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Original Article

An Overview of Patients' Sleep Quality in a Public Health Setting

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Abstract

Sleep quality refers to the extent to which a person feels satisfied with their sleep, assessing whether the sleep they get is sufficient or not. This is important because each individual has various activities that affect their sleep needs. The Department of Health explains that sleep is part of the body's biological rhythm that helps restore the body's strength. The purpose of this study is to determine the distribution of age groups, gender, sleep quality components, and sleep quality frequency. This study is a descriptive observational study conducted at the Baiturahman Health Center in Banda Aceh and carried out in February 2025. The sample size in this study was 100 patients. The results showed that 39 respondents (39.0%) had good sleep quality, 36 respondents (36.0%) had a nighttime sleep duration of approximately 5 to 6 hours, and 40 respondents (40.0%) experienced difficulty falling asleep within 30 minutes. Sleep efficiency of 75-84% was recorded in 47 respondents (47.0%). Additionally, sleep disturbances with a score of 1 were reported by 60 people (60.0%). 92 respondents (92.0%) stated they had never used sleep medication. Meanwhile, 38 people (38.0%) showed daytime activity disturbances with a score of 1. Recommendations to the Community Health Center (Puskesmas) institution to further enhance efforts in providing information to the public about the importance of maintaining patient sleep quality to avoid illness.

Keywords: Community Health Center, Patient Health, Sleep Disturbances, Sleep Patterns, Sleep Quality.

1. Introduction

Sleep is a basic physiological need for humans. During sleep, a person's awareness of their surroundings decreases, but the brain remains active and performs important functions. Brain activity during sleep includes regulating the digestive system, heart and blood vessel function, and the immune system (Nainar et al., 2022). Sleep consists of two main phases known as Rapid Eye Movement (REM) and Non-Rapid Eye Movement (NREM). NREM sleep consists of four stages, comprising light stages (stages 1 and 2) and deep stages (stages 3 and 4). NREM lasts for about an hour, after which the brain enters the REM phase, where brain activity increases as it does when awake, and dreams often occur. This cycle repeats throughout sleep and continues until the REM phase occurs approximately four times, with the duration decreasing with each cycle. During REM sleep, the brain processes and integrates information obtained earlier. As we age, the time spent in the REM stage also decreases. At birth, the REM stage lasts approximately eight hours. By age 10, it decreases to about two hours, and by age 70, the REM stage lasts only about 45 minutes (Amalia, 2021).

Sleep quality is the condition experienced by a person to obtain freshness and fitness when waking up from sleep. Sleep is considered to be of good quality if a person does not show symptoms of sleep deprivation and does not experience disturbances during sleep (Anies,

2021). Sleep quality can be assessed through seven main components, namely subjective sleep quality, sleep duration, sleep latency, sleep efficiency, sleep disturbances, use of sleep medication, and daytime activity disturbances. Subjective sleep quality refers to an individual's assessment of their sleep comfort and satisfaction. Sleep duration that is insufficient for the body's needs can reduce sleep quality, while sleep latency describes the time required to fall asleep. Sleep efficiency relates to the percentage of alignment between sleep needs and the amount of sleep obtained. Sleep disturbances such as snoring, excessive body movement, or nightmares can disrupt the smoothness of sleep. The use of sleep medications typically indicates the presence of significant sleep issues. Meanwhile, poor sleep quality can trigger daytime activity disorders such as fatigue, excessive sleepiness, difficulty concentrating, and not feeling refreshed after waking up.

The measurement tool used in this study was the PSQI (Pittsburgh Sleep Quality Index) questionnaire. This questionnaire was developed in 1989 by Daniel J. Buysse and his colleagues at the University of Pittsburgh's Western Psychiatric Institute and Clinic. Initially, this questionnaire was designed to obtain information about a person's sleep habits. This instrument was later used to assess sleep quality in patients with sleep disorders. The PSQI instrument has nine questions covering seven measurement components. Each question in the questionnaire has a score range from 0 to 3, where 0 indicates very good sleep quality, 1 indicates fair, 2 indicates poor, and 3 indicates very poor. The total score on the questionnaire ranges from 0 to 21. If the total score is ≤ 5, sleep quality is considered good, while a score > 5 indicates poor sleep quality (Dewi, 2021).

The sleep-wake cycle is regulated by the Reticular Activating System (RAS), the Synchronising Region (BSR), and the Ascending Reticular Activating System (ARAS), which are located in the brainstem. When awake, the RAS releases norepinephrine, while sleep is triggered by the release of serotonin from the BSR. ARAS activity plays a crucial role in consciousness, where increased activity leads to wakefulness, and decreased activity triggers sleep. This process is influenced by neurotransmitters such as serotonin, norepinephrine, and acetylcholine (Jaleha & Amanati, 2023).

