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The Relationship Between Sleep Hygiene and Insomnia Among Adults at Universitas Muhammadiyah Semarang

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ABSTRACT

Background: Insomnia is one of the sleep needs disorders that occur among adults. **Objective:** This study aimed to determine the relationship between sleep hygiene and insomnia in adults at Universitas Muhammadiyah Semarang. **Methods**: This study used an analytic observational design with a cross-sectional approach. Samples were taken using a total sampling technique, where all participating UNIMUS 5th semester undergraduate nursing adults were used as respondents. **Results**: The characteristics of respondents based on gender were 93.8% female and 6.3% male. Based on age, 75.0% were 20 years old, 15.6% were 19 years old, and 9.4% were 21 years old. A total of 32 respondents showed that the level of sleep hygiene was 18.8% moderate and the level of sleep hygiene was 81.3% good. The results showed that sleep hygiene had a mean value of 24.47 with a minimum value of 16 and a maximum value of 35. The analysis used the Spearman rank test with a p-value = 0.001 (<0.05). Based on the analysis using the Spearman rank test, a significant relationship exists between sleep hygiene and insomnia in S1 Nursing Science adults at Muhammadiyah University Semarang with a P-value of 0.001. **Conclusion**: There is a significant relationship between sleep hygiene and insomnia in undergraduate nursing adults. Sleep hygiene is needed to improve sleep quality in students. Good sleep quality will increase the spirit of learning.

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1. Introduction

Globally problems related to sleep needs continue to increase, especially among adults. Insomnia is the most common type of sleep disorder among adults. Based on data from the National Sleep Foundation (NSF) the recommended length of sleep for adults is at least 7 hours per day (1). Lack of adequate sleep can affect an individual's health, impair memory function and cognitive ability, and increase the risk and progression of various diseases (2). As much as 10% of the adult population suffers from insomnia symptoms and another 20% experience occasional insomnia symptoms (3). Insomnia can create academic pressure for students. Research by (4), stated that 27% of adult students from 17 studies in a meta-analysis including 13,247 students had sleep disorders. Insomnia can create academic pressure for students and adult. Low sleep duration and busy activities create stressors in academic achievement, resulting in irregular sleeping habits. Study found that 30% of the adult population from various countries have symptoms of insomnia, among college students insomnia is around 14.9% to 70.3% (5). An American study found that 13-year-olds lost 8.5 hours of sleep per night and 18-year-olds lost 7.3 hours of sleep per night. The American Academy of Sleep Medicine (AASM) and Sleep Research Society consensus recommends a minimum sleep duration of 9 hours for children aged 6-12 years, 8 hours for adolescents, and 7 hours for adults (6). Sleep is a basic need that is very important for the human body. Sleep needs can affect various biological activities that have a direct impact on quality of life and health (7). Poor sleep quality can lead to decreased physiological and psychological health. Lack of sleep can lead to problems such as emotional and social distress, impaired cognitive function, decreased academic/work performance, increased daytime sleepiness, and other consequences (8). Quality of life can affect physical and mental health.

Sleep is a physiological part of human life that is necessary for health and well-being. Sleep is also a natural condition that can be improved and controlled primarily by neurobiological processes (9). From a pathological perspective, sleep disturbances have been linked to increased stress, depression, anxiety and fatigue, all of which can increase the likelihood of insomnia. In addition, lack of sleep can also increase the risk of inflammation in the body and cause fatigue and stress (10). One of the most common sleep problems is insomnia. About 30% of the adult population worldwide experience insomnia, and about 10-13% of them experience this condition chronically (11). Insomnia is affected by factors such as longer sleep duration, wakefulness after sleep, sleep-disordered breathing, shorter sleep duration, and sleep fragmentation. Sleep disorders can also manifest as early morning awakenings, regardless of when one goes to bed, resulting in reduced productivity and concentration, irritability, risk of errors and accidents, and lower quality of life. Insomnia is a clinical condition characterized by difficulty maintaining sleep or falling asleep, as well as daytime fatigue and irritability (9). Based on the literature, poor sleep quality is very common among university students. Several epidemiological studies report that the prevalence of insomnia in this population ranges from 30% to 60%. In addition, complaints of poor sleep, difficulty falling asleep, and disrupted sleep patterns are also very commonly reported among college students (11). Sleep hygiene awareness refers to the knowledge or awareness of sleep hydration practices that an individual has. It was found that individuals with better sleep hygiene awareness tend to have regular sleep habits and report higher levels of sleep quality and sleep adequacy. On the other hand, individuals with poor sleep hygiene awareness are more prone to developing poor sleep behaviors, such as delayed bedtime and irregular routines, and are more prone to suffering from sleep and emotional disorders (12). Sleep hygiene can be defined as healthy sleep practices, which include lifestyle, environmental, and behavioral strategies. Improving sleep hygiene has been shown to improve sleep quality in various populations, including among students (13). College students often report psychological anxiety symptoms related to stressors from academic life, such as the desire to get high grades, complete projects or assignments, and master a lot of material in a limited amount of time, in addition to other life stressors and expectations for future careers. Students are individuals or groups of adults who have many activities at university. Students are prone to insomnia due to the pressure faced in the world of lectures. Fluctuating sleep duration affects the concentration of capturing material and student academic achievement. Psychological anxiety symptoms, such as overthinking, feeling restless, difficulty concentrating, feeling worried, and being hyper-vigilant, often lead to excessive worry and can develop into generalized anxiety disorder among college students. Sleep deprivation makes it difficult for college students to concentrate and go about their daily activities. As a result, they are at risk of developing pathological worry, which is one of the main symptoms of generalized anxiety disorder (14). Other factors that affect sleep hygiene are lifestyle and environment. Someone who has poor sleep hygiene will affect their performance or daily activities. Environmental factors that affect sleep hygiene are places to rest or sleep that are uncomfortable and have a tendency to disturb conditions when going to sleep. Too bright lights, noise, dirty surroundings, and odors play

