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Associations Among Oral Health Status, Caregiver Burden and Oral Health-Related Quality of Life in Dependent Older Adults

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Abstract

Objectives: To examine the associations among oral health status, caregiver burden, and oral health-related quality of life (OHRQoL) in dependent older adults.

Methods: A cross-sectional census survey was conducted with 159 dependent older adults and their primary caregivers in rural Thailand between May 2022 and June 2023. Participants were categorized as home-bound or bed-bound using Activities of Daily Living (ADL) scores. Data were collected through oral examinations, the Oral Impacts on Daily Performance (OIDP) index, and a culturally adapted caregiver burden questionnaire. Multiple logistic regression analyses were used to explore associated factors.

Results: Participants had a mean age of 79.9±10.1 years, with common comorbidities including hypertension (72.96%), hyperlipidemia (63.52%), and diabetes (35.22%). Bed-bound older adults had significantly poorer OHRQoL (mean OIDP score 15.6±12.3 vs. 10.7±10.2, p=0.020) and worse oral health status. Participants averaged 9.1 functional teeth, with only 13.21% having ≥4 occluding posterior pairs. Common problems included untreated root caries (62.26%) and xerostomia signs (37.74%). Caregiver burden was generally low (mean 18.2±11.6) but significantly higher for bed-bound caregivers (p=0.014). Greater caregiver burden was associated with poorer OHRQoL (OR=1.044, p=0.017).

Conclusions: Higher caregiver burden negatively influences OHRQoL in dependent older adults. Supporting systems for caregivers may improve oral health outcomes in rural aging populations.

Keywords: aged, caregiver, frail elderly, oral health, quality of life

Introduction

Globally, populations are aging rapidly, creating significant challenges.[1] This demographic shift raises important challenges for healthcare systems, particularly in addressing the complex needs of dependent older adults. Thailand reflects this global trend, having transitioned into an aged society in recent years, with over 20% of its population projected to be 60 or older by 2022.[2] Currently, approximately 2-3% of Thai older adults are classified as dependent, requiring assistance with activities of daily living.[3]

A significant proportion of older adults are dependent and require assistance with daily living, which impacts their overall health, especially oral health.[4] Poor oral health among dependent older adults has been linked to compromised nutrition, communication difficulties, and reduced quality of life. Previous studies have found that dependent older adults often have complex oral health issues and high rates of dental caries and root caries, particularly among those with dementia.[5,6]

In Thailand, the care system for older adults primarily relies on family support arrangements due to cultural values and limited institutional care options.[8] The traditional Thai concept of "Boon-Khun" (gratitude) and Buddhist-influenced filial piety emphasize respect and obligation toward parents and elders, reinforcing expectations that families will provide care for aging relatives.[9,10] However, with increasing numbers of older adults and declining working-age populations, Thai families face growing challenges in providing adequate care.[7]

Caregiving for dependent older adults involves multiple forms of support across different sectors. Family caregivers, primarily daughters and spouses, provide the majority of daily care within the home environment. Village health volunteers (VHVs) serve as community-based volunteers who assist with basic health monitoring as part of Thailand's primary healthcare strategy.[10] Community care managers function as professional staff who coordinate care services through the Long-Term Care (LTC) system, while local administrative organizations (LAOs) provide supplementary support services.[7] Despite these support systems, caregivers at all levels often lack adequate knowledge and skills in oral health care provision. Previous studies have found that most caregivers experience significant burden that may affect the quality of care provided, particularly for non-urgent care tasks such as oral hygiene maintenance.[12]

According to Thailand's health data center, oral health services for older adults in the LTC system show concerning utilization rates, with only 31.7% receiving oral health examinations and 29.9% receiving oral health services.[15] This gap in service delivery highlights the need for better integration of oral health care within the LTC framework, particularly for dependent older adults who face multiple barriers to accessing traditional dental services.

The burden of oral diseases significantly impacts the daily functioning and quality of life of dependent older adults. The Oral Impacts on Daily Performance (OIDP) index was selected for this study because it has been validated and culturally adapted for the Thai population[13,14], and it specifically measures the impact of oral conditions on eight daily performance activities: eating, speaking, cleaning mouth/dentures, sleeping, emotional stability, smiling, working, and social contact. This index is particularly relevant for dependent older adults as it captures functional limitations that directly affect their daily lives.

