

The Relationship Between Sleep Hygiene and Sleep Quality in Non-Shift Worker

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Abstract

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Background:

Impaired sleep quality is the most frequently encountered problem. The prevalence of sleep quality disorders in Indonesia reaches 10% of the population. Sleep quality can occur due to many things, one of which is poor sleep hygiene behavior. The level of sleep hygiene behavior and poor sleep quality will reduce productivity in permanent employees.

Methods:

This research used a cross-sectional study with a sample size of 109 employees using a purposive sampling technique. This research will be carried out by filling out a questionnaire.

Result:

Of the 109 subjects, 24 people (22.0%) had moderate-severe sleep hygiene, while 85 people (78.0%) had good sleep hygiene. Based on PSQI, 102 people (93.6%) experienced bad sleep disorders and 7 people (6.4%) did not experience sleep disorders. There was no statistically significant relationship ($P = 0.648$).

Conclusions:

There is no statistically significant relationship between sleep hygiene and sleep quality.

Introduction

Sleep is a very important need for humans. A healthy sleep pattern includes adequate sleep duration, proper sleep time, and no disturbances during sleep.¹ Studies have shown that adequate sleep duration can affect the level of cognitive function, behavior, and better emotional management.² The recommended duration for 18 to 64 years old is 7 to 9 hours every night.³

According to data, 30% of young adults in the world have chronic sleep disorders. Ten percent of the population in the United States experience chronic sleep disorders and get poor sleep. In Indonesia, the value of sleep disorders reaches 10% of the population and the total population is

around 28 million people who experience sleep disorders.⁴ In individuals aged around 20 to 59 years and are workers, usually have more bedtime activities than someone who does not have a job.

Sleep hygiene is also known as bedtime behavior that can create comfort during sleep.⁵ The word sleep hygiene originated from Peter Hauri, PhD, who said that sleep hygiene can be interpreted as a simple behavior, including environmental factors that are modified by a person consciously to improve the quality of his sleep.⁶

According to research that has been conducted, the prevalence of poor sleep hygiene practices is 48.1%. Brazil was 51.5%, USA 50.9%, Nigeria 32%, Pakistan

39.5%, and Saudi Arabia 70.4%. This study showed that a large number of respondents did not practice the components of sleep hygiene properly.⁷

According to previous research, if a person has poor sleep hygiene practices, their sleep quality will also be poor, because sleep hygiene has an important role in sleep quality. This study also found the results of the relationship between sleep hygiene and sleep quality because the workload of employees makes employees have more levels of sleep hygiene that are not good so that the quality of sleep of employees also becomes less good.⁸

The phenomenon from the studies including the one examining the relationship between sleep hygiene and sleep quality among non-shift workers shows that poor sleep quality is not only experienced by individuals with rotating work schedules or heavy academic loads, but also by non-shift workers due to unhealthy sleep habits (poor sleep hygiene).⁹ In the studies by Borkhatariya and Patil, poor sleep quality was primarily caused by night shift rotations and disruptions to the circadian rhythm.¹⁰ While in Mahadule et al., it was associated with pandemic-related stress and irregular study routines.¹¹ Meanwhile, the study on non-shift workers highlights that behavioral and sleep hygiene factors such as using electronic devices before bedtime, excessive caffeine intake, and irregular sleep-wake times also play a major role in reducing sleep quality, even in the absence of shift work.

Collectively, these findings demonstrate that good sleep quality is influenced by both external factors, such as work schedules and environment, and internal factors, such as personal behavior and habits. Therefore, promoting proper sleep hygiene education is essential for all groups, including students, healthcare professionals, and non-shift workers, to maintain physical health, emotional stability, and optimal cognitive performance.

The novelty of this study lies in its focus on assessing the sleep quality of medical

students using the Pittsburgh Sleep Quality Index (PSQI) and identifying specific factors influencing sleep quality within a demanding academic environment, such as the number of courses per semester and the regularity of sleep schedules. Unlike previous studies that mainly described the prevalence of sleep disorders without analyzing predictive factors, this research employs bivariate and multivariate logistic regression to reveal significant relationships between academic variables and sleep habits.¹²

Research on the relationship between sleep hygiene and sleep quality in permanent employees private hospital in Tangerang is important. Because the work environment in hospitals tends to affect sleep patterns so that it disrupts sleep quality. Hospital employees often experience work pressure and stress that can directly affect their sleep hygiene. This study chose permanent non-shift employees because permanent non-shift employees have a consistent work schedule, usually working the same hours every day.

