Needs Assessment of Oral Health Care Supplies for Dependent Older Adults in Phitsanulok Province, Thailand

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Abstract

Dependent older adults suffer from a variety of oral health issues. There is shortage of information regarding availability of dental healthcare staff and financial resources to conduct home visits.

This study aimed to determine the health care supplies for the dental health team conducting home visits to dependent older adults through a needs assessment survey.

The samples were drawn from dental practitioners working in a government hospital in Phitsanulok by a purposive sampling method. The data were collected through a self-administered questionnaire that was developed as a checklist and a 5-point Likert scale. The result were reported as percentages and mean+SD values.

A total of 73 dentists, 66 dental therapists, and 37 dental public health practitioners took part in this study, They were all aged 34.6+9.24 years, and 12.27% were trained in gerodontology. 71.8% of participants conducted home visits, which were accompanied by an average 5.6+2.4 officers from various disciplines. Oral health care supplies were required for oral examination (4.65+0.56), oral hygiene instruction (4.73+0.53), and oral health education (4.59+0.66), which corresponded to the most major oral problems in dependent older adults, that was poor oral hygiene (4.72+0.48).

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Introduction

The world population has been an aged society, and developed countries have been a complete aged society for many years. Similarly, Thailand is on track to become a complete aged society by 2022, with Thai older adults accounting for 28% of the population by 2030. Longer life expectancy is often linked to chronic diseases and physical or mental impairment, both of which restrict mobility and make the person dependent. In 2024, Thailand's dependent older adults will increase to 1.16 million. Dependent older adults mostly stay in their homes and communities and receive both basic and special care from care givers, including relatives and members of the community, health care professionals, public health officers, and village health volunteers.

Dependents, including physical frailty, medical comorbidity and polypharmacy, have a significant impact on oral health, which in turn affects life satisfaction and nutrition.[1,2] Apart from physical issues, older adults' oral health is more complicated than that of other ages. While dental caries and periodontitis are the most common oral problems in older adults,[3,4] other more serious concerns include oral mucosal disorders,[5] dry mouth,[6] dysphagia,[7] and removable or implant-supported dentures,[8-11] all of which have an impact on quality of life.[12,13]

Dependent older adults with poor oral health will experience discomfort, infection, oral cancer, and aspiration pneumonia, which is a leading cause of hospitalization and mortality,[14] yet obtain insufficient treatment as a result of

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mobility limitations and underestimation by themselves.[15]

Gaszynska et al.[16] found that 47.2% of participants in care homes had an insufficient level of hygiene and 59.8% had an objective dental treatment need. Thailand's health data center revealed that only one-quarter of dependent older adults received dental services, whereas other groups that require special care, such as children, had double the dental services (57.66% of the population).[17] Furthermore, a recent study reported that 59.13% of older adults required prosthodontic therapy, which was greater than the rate for other services.[18]

Home dentistry or domiciliary dental care, which is more cost-effective than dental care in fixed clinics,[19] would be the ideal alternative for those residents to improve their oral health.[5] In several counties, dentists and dental hygienists provide domiciliary care, which includes oral health evaluation and care, simple extractions, and removable prosthesis treatment.[20,21] The number of people requiring dental care at home is increasing. On the other hand, this service is decreasing due to provider and dental equipment shortages,[22] as well as provider competency requirements and operation times.[23,24]

The Health Development Strategic Plan for the Elderly, which is part of the 2nd Thailand National Plan on Older Adults (2002-2023), is based on the integrated community-based approach of care by the family and the health and social support system.[25] The plan includes measures to promote health, prevent disease and provide primary self-care. The health promotion strategy for long-term care, which has been developed since 2009, includes multidisciplinary home visits by either a physician, dentist, pharmacist, nurse, physical therapist, village health volunteer, care giver, and others. Oral health care services are also delivered to the vulnerable population through the long-term care program by dentists, dental therapists, and dental public health practitioners. Unfortunately, there is a scarcity of data on dependent older adults' oral health status and dental problems, as well as a shortage of dental health workers and financial resources. As a result, the appropriateness of oral health services for older adults living in long-term care facilities is in question.

This study aimed to determine the oral health services and supplies required by a dental health staff conducting home visits for dependent older adults in Phitsanulok Province, Thailand.