a role in sleeplessness (15) . Adults may have difficulty sleeping due to the task load that requires them to sleep until late at night (16). In addition to academic pressure, several other things can cause students' sleep quality to be poor. One of the causes is knowledge and behavior regarding sleep hygiene which is related to well-being (17). College students are one of the most vulnerable groups to sleep hygiene practices because sleep deprivation due to lack of sleep care can also cause mood disorders, ability to learn, and ability to manage information. Sleep hygiene is a training method to create habits for better sleep, based on activities performed before bed. The component factors most often associated with sleep hygiene disruption are 51% in people who consume caffeine, 46% in alcohol consumption, 38% in smokers, 32% in stimulus control, and other variation components (18). Implementing good sleep hygiene can improve the duration and quality of human sleep (19). Improving sleep hygiene can be a safe, cheap, and accessible option.

Research by (18), stated that there are several measuring instruments of sleep hygiene, namely the Sleep Hygiene Index (SHI), Sleep Hygiene Self-Test (SHST), Sleep Hygiene Practice Scale (SHPS), Sleep Hygiene Awareness and Practice Scales (SHAPS). The screening method used in the study of insomnia incidence and sleep hygiene practices of adults of Universitas Muhammadiyah Semarang is in the form of the Insomnia Severity Index (ISI) and Sleep Hygiene Index (SHI). Based on the data described above, the researcher considers that there is a gap in sleep hygiene knowledge with insomnia. Therefore, researchers are interested in researching to prove whether there is a relationship between sleep hygiene and insomnia in 5th-semester undergraduate nursing adults at Universitas Muhammadiyah Semarang.

2. Methods

2.1 Study Design

The method used in the study was an analytic observational design with a cross-sectional approach. This study aimed to correlate sleep hygiene (independent variable) and the incidence of insomnia (dependent variable). Data was collected at one time on October 28, 2024.

2.2 Data Collection Procedure

This study's population was undergraduate Nursing Science students, class of 2022 Muhammadiyah University Semarang. Sampling was done using a total sampling technique. The inclusion criteria in the study were active students in semester 5 and aged 19-21 years. The exclusion criteria of this study are respondents who are not willing to participate in taking respondents. The number of respondents who were sampled and the population was 32 participants.

2.3 Analysis

The collected data were processed using the Statistical Package for the Social Sciences (SPSS) Windows version 26 program. Spearman rank was used to determine the correlation between sleep hygiene (independent variable) and insomnia (dependent variable). The analysis resulted in a significance value of p-value <0.05, which means there is a relationship between sleep hygiene and insomnia in undergraduate adults of Nursing Science, Universitas Muhammadiyah Semarang.

3. Results

3.1 Univariant Analysis

Based on the results of data collection, researchers obtained a total of 32 respondents in the study entitled "The Relationship Between Sleep Hygiene With Insomnia In Undergraduate Adults of Nursing Science, Muhammadiyah University of Semarang".

Table 1. Distribution of respondent characteristics based on gender and age

Characteristics	Frequency (n=32)	Percentage (%)
Gender		
- Male	2	6,3
- Female	30	93,8
Age		
- 19	5	15,6
- 20	24	75.0
- 21	3	9,4

The results of the analysis in Table 1 show that the characteristics of respondents based on gender are 93.8% female and 6.3% male. Then based on age, most of 75.0% were 20 years old, 15.6% were 19 years old, and 9.4% were 21 years old.

Table 2. Frequency distribution of sleep hygiene in undergraduate nursing students

Categories	Frequency (n=32)	Percentage (%)
Good	26	81,3
Mild	6	18,8
Poor	0	0
Total	32	100

The results of the analysis of 32 respondents showed that the level of sleep hygiene was 18.8% moderate (total score 31-48) and the level of sleep hygiene was 81.3% good (total score 0-30).

Table 3. Frequency Distribution of Insomnia in S1 Nursing Science Students

Categories	Frequency (n=32)	Percentage (%)
Not insomnia	8	25,0
Mild insomnia	18	56,3
Moderate insomnia	6	18,8
Severe insomnia	0	0
Total	32	100

The results of the analysis of 32 respondents showed 18.8% moderate insomnia (total score 15-21), 56.3% mild insomnia (total score 8-14), and 25% no insomnia (total score 0-7).

