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## The Oral Health Status and Hygiene of the Dependent Elderly in Muang, Phitsanulok, Thailand

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**ORIGINAL ARTICLE**

**The Oral Health Status and Hygiene of the Dependent Elderly in Muang, Phitsanulok, Thailand**

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**Abstract**

**Objective:** To assess the oral health status and oral hygiene habits of the dependent elderly in Muang Phitsanulok, Thailand. **Methods:** 70 dependent elderly with an activity of daily living score of 0 - 4 were selected for this study using a convenience sampling technique. Both participants and their caregivers were interviewed and an oral examination was carried out on all subjects. Information regarding demographics, oral health care habits, and oral health status including dental caries, remaining dentition, and occluding pairs of teeth was collected. The data was analysed using descriptive statistics. **Results:** Results showed that 82.1% of the participants had at least one carious lesion. 62.9% of subjects possessed their natural dentition, however 52% of those did not have any occluding teeth. The majority of the edentulous group were categorised as a low socioeconomic status. Interestingly, none of the dentate group reported ever flossing their teeth, 31.9% brushed their teeth twice daily, and 14.3% reported that they did not employ any oral hygiene methods. Additionally, it was found that the caregivers played a major role in the oral health care of the dependent elderly. **Conclusion:** The oral health of the dependent elderly is generally poor, especially amongst the low socioeconomic community. The subject's declining dexterity and increase of general health risks limits their ability to maintain acceptable oral health.

**Keywords:** oral health status, oral health care, dependent elderly

**INTRODUCTION**

Thailand's population has been aging steadily since 2005.<sup>1</sup> A 2008 study of Thailand's elderly found that there were increasing limitations to their daily activities with increasing age. These restrictions can affect their quality of life as they experience a more limited access to public services such as healthcare, transportation, and an active social life. As a consequence, they rely more heavily on relatives and friends and often require specialised care. As they age, they are unable to live independently or take care of themselves and are often referred to as 'the dependent elderly'.<sup>2</sup> Poor oral hygiene can lead to a multitude of oral health problems including dental caries, periodontal disease, oral health lesions, halitosis, and eventually tooth loss. It is widely accepted that oral health has a strong correlation to systemic health and several studies have found that the oral health status of the dependent elderly is poor and requires urgent improvement.<sup>3-7</sup> There are no current studies that evaluate the oral health status of the dependent elderly in Thailand. As such, the objective of this study is to assess the oral health status and oral

hygiene habits of the dependent elderly in Mueang Phitsanulok, Thailand.

**METHODS**

Ethics approval was obtained from the Ethics Committee of Naresuan University, Thailand (Project No. 416/58). 70 dependent elderly, aged > 60 years, were selected for this study using a convenience sampling technique. All participants' activities of daily living (ADL) were assessed using the Barthel Index, which had been modified for the Thai population. Individuals that scored between 0 - 4 were included in the study. Both the subjects and their caregivers participated in face-to-face interviews carried out by two calibrated interviewers. Data relating to the participants demographics, oral hygiene habits, and oral health status including dental caries experience and remaining dentition was collected. Additionally, each subject had a thorough oral examination that was carried out by a dentist within his or her home.

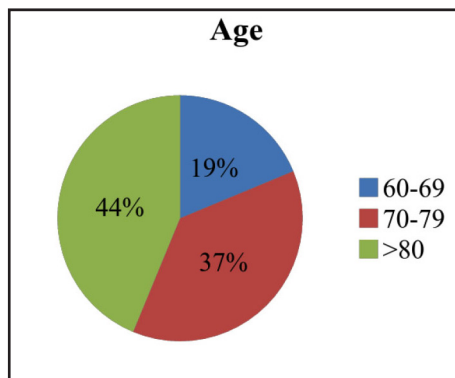


Figure 1: Age distribution of the sample population

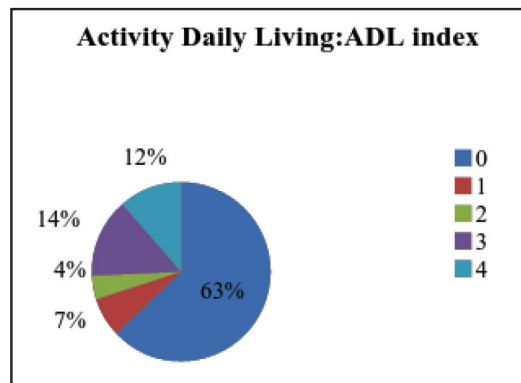


Figure 4: Activities of Daily Living. (ADL index)

