Factors Affecting the Sleep Quality of Elderly People in The Urban Area of Samut Songkhram Province

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Abstract

This research aims to study the sleep quality of the elderly and examine the relationship between various factors and their sleep quality. The sample group consisted of 141 individuals aged 60 and above, both male and female, residing in Plaipongpang Subdistrict, Amphawa District, Samut Songkhram Province. Research Findings: The majority of participants were female, aged 60–69 years, with an average monthly income of less than 5,000 baht. Regarding health behaviors, most elderly individuals exercised regularly but had underlying chronic illnesses and consumed caffeine-containing beverages at a rate exceeding 90%. In terms of sleep quality, most participants exhibited poor sleep quality, with some using medications or herbal remedies to aid sleep. Environmental factors such as noise, heat, and cold were found to influence sleep quality. Additionally, personal factors, including age, marital status, and adequate income, showed a mild to moderate correlation with sleep quality. Moreover, mental health factors—such as depression, anxiety, and stress—significantly affected sleep quality. These relationships were found to be unidirectional, indicating that poorer mental health was often associated with lower sleep quality.

Keywords: Sleep factors, Sleep quality, Elderly

1. Introduction

Sleep is a fundamental process essential for physical and mental restoration, contributing to neurological balance and overall well-being. However, for the elderly, achieving quality sleep often becomes a significant challenge due to physiological changes such as the degeneration of the central nervous system and the decline in melatonin production, which affects the sleep-wake cycle. Psychological factors such as stress and anxiety further exacerbate these issues.

Thailand is transitioning into an aging society and is expected to become a fully aged society by 2025. This demographic shift underscores the importance of addressing the quality of life for the elderly. Quality sleep plays a critical role in reducing the risks of chronic diseases such as diabetes, hypertension, and heart disease, while also alleviating depression and enhancing memory. However, various factors, including chronic illnesses, frequent nighttime awakenings, and unsuitable environmental conditions, often disrupt the sleep of older adults, leading to fatigue, irritability, and reduced daily functional efficiency.

Research indicates that 40-60% of Thai elderly individuals experience insomnia or inadequate sleep, often linked to chronic health issues. Sleeping less than five hours per night increases health risks and may elevate mortality rates. Addressing sleep problems in the elderly

typically focuses on behavioral modifications, such as practicing meditation, engaging in physical exercise, relaxation training, and improving sleep hygiene, rather than relying on sleeping medications, which can have long-term adverse effects.

Given this context, research aimed at studying and promoting sleep quality in the elderly is crucial. It provides a foundation for enhancing well-being in this demographic, particularly in community settings like Plaipongpang Subdistrict, Amphawa District, Samut Songkhram Province. Findings from such studies can inform strategies to improve elderly healthcare at the local level.

1.1 Objectives

1. To study the sleep quality of the elderly.
2. To examine the relationship between various factors and the sleep quality of the elderly.

1.2 Scope of the Research

The researcher explored the quality of sleep among the elderly and the factors influencing it, including stress, anxiety, depression, and physical environmental factors. Data were gathered from various sources such as books, research studies, journals, and the internet. The independent variables included personal factors, stress, anxiety, depression, and physical environmental factors, while the dependent variable was the quality of sleep among the elderly.

2. Methodology

The study population consisted of 1,591 individuals aged 60 and above, both male and female, residing in the Plaipoangpang subdistrict, Amphawa district, Samut Songkhram province. The sample group included 141 elderly individuals from this population. The researcher coordinated with three local health promotion hospitals: Ban Si Yak Health Promotion Hospital, Khok Ket Health Promotion Hospital, and Wat Pracha Health Promotion Hospital, to seek the cooperation of the elderly for data collection. Data were collected directly by the researcher, who provided questionnaires for participants to complete. The accuracy of the responses was verified afterward.

The research employed questionnaires to assess factors affecting the sleep quality of the elderly. The questionnaire was divided into three sections. The first section focused on personal factors. The second section addressed sleep-related factors, with the first part comprising a 9-item sleep quality assessment using the Pittsburgh Sleep Quality Index (PSQI). This assessment measured seven components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction. The second part included an 8-item questionnaire on environmental and physical factors affecting sleep, adapted from the Pacific Sleep Medicine Services (2008) insomnia questionnaire. The third section involved a mental health assessment using the Depression Anxiety Stress Scales (DASS-21), a 21-item questionnaire developed by Lovibond et al. (1995). This questionnaire evaluated three aspects of negative emotions: depression, anxiety, and stress.