Disruptions in the sleep-wake cycle are caused by an imbalance between the RAS and BSR. This condition causes irregular circadian rhythms. Irregular circadian rhythms can trigger an increase in hormones such as cortisol in the body, which disrupts the balance of hormones produced by the adrenal glands. Increased cortisol also affects the activity of catecholamines secreted by the adrenal medulla. Cortisol or glucocorticoid hormones support the vasoconstrictive effects of catecholamines, increasing cardiac output, vascular tone, and blood pressure by stimulating the sympathetic nervous system, thereby causing an increase in blood pressure. Additionally, glucocorticoids also function in regulating adrenergic receptors. However, if glucocorticoid levels are excessive, this can trigger hypertension through mineralocorticoid effects such as aldosterone, as well as influence renin activation through alpha-1 receptors, which then activate the renin-angiotensin-aldosterone system (Gangwisch et al., 2013).

However, research on sleep quality at the Baiturrahman Community Health Centre in Banda Aceh is still limited to describing frequency and does not yet use international standard measurement instruments such as the Pittsburgh Sleep Quality Index (PSQI), which is capable of comprehensively assessing seven aspects of sleep quality. Additionally, no analysis has been conducted on the relationship between sleep quality and demographic or clinical factors, despite a study in Medan showing a significant association between sleep quality and quality of life in hypertensive patients ($p = 0.037$) (Mariani, 2017). This study also did not examine the relationship between sleep quality and comorbidity and daytime dysfunction, while a post-

COVID national study found that 69.2% of respondents experienced poor sleep quality with a significant relationship between comorbidity and sleep quality (p = 0.001) (Budikayanti et al., 2024).

Based on this gap, this study was conducted to describe the sleep quality of patients at the Baiturrahman Community Health Centre in Banda Aceh in more detail, so as to provide useful information for health workers in planning appropriate interventions to improve patients' sleep quality.

2. Methods

2.1. Research Methodology

This study is a descriptive observational study that aims to describe the sleep quality of patients at the Baiturrahman Community Health Centre in Banda Aceh. The study was conducted in February 2025 with a sample size of 100 patients. The research location was selected purposively because the Baiturrahman Community Health Centre is one of the primary health care facilities with a high number of patient visits in the Banda Aceh area.

2.2. Population and Sample

The population in this study was all patients who visited the Baiturrahman Community Health Centre in Banda Aceh during the study period. The sampling technique used was purposive sampling, which is a technique for determining samples based on specific considerations or criteria in accordance with the objectives of the study (Sugiyono, 2018). The inclusion criteria for this study were: (1) patients aged ≥18 years, (2) willing to be respondents, and (3) able to communicate well. The exclusion criteria were: (1) patients with severe cognitive or mental disorders, and (2) patients who were in critical condition or medical emergency.

2.3. Research Instruments

The instrument used to measure sleep quality is the Pittsburgh Sleep Quality Index (PSQI), a standardised questionnaire developed by the University of Pittsburgh to assess sleep quality over the past month. The PSQI consists of 19 questions covering seven components: subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep medications, and daytime dysfunction (Buysse et al., 1989). Each component is scored from 0 to 3, and the total score ranges from 0 to 21, with a score >5 indicating poor sleep quality. The PSQI has been shown to have good validity and reliability in various studies across different populations (Mollayeva et al., 2016).

2.4. Research Procedure

Before collecting data, the researcher explained the purpose and procedure of the study to the respondents and requested their written consent (informed consent). Respondents who met the inclusion criteria were asked to complete the PSQI questionnaire with guidance from the researcher if necessary.

2.5. Data Analysis

Data were analysed descriptively using frequency distributions and percentages to describe respondent characteristics and sleep quality categories. The analysis was performed using statistical software.

3. Results and Discussion

3.1. Research Results

Based on Table 1, the majority of patients at the Baiturrahman Community Health Centre in Banda Aceh were in the 46–55 age group, numbering 45 people (45.0%), followed by the 56–65 age group with 25 people (25.0%), and the 36–45 age group with 19 people (19.0%). Meanwhile, the 26–35 age group comprises 8 people (8.0%), the 17–25 age group comprises 5 people (5.0%), and those over 17 years old comprise only 1 person (1.0%). In terms of gender, the majority of respondents were female, with 68 individuals (68.0%), while males accounted for 32 individuals (32.0%). This indicates that patients in the middle-aged to elderly age group dominate, and the female group utilises health services at this community health centre more than males.

