

Original Research

The Relationship of Sleep Quality to Nurses' Response Time

Anata Resti Kolopita^{1*}, Juritno Harmi Gaib², Gita Sandy Patonengan³^{1,2,3}Faculty of Health Sciences Graha Medika Institute of Health and Technology, Kotamobagu, Indonesia

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Anata Resti Kolopita
Faculty of Health
Sciences Graha
Medika Institute of
Health and Technology
Email:
restianata123@gmail.com**Abstract****Background:** Emergency services involve rapid assessment, stabilization, and treatment of life-threatening conditions that require immediate attention. Recent studies highlight alarming increases in hospital mortality, particularly in the Emergency Department (ED), with the main causes including severe brain injury, meningitis, heart disease, trauma, kidney disease, and sepsis. Factors such as response time significantly affect patient outcomes.**Objective:** The purpose of this study is to determine the relationship between sleep quality and nurse response time**Methods:** This study adopts a cross-sectional descriptive analytical approach.**Results:** It was found that there was a relationship between sleep quality and response time of nurses in emergency rooms.**Conclusion:** Based on the results of statistical analysis, it is obtained with a value value $p = 0.003$ where 0.003 is smaller than the value of $\alpha = 0.05$ thus, it can be said that H_a is accepted and H_0 is rejected.**Keywords:** Sleep quality, Response Time, Emergency Installation, Nurse

Introduction

Emergency services include evaluation, stabilization, and emergency care for patients with conditions that can be life-threatening or cause disability if not treated quickly (Halim, A. R., & Siregar, F, 2023). The handling of this case is influenced by many factors, one of which is response time (Kao MY, 2022).

Response time is one of the quality indicators to measure the performance of emergency services in the emergency room. This does not only apply in Indonesia. For example, in Ireland, response time is also the main performance indicator for health workers in performing emergency services in the emergency room known as Key Performance Indicators / KPIs for health workers in performing emergency services in the emergency room (Fitri Nur, 2021). Response time is the speed at which health workers handle patients, which is calculated from the moment the patient arrives to receiving treatment in less than five minutes. Health workers on duty in the emergency room are required to have dexterity, skills, and preparedness at all times as well as precision in providing services to meet the existing response time standards. Health workers in the emergency room are health workers consisting of doctors, dentists, nurses, midwives, other medical personnel, and non-medical personnel who have received emergency handling training (Fajri N et.al, 2020). Health workers who are in charge of serving 24 hours in the emergency room must be ready to deal with patients who come to the emergency room because the situation, condition, and number of patients who will come to the emergency room cannot be predicted (Kao MY, 2022).

Sleep quality is a state where a person maintains sleep until he feels relaxed the next day. Sleep quality is a complex phenomenon and involves domains including subjective sleep quality, sleep latency, sleep duration, sleep disorders, sleep habit efficiency, sleep drug use, and sleep dysfunction during the day. Sleep is a state in which a person is unconscious, sleepy and their perception and reaction to the environment decreases or disappears. However, with enough stimulation, people can be reawakened. It was later said that sleep is an active process rather than just reducing certain impulses. The synchronization of the ventral part of the reticular substance medulla oblongata is an active process (Firman, 2022). The central nervous system, peripheral nerves, cardiovascular endocrine, and musculoskeletal respiration are involved in cerebral mechanisms that alternately activate and suppress the brain center during sleep. This arrangement is known as sleep physiology. The Reticular Activating System (RAS) and the Regional Bulbar Synchronizing System (BSR) in the brainstem function to regulate cycles or changes in sleep. The Reticular Activation System (SAR) is located in the upper brainstem, and is believed to be made up of cells that remain awake and conscious. Tactile, tactile, and visual stimuli are received by the SAR. Brain cortex activity (such as emotional processes or thoughts) also increases

SAR. A prolonged state of sleep or alertness is often associated with progressive thought process disruptions and can sometimes lead to unusual behavioral activities (Anggreani IN, 2020).