This study aimed to examine the associations among oral health status, caregiver burden, and oral health-related quality of life (OHRQoL) in dependent older adults in Phromphiram District, Phitsanulok Province, Thailand, to inform policy and practice improvements in this vulnerable population.

Materials and Methods

Study design and ethical approval

This research employed a cross-sectional survey design conducted between May 2022 and June 2023. This study obtained ethical approval from the Human Experimentation Committee, Faculty of Dentistry, Chiang Mai University, with the approval number 22/2022.

Participant recruitment

We conducted a census survey that included all dependent older adults registered in the Long-Term Care (LTC) system in Phromphiram District, Phitsanulok Province, Thailand. The study population comprised 159 dependent older adults and their 159 primary caregivers.

Participants were categorized based on their Activities of Daily Living (ADL) scores using the Barthel

Index classification:[14] scores ranging from 5 to 11 indicating home-bound status (n=112), and scores from 0 to 4 indicating bed-bound status (n=47).

Study participants

The study participants were divided into two groups: **(1) dependent older adults,** defined as individuals requiring assistance with daily activities due to functional limitations, and **(2) primary caregivers,** who were the ones spending most of their time taking care of the elderly, predominantly family members.

The inclusion criteria for dependent older adults were: 1) age 60 years or older and classified as home-bound or bed-bound with ADL score ranging from 0 to 11; 2) residing in Phromphiram District; and 3) willing to participate or having caregiver consent for participation. For caregivers, the inclusion criteria were: 1) being the primary caregiver; and 2) willing to participate in the study.

The exclusion criteria were: 1) older adults with ADL scores >11 (indicating functional independence); 2) those not residing in Phromphiram District; 3) those unwilling to participate or lacking caregiver consent; and 4) older adults or caregivers who were unable to complete all assessments.

Research instruments

The research instruments comprised two sets: one for dependent older adults and another for caregivers. The set for dependent older adults consisted of three components:

1. **Demographic questionnaire:** Including age, gender, health conditions, and functional status
2. **Oral health examination form:** Modified from Thailand's 8th National Oral Health Survey[17] which included assessment of dental caries, dental restorations, number of functional teeth and posterior occlusal pairs, prosthetic status and need, periodontal status, and oral soft tissue conditions
3. **Thai version of the Oral Impacts on Daily Performance (OIDP) index:** This validated instrument[13,14] measures the impact of oral conditions on daily performance across eight dimensions. The OIDP was chosen because it has been specifically validated for Thai populations and captures functional limitations relevant to dependent older adults.

The caregivers completed two questionnaires:

1. **Demographic questionnaire:** Including relationship to older adult, caregiving duration, and socioeconomic status
2. **The 22-item Caregiver burden assessment:** Developed by Chananchidadusadee[18] which was adapted and modified from the Zarit Burden Interview[19] and culturally tailored for the Thai population.

Data collection and data analysis

Data collection was conducted by a qualified dentist and a trained research assistant. The research assistant was responsible for conducting structured interviews, administering questionnaires, and providing translation assistance when needed, while maintaining standardization through weekly calibration sessions with the principal investigator. The qualified dentist performed all clinical oral examinations following calibration with a gold standard expert examiner, achieving inter-examiner reliability (kappa>0.80).

For older adults who could communicate, the researcher interviewed them directly using the general information questionnaire and OIDP assessment. For those unable to communicate due to cognitive impairment or severe functional limitations, demographic data were collected from caregivers only, and OIDP scores were assessed through caregiver observation and reporting.

Data were analyzed using SPSS version 25 (SPSS Inc., Chicago, IL, USA). Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to summarize participant characteristics. Group comparisons (home-bound vs. bed-bound) were performed using Chi-square or Fisher's exact tests for categorical variables, and the Mann-Whitney U test for non-normally distributed continuous variables. Univariate analyses were used to identify variables associated with active dental decay and OIDP score. Factors with $p<0.05$ in univariate analyses were entered into multiple logistic regression models. Results are presented as odds ratios (OR) with 95% confidence intervals (CI). A p-value<0.05 was considered statistically significant.

Results

General characteristics and oral care practice of older adults

Table 1 presents the characteristics of dependent

older adults and their caregivers. The older adults had a mean age of 79.9 years (SD=10.1) and an average ADL score of 7.1 (SD=3.9). Common underlying conditions included hypertension (72.96%), hyperlipidemia (63.52%), and diabetes (35.22%). Most reported sufficient income for daily expenses (64.15%).