Table 1. Distribution of age groups and gender among patients at the Baiturrahman Community Health Centre in Banda Aceh.

Characteristics	Frequency	Percentage (%)
Age		
>17 years old	1	1,0 %
17-25 years old	5	5,0%
26-35 years old	8	8,0%
36-45 years old	19	19,0%
46-55 years old	45	45,0%
56-65 years old	25	25,0%
Gender		
Male	32	32,0%
Female	68	68,0%

Based on Table 2, it can be concluded that most patients at the Baiturrahman Community Health Centre in Banda Aceh have fairly good sleep quality (39.0%), although 33.0% still report poor sleep quality and 13.0% report very poor sleep quality. The duration of sleep for respondents generally falls within the range of 5–6 hours per night (36.0%), indicating insufficient optimal rest time. 40.0% of respondents experienced sleep latency score 1, indicating difficulty falling asleep within less than 30 minutes. Sleep efficiency was mostly in the 75–84% category (47.0%), indicating that most respondents slept efficiently though not optimally. The most common sleep disturbance was a score of 1 (60.0%), reflecting mild sleep-related complaints such as snoring or movement disorders. Nearly all respondents (92.0%) never used sleep medications, indicating low dependence on pharmacological aids for sleep. However, daytime dysfunction remained relatively high, with 38.0% scoring 1, reflecting daytime sleepiness, fatigue, or concentration difficulties due to suboptimal sleep quality.

Table 2. Overview of sleep quality components of patients at the Baiturrahman Community Health Centre in Banda Aceh

Sleep Quality	Frequency	Percentage (%)
Subjective sleep quality		
Very good	15	15,0%
Fairly good	39	39,0%
Poor	33	33,0%
Very poor	13	13,0%
Sleep duration (length of time spent sleeping)	10	10,0%
>7 hours	34	34,0%
6-7 hours	36	36,0%
5-6 hours	20	20,0%

Sleep Quality	Frequency	Percentage (%)
< 5 hours		
Sleep latency		
Score 0	7	7,0%
Score 1	40	40,0%
Score 2	25	25,0%
Score 3	28	28,0%
Sleep efficiency		
>85%	43	43,0%
75-84%	47	47,0%
65-74%	10	10,0%
<65%	0	0,0%
Sleep disturbance		
Score 0	5	5,0%
Score 1	60	60,0%
Score 2	34	34,0%
Score 3	1	1,0%
Use of sleeping pills		
Score 0	92	92,0%
Score 1	7	7,0%
Score 2	1	1,0%
Score 3	0	0,0%
Daytime dysfunction		
Score 0	11	11,0%
Score 1	38	38,0%
Score 2	32	32,0%
Score 3	19	19,0%

Based on Table 3, it can be seen that the majority of patients at the Baiturrahman Community Health Centre in Banda Aceh have poor sleep quality. Of the total 100 respondents, only 25 people (25.0%) had good sleep quality, while 75 people (75.0%) experienced poor sleep quality. This finding indicates that sleep quality issues are a significant concern among patients, necessitating special attention from healthcare professionals to identify the underlying causes and provide appropriate interventions to improve patients' sleep quality.

Table 3. Frequency Characteristics of Sleep Quality Among Patients at the Baiturrahman Community Health Centre in Banda Aceh

Sleep Quality	Frequency	Percentage (%)
<5 good	25	25,0%
>5 bad	75	75,0%
Total	**100**	**100%**

3.2. Discussion

The predominance of middle-aged and elderly patients is consistent with previous studies indicating that the risk of health disorders, including sleep problems, increases with age due to physiological changes and sleep patterns (Ohayon et al., 2004). In addition, the higher proportion of women is consistent with findings that women tend to use primary health care facilities more often than men, partly due to factors such as health awareness, their role in the family, and vulnerability to certain health conditions (Bertakis et al., 2000).

The results of the analysis show that although most patients at the Baiturrahman Community Health Centre in Banda Aceh have fairly good sleep quality, there is still a proportion who experience poor to very poor sleep quality. The dominant sleep duration of 5–6 hours per night indicates that the optimal sleep requirement for adults, which is generally

7–9 hours per night to maintain maximum physical and mental health, is not being met (Hirshkowitz et al., 2015). Findings regarding prolonged sleep latency indicate the potential for disturbances in the sleep initiation process, which, according to the American Academy of Sleep Medicine, can contribute to decreased sleep efficiency (Sateia, 2014). Although sleep efficiency is in the fairly good category, mild complaints such as snoring or body movements during sleep indicate partial sleep disturbances that can reduce overall sleep quality (Kapusuz & Cavuz, 2018). The low use of sleeping pills indicates that the majority of patients do not rely on pharmacological therapy, in line with recommendations for non-pharmacological therapy-based management of insomnia as the first line of treatment (Qaseem et al., 2016). However, the high rate of daytime dysfunction underscores that suboptimal sleep quality continues to impact daytime performance and alertness, as evidenced by studies linking poor sleep quality to cognitive decline and increased risk of accidents (Lo et al., 2016).

