CORRELATION BETWEEN SLEEP HYGIENE AND SLEEP QUALITY AMONG PATIENTS WITH CORONARY HEART DISEASE

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Abstract

Introduction: *Patients with coronary heart disease (CHD) often experience disturbances in quality and quantity of sleep. One of the efforts to improve the sleep quality of CHD patients is sleeping cycle management, such as sleep hygiene. This study aims to analyze the relationship between sleep hygiene and sleep quality in patients with coronary heart disease.*
Methods: *This study used the correlation analytic method with a cross-sectional approach. As many as 72 respondents were involved and selected using purposive sampling technique based on inclusion criteria. The instruments used to collect data were the Sleep Hygiene Index (SHI) and Pittsburgh Sleep Quality Index (PSQI (Pittsburgh Sleep Quality Index) questionnaires, and have been tested for validity and reliability. Data analysis used for statistical analysis was the Spearman test.*
Results: *Demographic data depict that most respondents are in the average age 45-60 years (79.2%) and more than half of respondents were men (69.4%). Data sleep hygiene showed that good was (31.9%) and moderate was (52.8%). Furthermore, sleep quality in patients with cardiovascular disease was mostly poor (63.9%). Analysis of the correlation between sleep hygiene and sleep quality in patients with coronary heart disease showed a significant relationship with a p-value of 0.000 and a coefficient of 0.793. This implies that the two variables have a strong relationship.*
Conclusions: *Sleep hygiene is a non-pharmacological solution for patients with cardiovascular diseases who have sleep disturbance problems. Implementing sleep hygiene practices can improve the quality of sleep of patients and optimally improve health.*
Keywords: *coronary heart disease, sleep hygiene, sleep quality*

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INTRODUCTION

Coronary Heart Disease (CHD) is the leading cause of death worldwide (Naomi, Picauly, & Toy, 2021). The Baseline Health Research (Riskesdas) reported 1.5% of population in Indonesia have heart disease (Riskesdas, 2018). Coronary artery blockage can result in clinical symptoms such as chest pain, shortness of breath, and fatigue. These symptoms can cause disturbances in both sleep quality and quantity in patients with coronary heart disease, and the impact is exacerbated when associated with acute coronary events (Madsen et al., 2019). Frøjd et al. (2021) found that coronary heart disease outpatients frequently have insomnia. The findings of the study revealed that sleep problems in patients with CHD who had undergone heart surgery could last up to six months after they were discharged from the hospital.

Poor sleep quality and impaired health function can exacerbate disease progression in CHD patients for several months (Shen et al., 2021). Poor sleep quality was associated with an unfavorable clinical prognosis in a 5-year longitudinal study of CHD patients, including an increased risk of myocardial infarction, cardiac hospitalization, and death (Shen et al., 2021). A recent cohort study of 400.000 Taiwanese adults found that sleeping less than four hours increased the risk of CHD by 34%, while sleeping more than eight hours increased the risk of dying from CHD by 35% (Madsen et al., 2019).

Creating various pharmacological and non-pharmacological efforts can improve the sleep quality of CHD patients. Sleep hygiene is one of the non-pharmacological efforts of sleep cycle management therapy (Dewi, 2017). Sleep hygiene is an exercise or habit that can impact one's sleep. Sleep hygiene refers to sleep-related behaviors, environmental conditions, and other factors that can be altered as primary or secondary therapy to treat insomnia (Arifah, Murhayati and L, 2020).

The goal of sleep hygiene is to optimize conditions before bed, such as avoiding the use of mobile phones, not watching television in the bedroom, not consuming caffeine-containing drinks, and maintaining a suitable temperature and lighting to sleep following sleep hygiene recommendations (Fitria, Permana and Yuniarti, 2018). Many studies have developed guidelines and tips to improve sleep quality.

Sleep hygiene strategy is one of the strategies that can provide long-term solutions to sleep problems (CCI, 2015). A preliminary study from one of the public hospitals in Pekanbaru found that 9 out of 10 patients had poor sleep quality. Six patients had moderate to good sleep hygiene, while four had poor sleep hygiene. Therefore, this study aimed to investigate a correlation between sleep hygiene and sleep quality in patients with coronary heart disease.