Decreased sleep quality can occur if one of these domains is disrupted. Sleep time for adults is seven hours per day, while for children and adolescents they need more sleep than adults. Decreased sleep quality has been shown to affect a person's daily activities. For example, a person will tend to be sleepy or fall asleep during normal hours of human activity such as in the morning or noon. If this happens to health workers in the emergency room, it may affect the speed and accuracy of the response time of health workers while on duty in the emergency room (Miftahul Hidayah, 2022). Research conducted by Chen in 2020 found that sleep quality has a significant impact on nurses' job performance. This study shows that nurses who have poor sleep quality tend to have worse reaction times and work performance. Based on the above background, the researcher is interested in researching the Effect of Sleep Quality with Response Time of nurses.

Methods

Study Design

This study adopts a cross-sectional descriptive analytical approach.

Samples/Participants

Sampling used a total sampling with a sample of 30 samples.

Instruments

In this study, the researcher used a questionnaire that had been used by previous researchers, namely Farida Rohmawati (2018) with the research title The Relationship between Sleep Hygiene and Physical Fatigue with the Fulfillment of Sleep Needs used in the research on sleep quality will be measured using the Sleep Hygiene Index (SHI) questionnaire. The SHI questionnaire consists of 2 components describing sleep behavior and environment, consisting of 13 questions using the Likert scale. It consists of 5 answer choices, namely never with a score of 1, rarely with a score of 2, sometimes with a score of 3, often with a score of 4, always with a score of 5. From the results of the answers, 3 possibilities will be produced with the score categories 13-27 (good), 28-40 (medium), 41-75 (bad). As for the Response Time, health workers were measured by the researcher using a mobile phone stopwatch from the results of observing the time of the patient's journey to the emergency room until the health service was carried out. If ≤ 5 minutes is fast and > 5 minutes is considered slow.

Data Collection

The data collection process in this study is by total sampling technique, by providing a questionnaire that has been provided.

Data Analysis

The type of statistical test used in this study is the chi-square statistical test to determine the relationship between independent variables and dependent variables using SPSS.

Ethical Considerations

Based on the results of the reviewer of the Health Research Ethics Commission of the Graha Medika Institute of Health and Technology, Kotamobagu provided approval and ethical recommendations for research submissions.

Results

Univariate Analysis Results

Respondent Characteristics

Age

Based on the age distribution table 1, it can be seen that respondents have the highest frequency of age, namely between the ages of 28-35 years as many as 24 respondents (80.0%).

Table 1 Frequency Distribution of Respondents by Respondent Age

Age	Frequency	Present (%)
28-35	24	80.0
36-40	6	20.0
Total	30	100.00

Source : SPSS Processed Data 2024

Gender

Based on the gender distribution table 2, it can be seen that respondents have the highest frequency of gender, namely women as many as 17 respondents (56.7%).

Table 2 Frequency Distribution of Respondents by Gender

Gender	Frequency	Present (%)
Man	13	43.3
Woman	17	56.7
Total	30	100.00

Source : SPSS Processed Data 2024

Final Education

Based on the latest education distribution table 3, it can be seen that respondents with the last education of Ners and DIII have the same frequency, namely 14 respondents (46.7%).

Table 3 Frequency Distribution of Respondents by Last Education

Final education	Frequency	Presentation (%)
Ners	14	46.7
DIII	14	46.7
S1	2	6.7
Total	30	100.00

Source : SPSS Processed Data 2024

Tenure

Based on the distribution table 4 of the working period, it can be seen that respondents have the highest frequency of working period, which is ≤ 5 as many as 20 respondents (66.7%).

Table 4 Frequency Distribution of Respondents by Length of Service

Tenure	Frequency	Presentation (%)
≤ 5 Years	20	66.7
> 5 Years	10	33.3
Total	30	100.0

Source : SPSS Processed Data 2024

Sleep Quality

Based on the sleep quality distribution table 5, it can be seen that respondents have the highest frequency of sleep quality, which is good as many as 18 respondents (60.0%).