Table 4. Mean scores of sleep hygiene and insomnia of undergraduate nursing students

	Mean	Median	SD	Minimum-Maximum
Sleep Hygiene	24,47	23,50	5,340	16-35
Insomnia	10,28	10,00	4,901	0-20

Based on the average distribution in undergraduate nursing students, it shows the interpretation of most questions on the use of beds for activities other than sleep (such as eating, reading, studying, watching television, etc.). Meanwhile, the incidence of insomnia has a mean value of 10.28 with a minimum value of 0 and a maximum of 20. Based on the average distribution in undergraduate nursing students, it shows that the interpretation of most questions on sleep problems affects daily life (such as drowsiness during the day, feelings, ability to do daily work or homework, and concentration).

3.2 Bivariate Analysis

Bivariate analysis was conducted to determine whether there was a relationship between sleep hygiene (independent variable) and insomnia (dependent variable).

Table 5. Spearman correlation test of sleep hygiene with insomnia of undergraduate nursing students of Universitas Muhammadiyah Semarang.

		Sleep Hygiene	Insomnia
Sleep Hygiene	Spearman Correlation	1	0,540
	Sig. (2-tailed)		0,001
Insomnia	Spearman Correlation	0,540	1
	Sig. (2-tailed)	0,001	

Based on the analysis using the Spearman rank test, there is a significant relationship between sleep hygiene and insomnia in undergraduate nursing adults at Muhammadiyah University Semarang. The P value obtained is 0.001 which indicates alpha significance (<0.05). The correlation coefficient (rs) of 0.540 makes H0 rejected and Ha accepted. The analysis states that the strength of the correlation is strong and the direction of the correlation is positive.

4. Discussion

Most of the respondents in the study were 93.8% female and 6.3% male with an age range of 20 years (75.0%), 19 years (15.6%), and 21 years (9.4%). The age range shows the age of respondents of S1 Nursing Science students at Muhammadiyah University Semarang. The number of female respondents is more than male because most of the undergraduate nursing majors at UNIMUS are predominantly female. The results of this study showed that the level of sleep hygiene was 18.8% moderate and 81.3% good. Environment, health status, lifestyle, diet, and academic stress are some of the factors that affect sleep quality. The environment where adult students live affects the quality of sleep of students, the more crowded the environment, and the more crowded the environment. Boredom, noise, fear, light, temperature, and discomfort present in the environment can affect the sleep patterns of most adults (20). Therefore, these factors can affect the state of student sleep hygiene.

A minimum of 7 hours/day of good sleep is required to support brain performance in daily activities. The practice of sleep hygiene is related to the modification of sleep behaviors and habits, which is an effective treatment for improving sleep quality. The inability to meet the needs of sleep quality and quantity is known as insomnia. The results of the analysis showed that undergraduate nursing students in the class of 2022 experienced 18.8% moderate insomnia, 56.3% mild insomnia, and 25% no insomnia.

Based on research (21) shows that there is a significant relationship between the p value of sleep hygiene index (p=0.113 < 0.05) and the p value of insomnia severity index (p=0.026 < 0.05). The test was conducted using the Kolgomorov test which was attended by 582 respondents with the results of the insomnia severity index (ISI) examination 15.8% of students reported mild clinical insomnia, and only 1.5% reported severe clinical symptoms of insomnia. Meanwhile, according to research (11) which was attended by 2200 students showed significance in the relationship between sleep hygiene index (SHI) and sleep quality, namely p = 0.083 using the multiple regressive analysis test. Therefore, these studies are in line with this research.

This study has gone through a normality test with a sampling of <50 respondents using the Shapiro-Wilk test. The test resulted in insomnia at 0.675 (>0.05) and sleep hygiene at 0.201 (<0.05). This research method includes new tests conducted by researchers using non-parametric tests because the results of sleep hygiene can affect the incidence of insomnia in students at Semarang Muhammadiyah University.

5. Conclusion

Based on the data from the research conducted at Universitas Muhammadiyah Semarang, it was concluded that there was a relationship between sleep hygiene and the incidence of insomnia in nursing students at

Universitas Muhammadiyah Semarang. The results of this study can be used as a reference, that sleep hygiene is needed to improve sleep quality in students. Good sleep quality will have an impact on increasing the spirit of learning. Further research is expected to explore the relationship between sleep quality and concentration and student achievement at various universities.

Ethical Considerations

Compliance with ethical guidelines

This research has passed the review process at the ethics committee of Universitas Muhammadiyah Semarang.

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Authors' contributions

Conceptualization and supervision: Mahmudah Rahma At Amah and Satriya Pranata; Methodology: Mahmudah Rahma At Amah, Ambita Albaba Zedda, Zakiya Mawar Anggraini, and Aini Fajriatul Ulya; Investigation, writing original draft, review and editing: Mahmudah Rahma At Amah, Ambita Albaba Zedda, Zakiya Mawar Anggraini, Aini Fajriatul Ulya, and Satriya Pranata.

Conflict of interest

The authors declared no conflict of interest.

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