METHODS

Study design

This study employed a quantitative descriptive study design with a cross-sectional approach.

Population, samples, and sampling

The population of this study was patients with coronary heart disease at one of the public hospitals in Pekanbaru. There were 72 samples involved who were selected using the purposive sampling technique, and all samples were patients who visited the cardiovascular outpatient

ward from July to August 2022. The inclusion criteria: are 1) patients diagnosed with coronary heart disease for at least one month, 2) ages up to 60 years old

Instruments

There were three types of questionnaires used to collect data: 1) the characteristic questionnaire (age, gender), 2) the Sleep Hygiene Index (SHI) questionnaire, and 3) Pittsburgh Sleep Quality Index (PSQI) questionnaire. SHI and PQSI are standardized questionnaires tested for validity and reliability. SHI consists of 13 questions containing three components: sleep behavior, activity before bedtime, and sleep environment. PQSI consists of seven components: sleep latency, duration, subjective sleep quality, sleep efficiency, sleep disturbances, use of the pill for sleep, and the disturbance of body functions during the day.

Procedure

Once ethical clearance was granted and research permission from the hospital was granted, the researcher visited the respondents one by one directly at the cardiovascular outpatient ward. The researcher explained the study information and gave informed consent sheet to get consent as respondents. There are three questionnaires that respondents must fill out. If the respondent is willing, the researcher will first provide the questionnaire of characteristics of the respondent to look for inclusion criteria. If the inclusion criteria are already fulfilled, respondents will be given a sleep hygiene and sleep quality questionnaire. In the process of filling out the questionnaire, respondents will be accompanied by researchers. Respondents need about 10-15 minutes to complete all the questionnaires. Researchers continued to collect data until the number of samples was fulfilled for ten days. After that, the data were checked and scored to obtain sleep hygiene and sleep quality data. The information obtained was analyzed using SPSS.

Data analysis

Data were analyzed using descriptive statistics for respondents' characteristics, and the correlation between sleep hygiene and sleep quality was analyzed using the correlation test, the Spearman Rho test.

Ethical clearance

This study has received ethical approval from the Ethic Committee of Health Research and Nursing, Faculty of Nursing, Universitas Riau, with certificate No. 418/UN.19.5.1.8/KEPK.FKp/2022.

RESULTS

Table 1 depicts the results of characteristics of the respondents in the frequency distribution. The majority of respondents were 57 years old (79.2%). Most respondents were men, 50 people

Table 1. Characteristics respondents, sleep hygiene, and sleep quality (n=72)

Characteristics, sleep hygiene, and sleep quality respondents	n	%
Age (year)		
15 - 24	1	1.4
25 – 44	14	19.4
45 – 60	57	79.2
Gender		
Men	50	69.4
Women	22	30.6
Sleep Hygiene		
Good	23	31.9
Moderate	38	52.8
Poor	11	15.3
Sleep Quality		
Good	26	36.1
Poor	46	63.9

(69.4%) while women were 22 people (30.6%).

Table 2 shows that, from 72 respondents, the majority had moderate sleep hygiene 52.8% (38 people). Respondents who had good sleep hygiene were 23 people (31.9%), and respondents with poor sleep hygiene were 15.3%.

Table 3 shows that, of 72 respondents, the majority had poor sleep quality, 46 (63.9%) people, and 26 (36.1%) had good sleep quality.

From the table it can be seen that correlation analysis with the Spearman Rho statistical test obtained a p-value of 0.000. It means that there is a significant relationship between sleep hygiene and sleep quality of patients with coronary heart disease. The correlation coefficient is 0.793, which indicates strong relationship between the two variables

DISCUSSION

Patients with cardiovascular disease may experience sleep disturbance, which causes poor sleep quality. A non-pharmacological effort can improve the sleep quality of patients with cardiovascular problems. Sleep hygiene is one of the non-pharmacological strategies that can provide long-term solutions to sleep problems (CCI, 2015). According to this study result, most respondents had moderate sleep hygiene practices. This condition can happen because most respondents were in the early elderly stage. This age stage may influence sleep hygiene consciousness. A study found that older people had better sleep hygiene consciousness than younger people. However, better sleep hygiene consciousness does not mean somebody has better sleep quality (Voinescu and Szentagotai-Tatar, 2015). In addition, in order to have good sleep hygiene, behavior, environment, and activities before bed are essential to take into account for all patients. Implementing these three sleep hygiene components thoroughly and consistently establishes a pattern of sleep hygiene (Damanik, Fauza and Achmad, 2022). Therefore, the finding of this study is in line with the previous study found that older patients did not always have better sleep hygiene practices.