Statistical Analysis

Personal factors were analyzed using frequency distribution and percentages. The relationship between personal factors and sleep quality was tested using Pearson’s correlation coefficient. Sleep quality was assessed using the PSQI, where a total score of 5 or less indicated good sleep quality, and a score above 5 indicated poor sleep quality. Results were presented

using frequency distribution, percentages, means, and standard deviations, with relationships analyzed using Pearson's correlation coefficient. For mental health, descriptive statistics were used, including frequency distribution, percentages, means, and standard deviations. The relationships between mental health factors (stress, anxiety, and depression) and sleep quality were also analyzed using Pearson's correlation coefficient.

3. Results

1. Personal Factors

The study sample consisted of 141 elderly individuals residing in the Plaipoangpang subdistrict, Amphawa district, Samut Songkhram province. Most participants were female, aged between 60 and 69 years, practicing Buddhism, single, and had completed primary education. Their income was below 5,000 baht per month. Regarding the sufficiency of monthly income, most participants reported it was adequate. Most did not have children or family members under their care, and the majority stated they did not experience significant family caregiving responsibilities.

In terms of physical activity, most exercised almost daily, accounting for 41.84%, followed by 2-3 times per week at 23.40%. Regarding chronic illnesses, the majority had a chronic disease (62.41%), while 37.59% did not. For smoking habits, most participants were non-smokers (85.82%), followed by former smokers (7.80%).

Regarding the consumption of caffeinated beverages, the majority consumed caffeinated drinks (95.04%), while 4.96% did not. Concerning alcohol consumption, most participants were non-drinkers (92.20%), followed by former drinkers (6.38%). For the use of sleeping pills or herbal sleep aids, most reported no usage (77.30%), while 22.70% did use such aids.

2. Sleep Quality Questionnaire

Table 1 presents the number and percentage of participants and the interpretation of sleep quality levels, categorized by the quality of their sleep.

Interpretation of Results	Quantity	Percentage
Sleep quality level: Good (Total score of 5 or less)	15	10.64
Sleep quality level: Poor (Total score greater than 5)	126	89.36
Total	141	100.00

A study on the sleep quality of elderly people in Plai Pong Pang Subdistrict, Amphawa District, Samut Songkhram Province, was conducted with 141 participants. The results showed that the majority of the elderly had poor sleep quality at 89.36%, while 10.64% had good sleep quality.

When analyzing the sleep quality of the sample group according to the components of sleep, it was found that most of the sample group had good subjective sleep quality, at 55.32%. The

time it took to fall asleep after going to bed was approximately 16-30 minutes for 43.26%. The majority of participants slept for about 8 hours or more each night (44.68%). Sleep efficiency was in the range of 75-84% for 55.32%. Sleep disturbances occurred less than once a week for 86.52%. Most participants (83.69%) never used sleeping pills to help them sleep. The impact on daytime activities was not a problem for 56.74% of the participants.

Table 2 shows the number and percentage of sleep disturbances caused by sleep disruption factors, categorized by environmental and physical aspects.

Sleep disturbance issues	Quantity	Percentage
No insomnia symptoms (Total score: 0-4 points)	138	97.87
Insomnia symptoms present (Total score: 5-8 points)	3	2.13
Total	141	100.00

A study on the factors disrupting sleep, focusing on environmental and physical aspects, of elderly people in Plai Pong Pang Subdistrict, Amphawa District, Samut Songkhram Province, was conducted with 141 participants. The results showed that the majority of the elderly had no symptoms of insomnia at 97.87%, while 2.13% had insomnia symptoms.

3. Mental Health Assessment – Depression Anxiety Stress Scales (DASS-21)

Table 3 shows the number and percentage of responses from the mental health assessment, specifically regarding depression, anxiety, and stress.