Materials and methods

A descriptive cross-sectional survey was conducted using a self-administered questionnaire with a purposive selection of dental practitioners who work in government hospitals in Phitsanulok province, except those who do not perform dental procedures on the elderly or work in the army. Approval for research on humans from the Ethics Committee of the Faculty of Dentistry, Chiang Mai University.

The questionnaire was created on the basis of a literature review and divided into the following sections:

Part I: the participants' characteristics
Part II: major oral health problems, necessary dental services, and the need for supplies
Part III: the request for open-ended recommendations.

All subjects' opinions were assessed using a 5-point Likert-type scale. The choice statements were presented in the following order: strongly agree, agree, neutral, disagree, strongly disagree, each of which was given a score of 5, 4, 3, 2, and 1.

The content validity was measured by five experts in gerodontology: two from dental schools, two from community hospitals, and one from the provincial public health office, using the index of item-objective congruence (IOC). The qualified items' IOC ranged from 0.6 to 1.0, with an average of 0.92±0.12. The instrument's reliability was then determined using the Cronbach's alpha coefficient (α) and tested on 32 dental practitioners representing the sample from various provinces. The Cronbach's alpha value was 0.95. The questionnaire was then completed. Each questionnaire was mailed to the sample office with an explanation letter, a consent letter, and a pre-paid envelope. Two weeks later, an additional phone call was made in an attempt to encourage a more full response.

Data were tabulated in Microsoft Excel 2010, twice to eliminate typing errors, and analyzed in SPSS version 24 for Windows 10 (SPSS, IBM Corp, New York, USA).Descriptive statistics were tabulated, utilizing frequencies and mean±SD. The mean intervals for the 5-point Likert-scale in this study, which eliminated

the bias by making a constant uniform difference in each interval, were defined as follows: strongly disagree in the point range of 1.00–1.79, disagree 1.80–2.59, neutral 2.60–3.39, agree 3.40–4.19, and strongly agree 4.20–5.00.[22-28]

Results

A total of 163 dental practitioners responded to the study, out of a total of 176 who were sent questionnaires, giving a response rate of 92.61%. Dentists accounted for 41.72% of those who participated, followed by dental therapists with 36.81% and dental public health practitioners with 21.47%. The majority of participants (84.66%) operated in rural regions, which included community and sub-district health-promoting hospitals.

The 117 participants with home visiting experience were 43.59% dental therapists, 31.62% dentists, and 24.79% dental public health practitioners. Participants were accompanied on each home visit by multidisciplinary staff, such as physicians, pharmacists, nurses, physiotherapists, Thai traditional medical doctors, public health practitioners, technical officers, and community health volunteers. The Participants' characteristics are presented in table 1.

	Dentist (n=68)	Dental therapist (n=60)	Dental public health practitioner (n=35)	Total (n=163)
1. Gender: female	48 (70.59%)	53 (88.33%)	27 (77.14%)	128 (78.52%)
2. Age (year) mean±SD	37.28±7.85	36.17±9.60	26.71±6.54	34.60±9.24
3. Working experience (year): mean±SD	12.34±8.07	13.63±8.50	4.11±7.05	11.05±8.81
4. Working place				
-Regional hospital	21 (30.88%)	3 (5.00%)	1 (2.86%)	25 (15.34%)
-Community hospital	47 (69.12%)	20 (33.34%)	10 (28.57%)	77 (47.24%)
-Sub-district health-promoting hospital	0	37 (61.66%)	24 (68.57%)	61 (37.42%)
5. Education				
- Graduated	43 (63.24%)	53 (83.33%)	33 (94.29%)	129 (79.14%)
- Post – graduated	25 (36.76%)	7 (11.67%)	2 (5.71%)	34 (20.86%)
6. Gerodontology training experience	8 (11.76%)	6 (10.00%)	6 (17.14%)	20 (12.27%)
7. Home visiting experience	37 (54.41%)	51 (85.00%)	29 (82.86%)	117 (71.78%)
≥ once a month	12 (32.43%)	25 (49.01%)	11 (37.93%)	48 (41.03%)
8. Disciplinary officer	6.27	5.67	4.59	5.59

Table 1. Participants' characteristics.

The most common oral health problems in dependent older adults, confirmed by both dentists, dental therapists, and dental public health practitioners, were poor oral hygiene, periodontitis, and caries (means of 4.72±0.48, 4.50±0.66, and 4.39±0.74, respectively).

The following important oral health problems were ranked by dentists as oral pain (4.41±0.83) and by dental public health practitioners as dry mouth (4.60±0.60) and dysphagia (4.51±0.77) (Table 2).