Caregivers had a mean age of 58.6 years (SD=12.7) and an average caregiving duration of 6.8 years (SD=6.1). Among the caregivers, daughters accounted for 47.17%, spouses 25.16%, and sons 11.32%, while other relatives and informal caregivers also contributed to the caregiving roles. Nearly half had underlying health conditions, and 45.91% reported sufficient income. Tooth brushing was not routinely performed by caregivers (84.91%), with most older adults brushing independently (50.31%) or rinsing after meals (33.96%). The majority had prior oral health examinations (89.94%), tooth extractions (76.10%), and home visits from health personnel (63.52%).

Oral health status of dependent older adults

The older adults had an average of 9.1 functional permanent teeth per person (SD=9.3), with significant tooth loss evident across both groups. The average number of remaining natural teeth was 12.6±10.8, indicating that participants had lost approximately 19 teeth on average. Only 13.21% had at least 4 occluding posterior pairs, which represents the minimum number recommended for adequate chewing function.[20] Home-bound individuals had more functional teeth (mean 10.0±9.7) and occluding pairs (mean 1.2±2.0) compared to bed-bound individuals (mean 7.1±8.2 teeth and 0.7±1.6 occluding pairs).

Common oral health issues among participants included untreated root caries (62.26%) and tongue coating (99.37%). Approximately one-third (32.70%) exhibited periodontal pockets of 4-5 mm, and 1.89% had pockets of 6 mm or more. Signs of xerostomia were prevalent, including dry mouth sensation (37.74%) and dental mirror adhesion to the buccal mucosa or tongue (32.70%). The significant prevalence of xerostomia signs is particularly concerning as dry mouth increases risks of dental caries, oral infections, and swallowing difficulties, potentially contributing to aspiration pneumonia.[21,22]

Caregiver burden

Assessment of caregiver burden is presented in Table 2. The overall score ranged from 0-58, with most caregivers (64.15%) reporting no burden or very little burden (scores 0-21). However, those caring for bed-bound older adults experienced significantly higher burden scores (mean 22.6±14.8) compared to those caring for home-bound adults (mean 17.2±10.0), with a greater proportion reporting moderate to severe burden (p=0.014). This difference reflects the increased physical and emotional demands of caring for individuals with higher levels of functional dependency.

Oral health-related quality of life

The assessment of oral health-related quality of life was conducted using the OIDP index scores for all 152 elderly participants. OIDP scores ranged from 0 to 48.5, with emotional stability, sleep, and oral cleaning being the most impacted daily functions.

Through frequency distribution analysis of all OIDP scores greater than 0, the 50th percentile was identified at 16.0, establishing this as the primary cut-off point. This cut-off value of 16.0 was selected based on established OIDP methodology using percentile-based categorization, which ensures statistical validity by dividing the affected population into equal halves. This threshold represents the point at which oral health issues begin to substantially interfere with normal daily activities.[23]

Consequently, OIDP scores were categorized into four groups: score 0=excellent oral health-related quality of life (2% of participants); scores 0.1-16.0=good quality of life; scores 16.1-16.375 = moderate quality of life; and scores >16.375=poor oral health-related quality of life.

Overall OIDP scores were significantly higher among bed-bound individuals (15.6±12.3) compared to home-bound participants (10.7±10.2; p=0.020), indicating worse oral health-related quality of life. Bed-bound participants showed significantly worse impacts in speaking (3.9±6.8 vs. 0.7±2.2, p<0.001), mouth cleaning (5.5±6.9 vs. 2.9±4.6, p=0.027), and sleeping (1.9±4.4 vs. 3.4±4.5, p=0.006).

Using the established cutoff score of >16.0 points to indicate unsatisfactory OHRQoL, approximately one-third (28.9%) of participants reported unsatisfactory oral health-related quality of life. While bed-bound individuals showed a higher proportion of unsatisfactory OHRQoL (65.2%) compared to home-bound individuals (34.8%), this difference was not statistically significant (p=0.118).

Factors associated with oral health and quality of life

Table 4 summarizes the multivariate logistic regression analysis. Increasing age among older adults was inversely associated with active dental decay (OR=0.934; 95% CI: 0.890-0.981, p=0.006), possibly reflecting survivor bias or tooth loss reducing caries risk. Conversely, higher caregiver age (OR=1.045; p=0.036) and higher caregiver income (OR=1.558; p=0.014) were significantly associated with increased likelihood of decay in the older adult.