According to the Pittsburgh Sleep Quality Index (PSQI) score, a person's sleep quality is considered good if the total score is ≤ 5, while a score > 5 indicates poor sleep quality [15]. In this study, 75% of hypertensive patients experienced poor sleep quality. The appropriate sleep quality for older adults is 6 hours per day. Poor sleep quality or the habit of short sleep duration is also associated with increased blood pressure. Insufficient sleep quality and quantity can impair memory and cognitive abilities. If this persists over the years, it can lead to high blood pressure, heart attacks, strokes, and psychological issues such as depression and other mood disorders. This aligns with Remmes' theory (2014), which states that sleep disorders can cause or exacerbate medical and psychiatric conditions such as hypertension, coronary or cerebral vascular disease, obesity, and depression.

Poor sleep quality or the habit of having short sleep durations is also associated with an increase in blood pressure. Poor sleep quality and quantity not only cause physical disorders, but can also damage a person's memory and cognitive abilities. If poor sleep quality and quantity are left unchecked and continue to occur for years, more dangerous complications are likely to occur, such as heart attacks, strokes, and psychological problems such as depression or other mood disorders (Potter et al., 2021).

Chen et al. (2021) reported that sleeping for too long or too short a duration is a risk factor for high blood pressure. This risk is known to be more likely to occur in women than in men. Sleep plays an important role in maintaining the body's immune system, metabolism, memory, learning, and other important functions. Someone with adequate sleep duration and optimal sleep quality will have a positive impact on their activities. Those with insufficient sleep will be less focused during activities, feel easily tired, and have a bad mood. Chronic sleep deprivation can lead to increased blood pressure.

Poor sleep quality over the long term can increase body mass index and depression in adults (Shittu et al., 2018). Wang et al. (2021) reveals that people with sleep quality disorders tend to have high blood pressure. Roshifanni (2016) note that most respondents have problems that often disturb their sleep and cause poor sleep quality. The findings from the previous study align with the conditions observed in the field, where some patients at the Baiturrahman Health Centre in Banda Aceh still experience poor to very poor sleep quality. Although most patients have sleep quality that is considered fairly good, the proportion of respondents with suboptimal sleep duration, high sleep latency, and daytime dysfunction indicates potential long-term health risks, as explained by previous studies.

Based on the analysis results, it can be seen that most patients at the Baiturrahman Community Health Centre in Banda Aceh have fairly good sleep quality, although there is still a significant proportion with poor and very poor sleep quality. The average sleep duration of only 5–6 hours per night indicates that most respondents have not obtained optimal rest time.

High sleep latency and the presence of mild sleep disturbances indicate that while sleep efficiency is adequate, there are still barriers to initiating sleep and maintaining overall sleep quality. The low use of sleep medications suggests that most respondents do not rely on pharmacological assistance, making non-pharmacological interventions such as education on healthy sleep habits potentially effective for implementation. However, the high rate of daytime dysfunction is a significant concern as it indicates that suboptimal sleep quality has impacted patients' activities, concentration, and productivity. These findings underscore the need for routine sleep quality screening in primary care facilities so that problems can be detected and addressed early.

4. Conclusion

Based on the research results, the majority of patients at the Baiturrahman Community Health Centre in Banda Aceh were female (68%) and the majority were in the over-45 age group (70%). Based on measurements using the Pittsburgh Sleep Quality Index (PSQI), 75% of patients had poor sleep quality with a PSQI score > 5. This finding indicates that sleep quality disorders are a significant issue among this patient group, particularly among older women, and may potentially affect overall physical and mental health. The novelty of this study lies in providing a specific overview of the demographic profile and sleep quality of patients at the Baiturrahman Community Health Centre in Banda Aceh, which had not been previously documented in detail, as well as identifying that women over 45 years of age are the group most vulnerable to sleep disorders at the primary care level. Based on these findings, it is recommended that healthcare workers at the health centre provide education on sleep hygiene to patients, particularly older women, and conduct routine sleep quality screening using the PSQI or similar instruments as part of regular health check-ups. Additionally, further research with an analytical design is needed to explore the factors causing sleep disorders in this group, so that interventions can be more targeted.

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