	Mental Health Status				
Mental health in different aspects	Normal 0	Mild 1	Moderate 2	Severe 3	Extremely Severe 4
Depression	83 (58.87)	13 (9.22)	23 (16.31)	6 (4.26)	16 (11.35)
Anxiety	71 (50.35)	15 (10.64)	15 (10.64)	14 (9.93)	26 (18.44)
Stress	101 (71.63)	14 (9.93)	9 (6.38)	7 (4.96)	10 (7.09)

Results of the Analysis of Mental Health Assessment Regarding Depression, Anxiety, and Stress in the Elderly in Plai Pong Pang Subdistrict, Amphawa District, Samut Songkhram Province

The results revealed that the majority of the elderly had normal mental health status in terms of depression, with 83 participants (58.87%), followed by moderate depression (23 participants, 16.31%), severe depression (16 participants, 11.35%), mild depression (13 participants, 9.22%), and very severe depression (6 participants, 4.26%).

In terms of anxiety, most participants had normal levels of anxiety (71 participants, 50.35%), followed by severe anxiety (26 participants, 18.44%), mild anxiety (15 participants, 10.64%), moderate anxiety (15 participants, 10.64%), and very severe anxiety (14 participants, 9.93%).

For stress, the majority had normal levels of stress (101 participants, 71.63%), followed by mild stress (14 participants, 9.93%), severe stress (10 participants, 7.09%), moderate stress (9 participants, 6.38%), and very severe stress (7 participants, 4.96%).

4. The Relationship Between Personal Factors and Sleep Quality of the Elderly in Plai Pong Pang Subdistrict, Amphawa District, Samut Songkhram Province

The analysis showed that personal factors related to age had a relationship with sleep quality, with a significance level (sig.) of 0.042, which is less than 0.05. This indicates that age is significantly related to sleep quality, with a correlation coefficient of 0.171, a very low correlation, in the same direction.

Regarding marital status, there was a significant relationship with sleep quality, with a sig. of 0.002, which is less than 0.05. The correlation coefficient was 0.263, indicating a relatively low correlation, also in the same direction.

As for the adequacy of income, it was found to be related to sleep quality with a sig. of 0.045, less than 0.05, indicating a significant relationship with sleep quality. The correlation coefficient was 0.169, showing a relatively low correlation, in the same direction.

5. The Relationship Between Health-Related Behaviors, Environmental and Physical Sleep Disturbance Factors, and Sleep Quality of the Elderly in Plai Pong Pang Subdistrict, Amphawa District, Samut Songkhram Province

The study found that behaviors related to health, such as using sleeping pills or herbal remedies to help sleep, were related to sleep quality. The sig. value was 0.000, which is less than the significance level of 0.05. This means that the use of sleeping aids (pills or herbs) is significantly related to sleep quality, with a correlation coefficient of 0.369, showing a relatively low correlation in the same direction.

Regarding environmental and physical factors, noise disturbances were found to be related to sleep quality, with a sig. of 0.026, less than 0.05. The correlation coefficient was 0.187, indicating a very low correlation, in the same direction.

Environmental and physical factors such as heat disturbances were also found to be related to sleep quality, with a sig. of 0.001, which is less than 0.05. The correlation coefficient was 0.287, showing a relatively low correlation, in the same direction.

Lastly, cold disturbances were found to be related to sleep quality, with a sig. of 0.035, which is less than 0.05. The correlation coefficient was 0.178, indicating a very low correlation, in the same direction.

4. Discussion

The study on the sleep quality of the elderly in Plai Pong Pang Subdistrict, Amphawa District, Samut Songkhram Province, found that most elderly participants (89.36%) had poor sleep quality, with an average score of 7.42 (SD = 1.87). This result aligns with the research hypothesis and is consistent with a study on sleep quality, disturbances, methods to improve sleep, and the relationship between sleep quality and disturbances among elderly people in a community in Bangkok, which found that the majority (61%) had poor sleep quality with an average score of 7.08 (Sonthaya Manee-rat et al., 2021). Additionally, it aligns with a study on sleep quality and related factors in elderly individuals in Prachaniwet Village, where it was found that most elderly people (52%) had poor sleep quality with an average score of 6.59 (SD = 3.78) (Chotiman Chinworarak et al., 2018).