Most importantly, caregiver burden scores were independently associated with unsatisfactory OIDP outcomes (OR=1.044; 95% CI: 1.008-1.082; p=0.017), indicating that for each one-point increase in caregiver burden score, the odds of the older adult having unsatisfactory oral health-related quality of life increased by 4.4%. No other control variables showed significant associations with OHRQoL outcomes.

Discussion

This study examined oral health status, caregiver burden, and factors associated with oral health and oral health-related quality of life (OHRQoL) among dependent older adults in rural Thailand. The findings revealed marked disparities between home-bound and bed-bound individuals, with the latter experiencing poorer oral health and significantly lower OHRQoL. These results underscore the importance of targeted oral health interventions for individuals with higher dependency levels and the critical role of caregiver burden in influencing oral health outcomes.

Caregiver burden and its impact

Although the average caregiver burden was relatively low (mean score = 18.2±11.6), those caring for bed-bound elders reported significantly higher strain. Cultural expectations, such as the Thai concept of 'Boon-Khun' and the broader Asian value of filial piety, may contribute

Table 1: Characteristics of participants.

Participants	Characteristics		N	%
Older Adults (n=159)	Gender	Male	48	30.19
		Female	111	69.81
	Marital status	Single	5	3.14
		Married	64	40.25
		Widowed /divorced/ separated	90	56.60
	ADL scores	0-4 (Bed-bound)	47	29.56
		5-11 (Home-bound)	112	70.44
	Health Insurance	Universal Coverage Scheme	118	74.21
		Government Officer Benefit Scheme	17	10.69
		Disability Health Benefit	24	15.09
Caregivers (n=159)	Gender	Male	41	25.79
		Female	118	74.21
	Marital status	Single	25	15.72
		Married	108	67.92
		Widowed /divorced/ separated	26	16.35
	Education attainment	No education /Primary education	97	61.0
		Secondary education	45	28.30
		≥Higher education	17	10.70
	Relationship with elderly	Daughter	75	47.17
		Wife	23	14.47
		Son	18	11.32
		Husband	17	10.69
		Others	26	16.35

Table 2: Comparing oral health status and caregiver burden scores between home-bound and bed-bound dependent older adults.

Data	Total (n = 159)	Home-bound (n = 112)	Bed-bound (n = 47)	*p*-value
Average number of decay teeth (SD)	5.44±5.88	5.70±5.98	4.87±5.67	0.297
Average number of functional teeth (SD)	9.1±9.3	10.0±9.7	7.1±8.2	0.066
Average number of remaining natural teeth (SD)	12.6±10.8	13.8±11.2	10.2±9.6	0.048*
Average number of posterior occluding pairs ± SD	1.0±1.9	1.16±2.0	0.7±1.6	0.051
Number of posterior occluding pairs				***p*-value**
0 pairs	113 (71.07%)	74 (66.07%)	39 (82.98%)	0.068
1-3 pairs	25 (15.72%)	22 (19.64%)	3 (6.39%)	
≥4 pairs	21 (13.21%)	16 (14.29%)	5 (10.64%)	
Denture status				***p*-value**
No denture	112 (70.44%)	75 (66.96%)	37 (78.72%)	0.247
Complete denture	29 (18.24%)	22 (19.64%)	7 (14.89%)	
Partial denture	18 (11.32%)	15 (13.39%)	3 (6.38%)	
Caregiver burden scores				***p*-value[b]**
0 - 21 (No burden or very little burden)	102 (64.15%)	79 (70.54%)	23 (48.94%)	0.014*
22 - 40 (Mild to moderate burden)	49 (30.82%)	30 (26.79%)	19 (40.43%)	
41 - 60 (Moderate to severe burden)	8 (5.03%)	3 (2.68%)	5 (10.64%)	
Mean ± SD	18.21±11.62	17.19±10.02	22.64±14.79	0.043*
Min - Max	0-58	2-50	0-58	

*$p<0.05$

Table 3: Comparing the Oral Impact on Daily Performance (OIDP) scores between the home-bound and bed-bound participants.