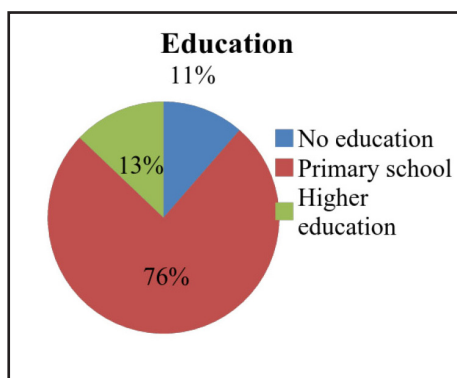


Figure 2: Education level of the sample population

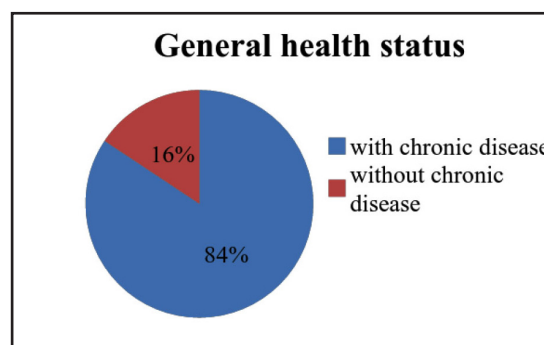


Figure 5: General health status of the sample population

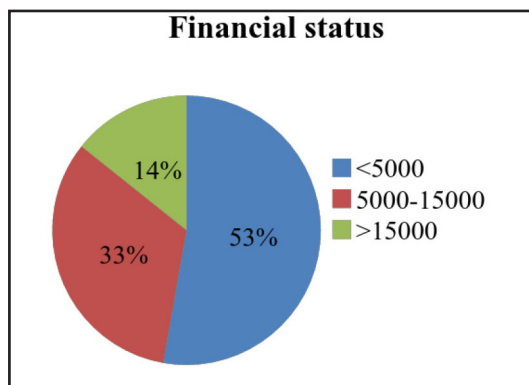


Figure 3: Distribution of sample population's monthly income

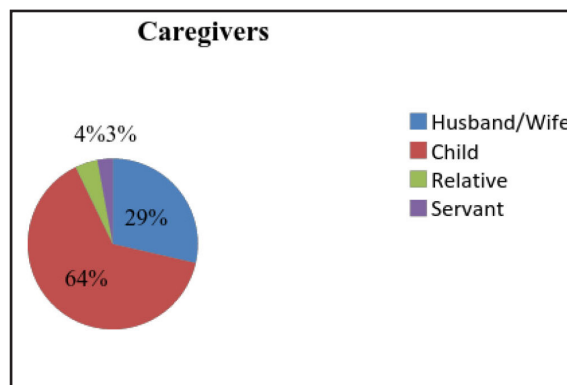


Figure 6: Type of caregivers for the sample population

### Statistical analysis

The data was analysed using descriptive statistics; including mean, standard deviation, frequency, percentage, minimum and maximum.

## RESULTS

### Age and education

The sample population was aged between 60 and 90 years old, with more than a third of the group aged over 80 years of age, see Figure 1. Of the 70 participants, 35.7% were male and 64.3% were female. Breakdown

of the study group's marital status revealed that 5% identified as widowed, 2% were unmarried, and 63% were married. The highest level of education for the majority of the sample population was primary school (75.7%), 12.9% had a higher level of education, and 11.4% had never attended school (Figure 2).