This makes it possible to control for consistent sleep and wake time variables. Focusing on sleep patterns and sleep quality is more stable without being affected by changes in work shifts. Research that has been conducted on the relationship between sleep hygiene and sleep quality is mostly directed at the elderly and students. No research has been found on permanent employees who work in hospitals. Therefore, researchers want to conduct such research to assess how the relationship between sleep hygiene behavior and sleep quality of permanent employees and whether one of the factors of sleep disturbance is due to lack of sleep hygiene.

Material And Methods

This study is a quantitative study with an unpaired categorical comparative analytic design using the cross-sectional method, which is a design that allows measurement of the independent variable

and the dependent variable to be carried out simultaneously at one time to see whether or not there is a relationship between the two. This study was conducted at private hospital in Tangerang, with the allocation of research time from June to September 2024. The research subjects were permanent non-shift employees who were willing to become respondents and met the predetermined inclusion and exclusion criteria.

The instruments used in this study were two standardized questionnaires. First, the Sleep Hygiene Index (SHI) questionnaire consisting of 13 questions to assess respondents' sleep hygiene behavior. Second, the Pittsburgh Sleep Quality Index (PSQI) questionnaire was used to assess the respondents' sleep quality within the last one month. All questionnaires were distributed and completed online via Google Form. Before filling out, each respondent was asked to give consent to participate in the study through an informed consent form.

Data from respondents who met the criteria were then collected and processed using Microsoft Excel 2020 for the data validation, editing and coding stages. Furthermore, statistical analysis was carried out using the IBM SPSS version 28 program. To see the relationship between sleep hygiene and sleep quality, the Chi-Square test was used. Independent T-Test was used to examine the relationship between sleep hygiene components and sleep quality. All research procedures have obtained ethical approval from the Ethics Committee of the Faculty of Medicine, Universitas Pelita Harapan and private hospital in Tangerang.

Result

Sampling data for this study was conducted from June to September 2024 on permanent non-shift employees of private hospital in Tangerang. An overview of demographics and characteristics can be seen in the following table.

Table 1. Characteristics of Research Subjects

Characteristics of Respondents	Category	Total (n=108)	Percentage (%)
Gender	Female	60	55.0
Gender	Male	49	45.0
Sleep Hygiene	Good	85	78.0
Sleep Hygiene	Moderate-heavy	24	22.0
Sleep Quality	Good	7	6.4
Sleep Quality	Poor	102	93.6

It can be seen in Table 1 that the largest number of samples came from women with 60 subjects (55.0%), followed by men with 49 subjects (45.0%). Based on the Sleep Hygiene Index (SHI), 24 subjects (22.0%) had moderate-severe

sleep hygiene, while 85 subjects (78.0%) had good sleep hygiene. Based on PSQI, 102 subjects (93.6%) experienced poor sleep disturbance and 7 subjects (6.4%) did not experience sleep disturbance.

Table 2. Bivariate Statistical Test

Sleep hygiene	Good sleep quality n (%)	Poor sleep quality n (%)	Total	OR	95% CI	p-value
Good	5 (5.9)	80 (94.1)	85	0.688	0.125-3.787	0.648
Medium-poor	2 (8.3)	22 (91.7)	24			
Total	7 (6.4)	102 (93.6)	109			

The data in Table 2, which is a 2x2 table, describes the results of the bivariate statistical test between sleep hygiene and sleep quality in the chi-square method. It was found that the results of the sleep hygiene index showed a p value of 0.648 (p value <0.05), with this result it can be concluded that there is no significant relationship. In addition, the Odds Ratio

(OR) of 0.688 was also obtained, indicating that subjects with good sleep hygiene on the questionnaire had a chance of poor sleep quality. The confidence interval (CI) value is 0.125-3.787 which means it contains a value of 1 indicating that the results are not statistically significant.

