

ORIGINAL ARTICLE

## Association Between Sleep Quality and Physical Fitness Among Practical and Non-Practical Anesthesiology Nursing Students at Aisyiyah University Yogyakarta

<sup>1</sup> Ricyta Islami Fasya \*, <sup>2</sup> Astika Nur Rohmah , <sup>3</sup> Triyas Singgih Pambudi

<sup>1</sup> Aisyiyah University Yogyakarta, Indonesia

<sup>2</sup> Aisyiyah University Yogyakarta, Indonesia

<sup>3</sup> Aisyiyah University Yogyakarta, Indonesia

\* Corresponding Author: ricytaislami02@gmail.com

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### ABSTRACT

**Introduction:** Internship and non-internship students have different levels of busyness, internship students are busier than non-internship students, thus disrupting their sleep quality and physical fitness levels. In Indonesia, the prevalence of sleep disorders varies by age group, with sleep deprivation (<7 hours per night) reaching 64.7% in adolescents, around 38% of adolescents in urban areas and 37.7% in suburban areas of Indonesia experiencing sleep disorders. **Objectives:** To determine the relationship between sleep quality and physical fitness levels in internship and non-internship nursing students of Universitas Aisyiyah Yogyakarta. **Methods:** Quantitative research method with correlational analysis method through cross-sectional approach. The sample in this study amounted to 128 respondents, categorized as 64 internship anesthesiology nursing students and 64 non-internship anesthesiology nursing students, with simple random sampling technique by random method (drawing). **Results:** The results of the Spearman Rank test showed that sleep quality and physical fitness levels had a significant relationship with a p-value of 0.000 ( $p < 0.05$ ). The relationship between sleep quality and physical fitness levels in Anesthesiology Nursing Practice Students in the moderate category and Non-Practice in the strong category of Aisyiyah University with a positive (unidirectional) relationship. **Conclusions:** There is a significant relationship between sleep quality and physical fitness levels in Anesthesiology Nursing Practice and Non-Practice Students of Aisyiyah University Yogyakarta.

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### A. Introduction

When a person is physically fit, they can go about their daily lives without getting tired and with enough energy. What makes a person physically fit is how well they can carry out tasks and obligations in their daily lives (Hanief, 2018). Whether or not a person is physically healthy depends on the person doing the exercise. Individuals progress towards their fitness goals through participation in sports that challenge them physically and mentally. When a person is physically fit, they can do routines without getting tired and have the stamina to do unexpected things when they want to have fun (Nurohman, 2020).

Both internal and external factors have the potential to affect a person's level of physical fitness. Factors that are already present within a person's body are known as internal factors, and these include things like age, gender, and genetics. On the other hand, factors that are

influenced by environmental influences include things like diet, exercise, smoking, and sleep (Anggraini, 2017). Good physical fitness is also necessary to carry out daily tasks well. Many variables can affect a person's level of physical fitness, including sleep quality and other healthy lifestyle choices (Gunarsa & Wibowo, 2021).

Cardiorespiratory endurance is influenced by physical fitness and sleep quality. One of the metrics that accurately characterizes a person's level of physical fitness is cardiorespiratory endurance. Therefore, a person's sleep quality is thought to be influenced by cardiorespiratory fitness or also known as cardiovascular endurance (Wibowo *et al*., 2022). At productive ages, everyone is susceptible to sleep disorders, but students are especially vulnerable. Estimates show that the prevalence of sleep disorders in the overall population is between fifteen percent and thirty-five percent. Students, young adults, and those with sleep disorders often have difficulty getting the recommended amount of sleep each night (Haryati, Siti Patma Yunaningsi, 2020).

Many things happen in student groups. Academic stress, along with bad habits such as excessive TV watching, excessive internet use, and smoking and alcohol use, can disrupt students' circadian rhythms, the biological cycle that controls when they should wake up and when they should sleep (Aulia & Nuraeni, 2019). Students are usually considered to be in early adulthood or late adolescence, which can range from 18-21 years to 25 years, depending on the definition and context. Knowledge, skills, and professionalism on the part of students are very important, and they must be prepared to face psychological changes (Wibowo *et al*., 2022). Based on the Regulation of the Minister of Education and Culture Number 50 of 2020 discussing Field Work Practices. Field work practice or clinical practice is an introductory stage for students in implementing theories from campus into direct patient care practices (Aisyah & Nadira, 2024).

Anesthesiology Nursing students at Universitas 'Aisyiyah Yogyakarta are divided into students who have not yet practiced clinically (non-practice) and students who have already carried out clinical practice. Students who have not yet carried out clinical practice are students in the early semesters 1 and 3 who are just studying basic nursing theories. Students who have already carried out clinical practice are students in semesters 4 and 6 who have studied theories and practices of anesthesia lab skills so that these students can apply theory and integrate their knowledge and skills to patients (Tiwaken *et al*., 2015). Based on this explanation, the higher the level of students, the higher the level of busyness of the students, so students must have good quality sleep and physical fitness.