### Financial status

The financial status of the study population is outlined in figure 3; over half of the study group (52.8%) earned less than 5000 baht per month, followed by those who earned 5000 – 15,000 baht per month and those who earned over 15,000 baht per month. More than half of

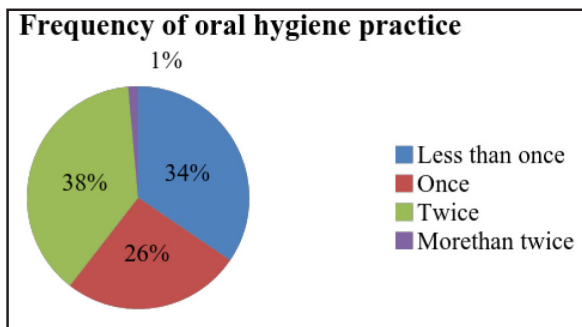


Figure 7: Frequency of oral hygiene practices

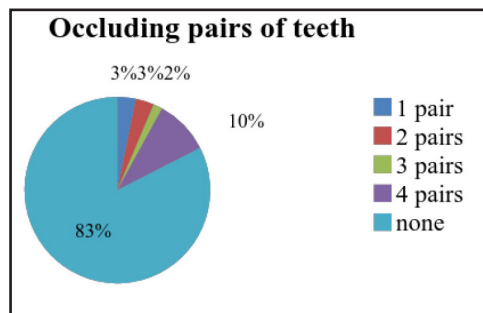


Figure 9: Distribution of occluding pairs of teeth in the sample population

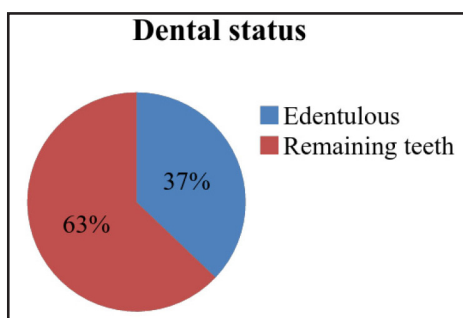


Figure 8: Distribution of the dental status of the sample population

as tooth brushing, rinsing their mouths with water or mouthwash or wiping their mouths with a wet towel.

**Dental status**

Results outlined in Figure 8 show that 62.9% were dentate and 37.1% were edentulous. Amongst the dentate population, 82.1% experienced dental caries and 82.5% had no occluding pairs of teeth (Figure 9). In the edentulous group, the majority had a low socioeconomic status and 8.6% wore partial or complete removable denture.

the sample group (57%) reported that their monthly income was not sufficient to meet their needs, with the main expenses being food, medications, and disposable absorbent briefs.

**Current physical and functional status**

The majority of participants (62.9%) had an ADL index of 0, indicating they were unable to manage daily physical activities by themselves. They required assistance from a caregiver for simple tasks such as bathing, eating, using the lavatory, dressing, and for oral hygiene practices (Figure 4).

**General health status**

Figure 5 shows that 84.3% lived with a chronic disease such as diabetes mellitus, hypertension, and/or cerebrovascular disease (stroke).

**Caregivers**

The majority of the sample population depended on their family members to take of the role of caregiver; 64.3% of caregivers were their children, 28.6% were their spouse, and 2.9% was a hired member of staff (Figure 6).

**Oral hygiene practices**

None of the dentate group had ever flossed their teeth, 14.3% did not clean their mouth with any methods, and 31.9% brushed their teeth twice a day (Figure 7). Furthermore, 85.7% of the subjects required the aid of their caregivers for their oral hygiene practices such

**DISCUSSION**

Studies show that in order to maintain sufficient and effective chewing function there should be at least 4 pairs of teeth in occlusion.<sup>8</sup> Results of this study show that although the majority of participants still had some remaining natural teeth, most of them did not have any teeth still occluding. Additionally, 13.2% of the participants who wore removable dentures did not wear them regularly. Many cited safety concerns about inhalation of the prosthesis leading to obstruction of their airway, or they used feeding tubes for nutrition and didn't require the denture for mastication. As such, they only wore their dentures for aesthetic or phonetic purposes.