OIDP	dimension	Home-bound (n=112)			Bed-bound (n=40)[1]			*p*-value
		Mean±SD	Range	Activity affected (%)	Mean±SD	Range	Activity affected (%)	
1.	Eating	1.0±2.95	0-20	33.93	1.48±3.94	0-15	45.00	0.738
2.	Speaking	0.67±2.17	0-10	27.68	3.87±6.84	0-25	40.00	<0.001**
3.	Cleaning mouth or dentures	2.86±4.60	0-20	34.82	5.50±6.87	0-25	47.50	0.027*
4.	Sleeping	3.42±4.48	0-20	41.96	1.90±4.38	0-20	57.50	0.006*
5.	Maintaining emotional stability	1.98±2.42	0-10	45.54	2.00±2.83	0-10	65.00	0.760
6.	Smiling or showing teeth	0.37±1.50	0-12	25.89	0.38±1.75	0-10	37.50	0.557
7.	Working	0.25±1.17	0-8	16.07	0.42±2.04	0-12	30.00	0.957
8.	Social contact	0.18±0.77	0-5	22.32	0.08±0.47	0-3	35.00	0.367
Overall scores		10.73±10.22	0-45	13.24	15.62±12.26	0-53	12.73	0.020*
Quality of life level		**Home-bound (n=112)**			**Bed-bound (n=40) ¥**			***p*-value**
		N	**%**		**N**	**%**		
Satisfactoryb (0-16)		82	77.4		24	22.6		0.118
Unsatisfactory (16.1 or more)		30	65.2		16	34.8		

[1]The missing number due to the dependent older adults were not able to communicate

*$p<0.05$

**$p<0.001$

Table 4: Multivariate logistic regression analysis of the association between caregiver burden and oral health outcomes and oral health related quality of life.

Predictor	Oral health status (Having active decay teeth)			Overall OIDP Level (Unsatisfied)		
	OR	95% CI	*p*-value	OR	95% CI	*p*-value
Caregiver burden scores	1.016	0.979-1.055	0.390	1.044	1.008-1.082	0.017*
Control factors						
ALD level (bed bound)	1.655	0.724-3.782	0.232	0.711	0.295-1.711	0.446
Age of older adults	0.934	0.890-0.981	0.006*	1.012	0.969-1.057	0.597
Age of caregivers	1.045	1.003-1.089	0.036*	0.978	0.941-1.018	0.276
Gender of older adults (female)	0.976	0.380-2.505	0.960	0.960	0.374-2.459	0.932
Gender of caregivers (female)	1.113	0.242-5.123	0.891	1.098	0.281-4.289	0.893
Education of caregivers (≤ primary school)	0.497	0.184-1.341	0.167	1.759	0.598-5.180	0.305
Relationship with older adults (daughter or wife)	0.442	0.115-1.695	0.234	0.955	0.273-3.343	0.943
Income of older adults	0.855	0.594-1.232	0.402	1.073	0.778-1.480	0.666
Income of caregivers	1.558	1.093-2.220	0.014*	1.199	0.862-1.667	0.282

*$p<0.05$

to underreporting of distress among caregivers.[22,23] The majority of caregivers were female (74.21%) and primarily daughters (47.17%), reflecting traditional gender roles in family caregiving which may influence their willingness to express burden.

The significant association between caregiver burden and poor OHRQoL (OR=1.044, $p=0.017$) suggests that overburdened caregivers may deprioritize routine oral care activities, focusing instead on more urgent medical needs. This finding aligns with previous research indicating that caregiver burden compromises attention to non-emergency care tasks, thereby influencing subjective oral health experiences rather than immediate clinical indicators like tooth decay.[26,27] The primary burdens reported by caregivers include physical strain from lifting and positioning patients, emotional distress from witnessing deterioration, financial constraints from reduced work capacity, and social isolation due to caregiving responsibilities. These multifaceted challenges explain why oral health care, which requires daily attention and specialized knowledge, often becomes a lower priority compared to immediate medical needs.

Barriers to oral care in dependent older adults

Most caregivers did not assist with daily oral hygiene, often due to being overwhelmed with other responsibilities or lacking confidence in providing oral care. Additional barriers include lack of training, fear of causing discomfort, and cultural beliefs that normalize tooth loss as part of aging in some Asian populations.[28,29] For bed-bound individuals, oral care becomes particularly challenging due to positioning difficulties, swallowing problems, and increased risk of aspiration.