	Oral health problems	Dentists (n=68)	Dental therapists (n=60)	Dental public health practitioners (n=35)	Total (n=163)
		mean±SD	mean±SD	mean±SD	mean±SD
Strongly agree	Poor oral hygiene	4.62±0.54	4.78±0.45	4.83±0.38	4.72±0.48
	Periodontitis	4.41±0.73	4.58±0.59	4.54±0.60	4.50±0.66
	Caries	4.34±0.78	4.40±0.76	4.49±0.60	4.39±0.74
	Pain/swelling	4.41±0.83	4.15±1.15	4.31±0.95	4.29±0.99
	Dysphagia	4.18±0.92	4.12±0.95	4.51±0.77	4.23±0.92
	Dry mouth	4.06±0.91	4.17±0.88	4.60±0.60	4.21±0.87
Agree	Tooth loss	3.93±1.12	4.32±0.92	4.31±0.82	4.15±1.01
	Oral lesion	4.21±0.92	3.93±1.20	4.40±0.76	4.15±1/02
	Denture	3.57±1.06	3.85±1.03	3.94±0.86	3.75±1.03
	Tooth wear	3.26±1.15	3.57±1.13	3.77±0.83	3.48±1.10

Table 2. Oral health problems of dependent older adults.

Strongly agree	mean±SD	Agree	mean±SD	Neutral	mean±SD
Oral hygiene instruction	4.73±0.53	Extraction	3.92±0.90	New denture	3.39±1.15
Examination	4.65±0.56	Teeth cleaning	3.77±0.95	Tooth filling	3.28±1.09
Education	4.59±0.66	Fluoride supplement	3.62±1.05		
		Denture adjustment	3.56±1.15		
		Scaling	3.47±1.08		

Table 3. Necessary dental services for dependent older adults.

Oral hygiene instruction, oral examination, and education were strongly agreed upon as necessary services for dependent older adults, and new dentures and tooth fillings were the least necessary (Table 3).

The necessary supplies were divided into three categories based on the services needed, as shown in table 4, in ascending order of agreement: oral health promotion and education, oral assessment and diagnosis, and dental treatment. OHAT stands for oral health assessment tool,[29] CODS stands for clinical oral dryness score,[30] PDI stands for periodontal disease index,[31] PSR stands for periodontal screening and recording,[32] ART kit set stands for atraumatic restorative treatment.[33]

Discussion

The present study found that although 71.78% of dental practitioners provided dental home visits to dependent older adults, only 41% did so on a regular basis. Furthermore, only 12.27% of participants were trained in

gerodontology. While Cunha Jr et al.[34] found that only 14.4% of respondents offered home care and 16.8% of those discontinued care, with the main barriers being a lack of experience or training and a limited number of home visits. Previous studies have indicated the critical impact of geriatric dentistry courses and experiences in developing a more favorable attitude toward the elderly, which will result in providing better dental care to the elderly and enhancing dental care services.[35-37] Furthermore, there are new materials that practitioners should be aware of. [38, 39]

All dental practitioners surveyed in this study agreed that primary preventative strategies, which were oral health examinations and education, should be prioritised for preventing the serious conditions (infection, cancer, aspiration pneumonia) as in prior studies.[40-42] Similarly, the Australian government has developed a Better Oral Health in Residential Care Model that encompasses 4 key oral health processes: oral health assessment, oral health care planning, daily oral hygiene support, and dental assessment and treatment.[43] Furthermore, a European consensus reached in 2021 recommends that dependent older adults get an oral examination before being admitted to a long-term care institution.[44] Oral screening, which is critical for dependent older adults, may now be performed via teledentistry.[45-47]

Participants in this study focused on improving oral hygiene while ignoring any denture work in contrast to several countries where prosthetic therapy or some denture work is essential for older adults living in institutions and dwellings. In Janssens B. et al.'s study,[48] 75.9% of the edentulous (n = 514) had full upper and lower dentures (total participants = 1,226). 6.3% of older adults who wore removable dentures (n = 745) were suffering from pressure ulcers and, in 36.9% of cases, needed repair and rebasing or renewal of the denture was strongly recommended. In Scotland,[49] Prosthetic treatments, including provision of complete and partial dentures, denture repairs, and temporary denture base relines, were most commonly undertaken. A prosthetic kit and an inspection kit were the most common items carried by both general dental practitioners and community dental officers. The majority of both groups also reported dental and mucosal examinations, temporary dressings, and simple extractions. However, general dental practitioners were less likely to provide treatments than community dental officers.

