification.

- *The role of the general practitioner*
  1- Contact the patients or their relatives first by phone:
     - To determine the patient's willingness to undergo a dental check-up home visit.
     - To Tele Triage the patient for COVID-19.
     - To clarify the issues related to the attendance of caregiver/ relative.

  2- Screen the patients who are willing to have dental care at home:
     - Obtain consent from the patient or his/her legal guardian if he/she is unable to give consent.
     - Review the patient's medical history.
     - Do screening and charting.
     - Complete medical documentation in the patient's file.
     - Contact the physician for any medical consultation.

- *The role of the dental assistant;* comprises assisting, charting, recording radiographs, and confirming the timetable.

- *The role of the nurse*
  1- Visual triaging upon arrival.
  2- Measuring body temperature using a non-contact forehead thermometer.
  3- Recording patient's vital signs.

4- Carrying the necessary medical files that are needed to review the medical history of the patients
5- Contacting the assigned physician of the patients for any further consultation.

- *The role of the consultant;* was to review the patient's medical records and prepare a preliminary treatment plan, perform the necessary consultation to decide if dental treatment can be performed at home or if the patient requires transfer to the hospital, discuss the treatment plan with the patient or the guardian, and obtain consent for the suggested treatment plan.

III. Individuals who were willing were categorized and scheduled according to the district zone. Dental screening visits were scheduled for the willing patients, and the dental record forms were filled by the screeners, which included the patient's chief complaint, medical history, dental history, charting, and initial treatment plan.

IV. The data was entered into the computer and analyzed using the Statistical Package for Social Sciences. The data was generated for frequency distributions and chi-square tests for comparisons. The p-value was set at 0.05 for a significant level. The Missing data will be excluded from the analysis.

Results and Discussion

- **Table 1** describes the percentage of the patient's sex included in the study. A total of 2565 patients were virtually surveyed by the dental home care team, compromising 1576 women and 989 men **(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** illustrates the frequencies of patients willing and not willing for a dental home visit. Among the 2565 patients, 1698 were willing to receive dental home care according to the patient or his/her guardian. The response rate was 66%.

- A total of 867 (34%) were not willing and were excluded from the study for multiple reasons; such as death, moving outside Riyadh, wrong contact number without updated data, tube feeding, hospitalization, or using dentures with complete satisfaction **(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** shows the frequencies of various age groups among study participants. All age groups were included in the survey since they are eligible under the service of the home care department of PSMMC and they are categorized in the following table.

Table 3. Frequencies of various age groups among study participants

Age group	Frequency	Percentage
Below 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
Above 95	42	2.5

- **Table 4** describes the frequencies of various types of dental treatment required for patients. Of the surveyed participants, 205 (12%) could not be treated outside hospital settings because of their medical status or the complexity of the dental procedure needed; however, follow-up and regular dental examinations could be performed at home to exclude early signs of oral infection or critical malignant disease and to assist in education and oral hygiene instructions.

- Individuals who were candidates for dental home care were categorized according to the type of dental treatment 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 explains the comparison between male and female patients regarding the needs for dental treatment. Chi-square test showed no statistically significant differences were observed between male and female patients when compared based on needs and various types of dental treatment **(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

Due to the lack of information regarding the number of homebound or disabled people who may need domiciliary dental services at PSMMC, this survey study targeted people who are under the care of the Home Care Department of PSMMC. This study was designed to obtain information regarding the number of patients who needed this service and the kind of dental procedure needed.

It can be noted from the findings that 66% of the study participants agreed to receive home dental care needing various types of dental treatments, whereas, 22.6% of males and 25.9% of females required home dental treatment when examined. When compared this result with a study conducted by Rabbo *et al*. (2012), it was revealed that the level of dental care, delivered to institutionalized or home-based elder people and the resources for providing it, was stated to be low [13]. The most important obstacles to the delivery of dental care in the facilities conferring to their managers were staff shortage, lack of interest of the residents, and financial restraints [14].

It can also be noted from the results that up to 15% of home-based patients are required to have some kind of dental treatment. Johnson *et al*. (2014) advocated that there is a substantial unmet dental treatment need among home care patients [15]. The prevalence of dental disease alone is a poor gauge of the necessity for care and does not justify case difficulty or the shift headed for a patient-focused rather than disease-centered style to care. Measures for treatment necessities and complications are mandatory when undertaking assessments of oral health needs in care homes.

Lundqvist *et al*. (2015) reported that the average societal cost of home-based dental care for elderly patients was lower as compared to dental care at a fixed clinic, and it was also deemed to be cost-effective, which was only accomplished in a situation where dental care could not be accomplished in a home-based setting [16]. Longer life prospects supplemented with higher morbidity, and hospitalization or reliance on the care of others will add to the risk for the rapid decline of oral health so different methods for providing oral health care to susceptible individuals for whom access to fixed dental clinics is a problem that ought to be considered [17].

Further studies are needed to shed light on the limitations that might prevent the dentist from offering this service related to the complexity of the dental procedure and the medical status of the patient.

Conclusion

Based on this survey's findings, the following conclusions can be drawn:

1. Many individuals in PSMMC need domiciliary dental care.
2. Certain dental procedures lend themselves to care for the homebound and bedridden because the entire treatment can be completed with manual instruments. Such treatments include dental hygiene, periodontics, minor oral surgery, certain prosthetic and restorative treatment, and oral medicine consultation.
3. Careful planning, instrument preparation, and portable equipment are essential to ensure the performance of dental procedures outside the clinical setting.

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Conflict of interest: None

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Ethics statement: This study fulfills the ethical requirement of the PSMMC ethical committee.

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