Table 5 Distribution of Respondent Frequency by Sleep Quality

Sleep Quality	Frequency	Presentation (%)
Good	18	60.0
Keep	7	23.3
Bad	5	16.7
Total	30	100.0

Source : SPSS Processed Data 2024

Response Time

Based on the response time distribution table 6, it can be seen that respondents have the highest frequency of response time, which is fast, as many as 26 respondents (86.7%).

Table 6 Frequency Distribution of Respondents by Response Time

Response Time	Frequency	Presentation (%)
Fast	26	86.7
Slow	4	13.3
Total	30	100.0

Source : SPSS Processed Data 2024

Bivariate Analysis

Based on table 7 above, the tabulation of the relationship between nurses' knowledge about sleep quality and *nurses' response time* found that out of 30 respondents had sleep quality with a fast response time, 17 respondents (56.7%). Then the quality of sleep was moderate with a fast response time of 7 respondents (23.3%). Meanwhile, sleep quality was poor with slow response time for 3 respondents (10.0%).

Table 7 Relationship of Sleep Quality to Nurses' Response Time

Quality of sleep	Response time				Total		p-value
	Fast		Slow		n	%	
	n	%	n	%			
Good	17	56.7	1	3.3	18	60.0	0,003
Keep	7	23.3	0	0.0	7	23.3	
Bad	2	6.7	3	10.0	5	16.7	
Total	26	86.7	4	13.3	30	100.0	

Source : SPSS Processed Data 2024

Discussion

The results of this study are in line with this study conducted by Azizah (2022) at the Emergency Installation of Cut Meuntia Hospital, the results of nurses who have good sleep quality of 62.5% were obtained. and nurses who had poor sleep quality by 34.4%. Based on the results, Chi-Square showed that there was a relationship between sleep quality and nurses' response time.

The results of a study conducted by Muslimah (2022) on the relationship between sleep quality and nurses' response time in the Crash Room of Dr. Rasidin Padang Hospital found that there was a significant relationship between sleep quality and nurses' response time. Emita's research (2023) shows that nurses who experience sleep disorders or poor quality sleep tend to have slow response times to patient needs. The Chi-Square test is used to test the relationship between sleep quality (good and poor) and response time (fast and slow) and show a significant relationship. The Chi-Square test showed a $p < 0.004$ which showed a significant relationship.

Sleep quality is the level of effectiveness of a person's sleep in meeting the body's biological needs and restoring energy. Good sleep quality is associated with physical and mental health, while poor sleep quality can have an impact on cognitive and emotional disorders.

The researcher assumed that nurses who had good sleep quality but had slow response times because the respondents were 40 years old. At age 40, although not quite old, the speed of cognitive processing begins to decrease slightly as part of the normal aging process. This doesn't necessarily affect the overall quality of work, but it can lead to slower response times compared to younger individuals. For respondents who have poor sleep quality but have a fast response time due to high work pressure in the medical environment can trigger the activation of the sympathetic nervous system, resulting in high alertness and reactivity even though the body is tired. According to researchers, the quality of sleep in nurses will be closely related to response time. The better the level of sleep quality, the better the nurse's response time. The results of the study received a significant value of 0.003 (sig.0.05), which means that there is a significant relationship between sleep quality and nurses' response time. The limitation of the researcher's research is that when distributing the questionnaire, because nurses in the emergency room have many actions to do, therefore the researcher must wait for the right time to give the questionnaire to the nurse

Conclusion

Based on the results of the Chi-Square test, it can be concluded that there is a relationship between sleep quality and nurse response time with a significant value of 0.003 (sig.0.05). To the next researcher, it is hoped that the results of the research obtained from this study can provide information for future researchers who want to conduct research related to the relationship between sleep quality and nurse response time.

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