Table 3. Statistical Test Results of Confounding Factors with Sleep Quality

Gender	Good sleep quality n (%)	Poor sleep quality n (%)	Total	OR	95% CI	p-value
Male	1 (2.0)	48 (99.0)	49	0.188	0.022-1.614	0.126
Female	6 (10.0)	54 (90.0)	60			
Total	7 (6.4)	102 (93.6)	109			

The data in Table 3, which is a 2x2 table, describes the results of the bivariate statistical test between gender and sleep quality in the chi-square method. It was found that the results of gender showed a

p value or p value of 0.126 (p value <0.05), with these results it can be concluded that confounding factors do not have a significant relationship.

Table 4. Independent T Test Results for Sleep Hygiene Components

Component	Sleep quality	Mean	SD	p-value
Sleep-wake schedule	Good	7.83	3.764	0.410
Sleep-wake schedule	Poor	6.95	2.463	
Bedtime activity	Good	5.50	28.11	0.498
Bedtime activity	Poor	5.98	1.609	
Environment	Good	2.67	1.033	0.890
Environment	Poor	2.61	0.942	
Sleep-related behaviour	Good	9.50	2.258	0.087
Sleep-related behaviour	Poor	11.97	3.451	

Based on Table 4, it is found that the average score of sleep-wake schedule in the category of good sleep quality is 7.83 and poor sleep quality is 6.95, the average score of pre-sleep activity in the category of good sleep quality is 5.50 and poor sleep quality is 5.98, the average score of environment in the category of good sleep quality is 2.67 and poor sleep quality is 2.61, and the average score of sleep-related behavior in the category of good sleep quality is 9.50 and poor sleep quality is 11.97.

Based on the information above, the statistical data shows that there is no

difference in the average of the components of good sleep quality and poor sleep quality. This is indicated by the p value in each component >0.05, which means that there is no statistically significant difference in the mean of the components.

Discussion

In this study, there was no relationship between sleep hygiene and sleep quality and therefore could not reject H0. This study found that employees who scored well on the sleep hygiene index questionnaire scored more than those who

scored poorly, indicating that their sleep hygiene was good. But the results of sleep quality with PSQI on employees who got poor scores were more than good scores, which means that their sleep quality was poor. This can occur because the data is homogeneous or the same which causes an imbalance between the sleep hygiene score and the sleep quality score. The results in this study also showed that none of the 4 components of sleep hygiene had a relationship from the average significant difference to good sleep quality and poor sleep quality.

Although there is no relationship between sleep hygiene and sleep quality, it was found that 85 subjects applied sleep hygiene well, this has a positive value because according to the National Sleep Foundation correct sleep behavior is often associated with correct sleep hygiene.

This study found that 102 subjects experienced poor sleep quality. In previous studies, fatigue experienced by employees tends to cause disturbances to sleep quality. Work fatigue in employees can include health conditions, physical activity and repetitive work. Regular physical activity can be beneficial in improving sleep quality and has a positive value on health.¹³

The results in this study are in line with the research of medical students at Andalas University which found no relationship between sleep hygiene and sleep quality in medical students at Andalas University. This study states that poor sleep quality is not only influenced by poor sleep hygiene but there are other factors such as studying until late at night, a busy lecture schedule, lack of concern for personal health, and doing other activities before bed.¹⁴

Different results were found by ITKES Wiyata Husada Samarinda employees who according to their research, stated that if someone has poor sleep hygiene practices, their sleep quality will also be poor, because sleep hygiene has a significant role in sleep quality. This study also states that there is a significant relationship between sleep hygiene and sleep quality in employees working at

ITKES Wiyata Husada Samarinda. Where the highest value is on questions regarding sleep duration, the results obtained experience poor sleep duration because some employees have to do other tasks when at home at night.¹⁵

Based on the results of this study, the confounding factor of gender also did not have a statistically significant relationship to sleep quality. The results in this study are in line with research that has been conducted in one of the hospitals, no significant relationship was found in gender and sleep quality, this study said that men and women both experience poor sleep quality.¹⁶

Conclusion

With the research data obtained and also the results of statistical analysis, it can be concluded based on the researcher's interpretation, namely as follows: There is no significant relationship in sleep hygiene and sleep quality statistically with a p value of 0.648, there is no significant relationship between the 4 components of sleep hygiene and sleep quality.

Conflict of Interest

The authors declared no conflict of interest.

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