Regarding the sleep pattern of respondents in this study vary. Some respondents find it challenging to start to sleep. They do activities before going to sleep, such as using their gadget, reading a book, and watching television; all these activities keep them awake. A study conducted by Putri and Listrikawati (2020) found that patients with coronary heart disease may have experienced disturbed sleep patterns. It is due to having difficulty starting to sleep, frequently having a nap

Table 1. Characteristics respondents, sleep hygiene, and sleep quality (n=72)

			Sleep Hygiene	Sleep Quality
Spearman's Rho	Sleep Hygiene	Correlation coefficient	1.000	0.793
		Sig. (2-tailed)		0.000
		N	72	72
	Sleep Quality	Correlation coefficient	0.793	1.000
		Sig. (2-tailed)	0.000	
		N	72	72

for more than two hours, and room environments such as the lighting, noise, and temperature are not convenient.

This study finding depicts that men mostly had poor sleep quality than women due to having poor sleep hygiene. According to Yazdi et al. (2016), men had worse sleep hygiene than women. Smoking, eating, and doing highly physical activity close to bedtime are often found, and this habit could be why poor sleep quality mostly happens to men. Patients with coronary heart disease usually find symptoms such as chest pain, shortness of breath, feeling fatigued, and difficulty performing daily activities due to physical limitations. These symptoms result from cardiovascular disease that can contribute to poor sleep quality (Shen et al., 2021).

Moreover, short sleep and long sleep also cause poor sleep quality. This study found that, out of 10 respondents, six (60%) required more than 30 minutes before they were ready to fall asleep. This happens because they had to change positions to reduce the feeling of a heavy chest when lying down. According to Mubarak, Indrawati and Susanto (2015), a person's health which causes pain or other physical distress will disrupt the process of falling asleep. Other factors that affect sleep quality include drugs which cause urination frequently at night and interfere with sleep (Sari, Hasymi and Yuseva, 2019).

In terms of the correlation between sleep hygiene and sleep quality in patients with coronary heart disease, it was revealed that there is a significant relationship between these two variables. This study found that a positive relationship indicates strong cohesion. A previous study suggests that nursing interventions to increase sleep have resulted in decent outcomes in overcoming the issue of sleep disorders in heart failure patients. Sleep improvement interventions included identifying factors that interfere with sleep, reviewing the use of drugs that affect sleep, and recognizing sleep patterns, sleep environment, and activities before bedtime (Purwanto et al., 2022). According to Cho, Kim and Lee (2013), poor sleep quality correlates positively with pain-related anxiety and irregular wake-sleep schedules. Poor sleep patterns and poor sleep habits will significantly impact sleep hygiene and poor sleep quality. Consumption of certain stimulants like caffeine and excessive electronics usage will hinder patients from getting sufficient sleep quality (Wei, Duan and Guo, 2022).

Thus, Vertysia (2017) suggests that having good daily sleep hygiene can improve sleep satisfaction and quality. Education relates to how managing bedtime, maintaining a comfortable sleeping environment, and avoiding bad habits in bed, are essential for patients. However, this study cannot control other variables that could affect sleep quality. This study simply focuses on how respondents answer each question based on their perceptions. It is considered as a limitation of this study.

CONCLUSIONS

A non-pharmacological effort can improve the sleep quality of CHD patients. Sleep hygiene is one of the non-pharmacological efforts of sleep cycle management therapy. The findings of this study found that there is a significant relationship between sleep hygiene and the sleep quality of patients with coronary heart disease. Therefore, implementing sleep hygiene practices can improve the quality of sleep for patients and can

maintain optimal health.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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