The competency limitations of dependent older adults themselves also contribute to poor oral hygiene. Bed-bound individuals face multiple challenges including reduced manual dexterity, cognitive impairment, and physical positioning constraints that make independent oral care difficult or impossible. Specific barriers for bed-bound patients include inability to sit upright for safe oral care, difficulty with mouth opening due to muscle stiffness or pain, increased risk of choking and aspiration due to compromised swallowing reflexes, and resistance to oral care due to cognitive impairment.

Oral health status and clinical implications

The dependent older adults in this study had an average of 9.1 functional teeth, with only 13.21% having at least four occluding posterior pairs. These numbers are lower than reports from Greece (11.8 teeth)[30] and Switzerland (14.7 teeth)[31], likely reflecting disparities in oral healthcare access and public awareness. When compared to Thailand's national oral health service data, our findings highlight concerning gaps: while 31.7% of general older adults receive oral health examinations and 29.9% receive oral health services[15], dependent older adults in

LTC systems appear to have even lower access rates and worse outcomes.

The high prevalence of untreated root caries (62.26%), tongue coating (99.37%), and periodontal disease supports findings from studies in other countries reporting similar oral health issues among dependent elders.[6,32,33] The significant prevalence of xerostomia signs (37.74%) is particularly concerning as dry mouth increases risks of dental caries, oral infections, and swallowing difficulties, potentially contributing to more serious complications such as aspiration pneumonia.[21,22]

Quality of life implications and oral care protocols

The significantly worse OIDP scores among bed-bound individuals, particularly in speaking, mouth cleaning, and sleeping domains, reflect the complex interplay between functional limitations, oral health status, and daily functioning. Poor oral health in bed-bound individuals can contribute to communication difficulties, sleep disturbances due to oral discomfort, and challenges in maintaining oral hygiene, creating a cycle of declining oral health and reduced quality of life.

It is important to note that the decreased OIDP scores observed in this study may result from multiple factors beyond oral health conditions alone. Participants with underlying medical conditions such as stroke, dementia, or other neurological disorders may experience additional challenges that compound oral health impacts.

Current oral care protocols in Thailand's LTC system require significant enhancement to address the specific needs of dependent older adults. For bed-bound individuals, specialized approaches include position-modified oral care techniques for safe oral hygiene in supine or semi-recumbent positions, aspiration prevention protocols to minimize choking risks, and the use of adaptive equipment such as specialized toothbrushes and oral swabs.

The connection between oral care and systemic health outcomes is particularly important for bed-bound individuals who face increased risks of aspiration pneumonia. Professional oral care interventions have demonstrated remarkable effectiveness, with studies showing reductions in pneumonia incidence of up to 40% among high-risk elderly residents in long-term care facilities.[34,35]

Integration of oral health in long-term care

The findings support the need for better integration of oral health services within Thailand's LTC framework. Currently, dental care remains inadequately integrated, particularly in rural areas where specialized geriatric dental services are limited. Integration of oral health services within Thailand's LTC framework requires coordinated efforts including regular oral health assessments incorporated into LTC care protocols, mobile dental services to bring professional oral care directly to homebound and bed-bound individuals, comprehensive caregiver education programs, and policy integration that includes oral health indicators in LTC quality measures.

Study limitations

This study's cross-sectional design limits causal inference regarding the relationship between caregiver burden and oral health outcomes. The focus on a single rural district may limit generalizability to urban or other regional contexts. However, the findings likely reflect challenges faced by similar rural communities throughout Thailand and other middle-income countries with aging populations and family-based care systems.

Conclusions

Dependent older adults, particularly those who are bed-bound, experience significant oral health challenges and reduced quality of life that are closely linked to caregiver burden levels. Key issues include extensive tooth loss, poor oral hygiene indicators, high prevalence of oral diseases, and limited caregiver assistance with oral care. The significant association between caregiver burden and poor oral health-related quality of life highlights the critical need for caregiver support, education, and resources. Enhancing caregiver competency through comprehensive training programs, increasing dental professional involvement in LTC services, addressing cultural barriers to oral care, and developing bed-bound-specific oral care protocols are essential for improving outcomes in this vulnerable population. Policy initiatives should focus on integrating oral health services within LTC frameworks, ensuring adequate access to professional oral care for dependent older adults who cannot access traditional dental services, and establishing reimbursement mechanisms that support preventive oral health interventions.

Conflict of Interest

The authors declare no conflict of interest.

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