The majority of those in the edentulous group identified as low socioeconomic due to their low income and level of education. Socioeconomic status is often associated with oral health status and studies have found links between increased awareness of oral health and higher educational levels and financial stability. It is thought that those who have attained higher levels of education are more likely to have the financial means to access dental care and as such place a higher priority on dental health.<sup>9</sup>

A 2002 survey of the oral health status of the Thai population reported that the average amount of decayed teeth per person in the elderly, at the age of 60-74 years old and 80-89 years old, was 1.4 teeth per person and 1.2 per person respectively.<sup>10</sup> Oral examinations carried out on participants correlated with this previous study, as the average amount of decayed teeth found per person was 1.51. Jablonski et al. stated that older adults who are

**Table 1:** Edentulous status according to education and income

	No Education	Primary School	Higher Education
Edentulous	15.4%	84.6%	0

	Low Income	Average Income	High Income
Edentulous	67.1%	28.6%	4.3%

in a fragile condition, are dependent on others, suffer from memory loss, and those who reside in hospitals and nursing homes are more likely to lose their teeth from tooth decay and periodontal disease.<sup>11</sup> This may be due to elderly patients suffering from a multitude of medical conditions such as hypertension and diabetes mellitus etc. These conditions often require multiple medications that can alter the oral environment, for example antiepileptic drugs can reduce salivary production leading to a dry mouth and increased susceptibility to dental caries.

An important finding of this study was the majority of the sample population (55.7%) did not take appropriate care of their oral health. This finding was based on answers that advised they never flossed their teeth and only one third brushed their teeth twice a day. As such, maintaining optimal oral health in the dependent elderly can be challenging and depends not only on the cooperation of the elderly but also the caregivers. The role of caregivers is crucial as they are the person whom the dependent elderly rely on. Previous studies have shown that when the caregivers have poor oral health, the elderly who they care for are more susceptible to dental neglect.<sup>12</sup> Oral health care education for caregivers is very important and several studies have shown that education can improve knowledge, attitudes and oral health care performance of the caregivers, thus improving the oral health of the dependent elderly.<sup>13-15</sup> There are many ways to clean the teeth and oral soft tissues. The most common method used in this study was rubbing the teeth with their hands and mouthwash in the morning and before bed (31.4%), followed by using only water or mouthwash to rinse (28.6%). Kullberg et al. found that the oral health of the elderly in hospitals and long-term care facilities in Sweden was conducted by a caregiver who had been trained as a nurse.<sup>12</sup> To clean their teeth and oral soft tissues an electric toothbrush and 1% chloride Hague's Dean gluconate gel were used for one week out of every month, instead of using a fluoridated toothpaste twice a day.

Effective oral health care is important in the dependent elderly with studies showing that oral health can affect the entire health system.<sup>11</sup> Poor oral health can increase the risk of ischaemic stroke, malnutrition, carotid artery stenosis, uncontrolled diabetes and pneumonia. Yoneyama et al. found that pneumonia is an extremely infectious disease that usually occurs in older people and it is a common cause of death in elderly people

living in nursing homes and long-term care facilities.<sup>16</sup> The physiological mechanisms in the nervous system that control swallowing changes in the elderly. As a result they are more vulnerable to choking and when combined with poor oral hygiene can lead to subsequent aspiration pneumonia, which can cause lung infections and may be fatal if the elderly patient has compromised immunity.<sup>17</sup>

## CONCLUSION

Daily oral and denture hygiene is considered an essential part of personal hygiene. This study found that the oral health of dependent elderly is generally poor, especially among the low socioeconomic community. Their declining ability and dexterity and increase of general health risks limits their ability to maintain optimal oral health. Therefore, the caregivers play a major role in maintaining the oral health status of the dependent elderly.

### Limitations Of The Study

The Author's recognise that the limitations of this study include that it was conducted as a house-to-house study, and there was limited cooperation from participants who had difficulties with physical activity during the oral examination. The study was also completed in a small community group and may not be representative of the dependent elderly and caregivers in other areas or countries. Additionally, this study did not compare the oral health status and oral health care between the dependent elderly with and without caregivers.

## ACKNOWLEDGMENT

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