Care home residents in Wales need simple dentistry, that is, examination (100%) and oral hygiene instruction (68.89%), whereas fluoride application and extraction accounted for 24.44% and 20%, respectively.[50] However, another recent study found that older adults preferred receiving dental services in a dental practice or specialty setting rather than receiving treatment at home. Those who preferred a home visit more likely had a reduced unstimulated salivary flow rate, fewer teeth, and brushed their teeth only once a day or less, compared with those who preferred to come to the dental clinic.[51] Additionally, providers prefer devices that allow easy access to patients, such as portable equipment models.[52]

The current study demonstrated that dental practitioners undertook dental home visits in collaboration with a multidisciplinary team of at least 4 - 6 individuals, including a doctor, a nurse, a village health volunteer, a caregiver, and others. This is similar to numerous studies that have highlighted the need for better coordination, more dental auxiliaries, and better training of the nursing staff.[54,54] Dental team members, including dentists, dental hygienists, and prophylaxis dental assistants, working together with family doctors and the organizations and institutions involved in the care of older adults, are essential in order to provide holistic and long-term care for the medically compromised older adult patient.[55] A community approach has been seen as a proactive attitude towards the community's dental health by educating the elderly, their families, and care home staff and improving the elderly's oral health status.[56-58]

Conclusions

The oral health of dependent older adults affected by complex conditions should be enhanced by regular home visits by an oral health team, especially before they become more vulnerable. A key objective of improvement is the multidisciplinary team responsible for their care, including dental health care professionals, public health officers, village health volunteers, and caregivers. Essential dental treatments, such as simple extractions, topical fluoride applications, and denture procedures should be offered based

on the needs and condition of dependent older adults.

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Declaration of Interest

The authors report no conflict of interest.

	Prevention				Treatment	
	Assessment	mean±SD	Education	mean±SD	Treatment	mean±SD
Strongly agree	Surgical mask	4.90±0.31	Toothbrush	4.55±0.59	Extraction kit set - Extraction forceps, dental cartridge syringe, disposable needle, anaesthetic cartridge, elevator	4.37±1.07
	Examination gloves	4.86±0.48	Toothpaste with fluoride	4.42±0.83		
	Torch	4.76±0.59	Oral hygiene instruction media	4.3±0.75		
	Plane mouth mirror	4.62±0.69	Denture cleaning instruction media	4.23±0.78		
	Alcohol gel / spray	4.56±0.63				
	Infectious waste bag	4.51±0.77				
	Face shield	4.49±0.77				
	Explorer	4.39±0.88				
	Sphygmomanometer	4.36±0.87				
	Oral care plan	4.37±0.79				
	Oral lesion assessment	4.28±0.86				
Agree	OHAT*	4.17±0.87	Proxabrush	4.19±0.77	Medicines	4.18±1.03
	Thermometer	4.16±0.91	Dentoform and brush	4.13±0.92	Fluoride varnish application kit set	4.13±1.04
	Cotton pliers	4.13±1.07	Oral exercise instruction media	4.15±0.85	Silver diamine fluoride kit set	3.53±1.10
	Tray	4.12±1.05	Salivary gland massage instruction media	4.12±0.84	ART set**	3.66±1.17
	Medical cap	4.10±1.10	Hand mirror	4.07±0.93	Scaling and root planning - Sickle, universal	3.93±1.27
	75% Ethyl alcohol	4.04±1.06	Glass / kidney tray	3.97±1.05		
	Tongue depressor	3.88±1.18	Dental floss	3.97±1.05		

	Dysphagia assessment	4.01±0.96	Towel	3.92±1.08	curette, gracey curette	
	Caries risk assessment	3.94±1.04				
	Dry mouth interview	3.89±1.03				
	CODS†	3.79±1.02				
	PDI‡	3.66±1.15				
	Periodontal chart	3.66±1.15				
	PSR§	3.60±1.13				
	Water-based lubricant gel	3.60±1.07				
	Normal saline	3.60±1.10				

Table 4. The need for supplies.

*OHAT: oral health assessment tool, †CODS: clinical oral dryness score, ‡PDI: periodontal disease index, §PSR: periodontal screening and recording, **ART kit set: atraumatic restorative treatment.

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