This indicates that the poor sleep quality of the study sample could be due to age-related changes, such as alterations in hormone levels related to sleep, the sleep-wake cycle, and changes in sleep architecture, which shorten sleep duration, increase night awakenings, and result in lighter sleep. Quality sleep depends on the number of hours and the appropriate time to go to bed; deep sleep is when the brain and body work in a systematic relationship to restore the body and maintain good health (Jaroenngarmsamer, Ounprasertsuk, et al., 2021). Other contributing factors may include physical disturbances such as illness and discomfort, psychological factors, environmental factors, and sleep habits, including diet, medication, and chemicals.

The study also examined the relationship between health-related behaviors, such as the use of sleeping pills or herbal remedies, and sleep quality in the elderly. It was found that these behaviors were significantly related to sleep quality ($p = .000$) at the 0.05 significance level, confirming the research hypothesis. This finding aligns with research on the sleep quality of elderly people in Tha Mai District, Chanthaburi, where the use of sleeping pills or herbal remedies was found to be significantly related to sleep quality ($p = .006$) at the 0.05 significance level (Witma Thamcharoen et al., 2020). It can be explained that the use of sleeping pills can lead to sleep problems. Long-term use of sleeping pills can lead to drug tolerance and dependency. This is consistent with a study by Pongkwan Peerapatphokin (2006), which found that factors related to poor sleep quality include stress and the use of sleeping pills.

5. Recommendations

It is recommended that factors affecting the sleep quality of the elderly be studied across the entire Samut Songkhram Province, as the environmental context is quite similar. The results from different areas should be compared and used to develop strategies for solving problems and promoting the health of the elderly in alignment with local contexts.

References

Kampanat Suri and colleagues. (2022). Sleep quality and related factors in elderly people from the urban community of Nakhon Sawan. Journal of Medical and Public Health, Region 3, 19(1), 14-27.

Jaroenngarmsamer, P., Pajongsaleepanya, K., Rojanabenjakun, P., Ounprasertsuk, J., Benjanirat, T., Krutchangthong, S., & Choawai, S. (2021). Efficiency of chamomile essential oils on sleeping quality of first-year university students. *Indian Journal of Forensic Medicine & Toxicology, 15*(2), 123-130.

Jutharat Jirapong, Rangsiman Sunthornchai. (2018). Factors related to insomnia in elderly people with depression. Journal of Psychiatric Nursing and Mental Health, 32(1), 134-149.

Jintchuta Saengkhanuek. (2022). Factors related to sleep quality and quality of life in patients using cannabis oil for treating insomnia at a traditional Thai medical cannabis clinic. (Master's Thesis). Silpakorn University.

Jirawat Mulsat and colleagues. (2014). Insomnia in elderly patients in general hospitals and the physical environment of patient wards. Journal of Supasit Sittiwet, 35(3), 151-165.

Jirathat Lothaka. (2019). Sleep quality in stroke patients at Phra Mongkutklao Hospital. (Master's Thesis). Chula Digital Collections, Chulalongkorn University.

Chotiman Chinworarak and colleagues. (2018). Sleep quality and related factors in elderly people in Prachaniwet Village. Journal of the Thai Psychiatric Association, 63(2), 199-210.

Yupawadee Kanthaballang. (2018). The relationship between stress and sleep quality in elderly people. Journal of Health Research and Innovation, 1(2), 15-30.

Yaowarat Khamkaew. (2018). The effect of cognitive-behavioral therapy on insomnia symptoms in elderly patients with depression. (Master's Thesis). Thammasat University.

Lakkhana Chobsiang and colleagues. (2023). Factors related to sleep quality in elderly people who are not dependent in Ubon Ratchathani Province. Journal of Nursing and Health Care, 41(2), 1-11.

Waradee Rakeim and colleagues. (2006). Sleep quality, sleep disturbances, and caregiving activities in patients using ventilators. Journal of Songklanagarind Medical Journal, 24(4), 289-298.

Witma Thamcharoen and colleagues. (2021). Factors influencing sleep quality in the elderly. Journal of Sunaree Je Wit, 17(2), 1-18.