Sleep quality and physical fitness are two important factors that are interrelated in maintaining student health and performance. Anesthesia Nursing students who are involved in clinical practice tend to have a busier schedule and experience higher levels of stress than Anesthesia Nursing students who have not yet done clinical practice (Aisyah Nur Azizah, 2024). This condition can disrupt students' sleep patterns and can reduce physical fitness. On the other hand, Anesthesia Nursing students who have not yet done clinical practice may have more opportunities to rest and exercise, but they are still at risk of experiencing poor sleep quality due to other factors such as academic pressure and technology use (Nurohman, 2020). Based on the background above, it is deemed necessary to conduct further research on "The Relationship between Sleep Quality and Physical Fitness Levels in Practical and Non-Practical Anesthesiology Nursing Students at 'Aisyiyah University of Yogyakarta"

## B. Method

*correlational* research design is a non-experimental research method that measures two variables, with a *cross-sectional approach*, namely a research design where measurements are

carried out at one time (Sugiyono, 2023) . The population of this study was 64 Practical Anesthesiology Nursing students and 64 Non-Practical students. So that the total sample is 128 students of the 2022 and 2023 intake of Anesthesiology Nursing, Universitas 'Aisyiyah Yogyakarta. In this study, a simple random sampling type was used for sampling. The test conducted in this study used the spearman rank test to measure the relationship between sleep quality and physical fitness levels in Practical and Non-Practical Anesthesiology Nursing students.

### C. Results and Discussion

The results of this study determine the relationship between sleep quality and physical fitness levels in practical and non-practical anesthesiology nursing students using the *Spearman rank statistical test* with the provision that sleep quality and physical fitness levels are said to have a significant relationship if the *p value is <0.05* (Sugiyono, 2023) .

#### **The relationship between sleep quality and physical fitness levels in practical anesthesiology nursing students**

Table 1 Analysis of the Relationship between Sleep Quality and Physical Fitness Level in Practical Anesthesiology Nursing Students

Sleep Quality	Physical Fitness Level						Total			P-value	Correlation coefficient
	Very well	Good	Enough	Not enough	Less than once	Amount					
	F	%	F	%	F	%	F	%	F	%	
Good	0	0.0	13	100	0	0.0	0	0.0	0	0.0	13 100.0
Enough	0	0.0	26	55.3	20	42.5	1	2.13	0	0.0	47 100.0
Bad	0	0.0	0	0.0	0	0.0	3	75	1	25	4 100.0
Total	0	0.0	39	60.9	20	31.3	4	6.25	1	1.56	64 100.0

Source: Primary Data (2025).

Table 1 above shows the results of the analysis of the relationship between sleep quality and the level of physical fitness of practicing anesthesiology nursing students. The results of the statistical test using the *Spearman rank test* obtained a *p-value of 0.000* (*p <0.05*) which means that there is a significant relationship between sleep quality and the level of physical fitness during practice in Practicing Anesthesiology Nursing Students at Universitas 'Aisyiyah Yogyakarta. The *correlation coefficient value* obtained was 0.544 which means that the closeness of the relationship is moderate and the direction of the relationship is positive. The positive relationship between sleep quality and the level of physical fitness in practicing students shows that the direction of the relationship between these two variables is in the same direction, meaning that the higher the level of sleep quality, the higher the level of physical fitness in practicing anesthesiology nursing students and vice versa.

**The relationship between sleep quality and physical fitness levels in practical anesthesiology nursing students**

Table 2 Analysis of the Relationship between Sleep Quality and Physical Fitness Level in Non-Practical Anesthesiology Nursing Students

Sleep Quality	Physical Fitness Level						Total			P-value	Correlation coefficient	
	Very well	Good	Enough	Not enough	Less than once	Amount						
Good	F 24	% 57.1	F 17	% 40.5	F 1	% 2.4	F 0	% 0.0	F 0	% 0.0	F 24	% 100.0
Enough	0	0.0	8	44.4	10	55.6	0	0.0	0	0.0	25	100.0
Bad	0	0.0	0	0.0	0	0.0	2	50	2	50	4	100.0
Total	24	37.5	25	39.0	11	17.2	2	3.13	2	3.13	64	100.0

Source: Primary Data (2025).

Table 2 above shows the results of the analysis of the relationship between sleep quality and the level of physical fitness of non-practice anesthesiology nursing students. The results of the statistical test using the *Spearman rank test* obtained a *p-value* of 0.000 ( $p < 0.05$ ) which means that there is a significant relationship between sleep quality and the level of non-practice physical fitness in Non-Practical Anesthesiology Nursing Students at 'Aisyiyah University of Yogyakarta. The *correlation coefficient value* obtained was 0.745 which means that the closeness of the relationship is strong and the direction of the relationship is positive. The positive relationship between sleep quality and the level of physical fitness in non-practice students shows that the direction of the relationship between these two variables is in the same direction, meaning that the higher the level of sleep quality, the higher the level of physical fitness in non-practice anesthesiology nursing students and vice versa.

The findings of this study show a positive and quite significant relationship between the level of physical fitness of anesthesiology nursing practicum students at Universitas 'Aisyiyah Yogyakarta and sleep quality. Statistical tests indicate a unidirectional relationship in the moderate relationship category. Meanwhile, the correlation between good sleep and fitness levels was found in a study of students who did not participate in clinical rotations or in non-practice students. There is a strong and positive relationship between sleep quality and physical fitness levels in Non-Practical Anesthesiology Nursing students at Universitas 'Aisyiyah Yogyakarta, as evidenced by statistical tests using the *Spearman rank test* which produced a *p-value* of 0.000 ( $p < 0.05$ ). The correlation coefficient value of 0.745 further supports this relationship.

The level of sleep quality in a person has two different cycle phases such as rapid eye movement (REM) this phase during sleep experiences a marked decrease in muscle tone throughout the body. This happens because the stimulation of the brain stem greatly inhibits the spinal projection fibers. While in the non-rapid eye movement phase *Non Rapid Eye Movement* (NREM) most physiological functions are reduced, increased sympathetic nervous system activity and the number of impulses transmitted to skeletal muscles by skeletal nerves, both of which contribute to increased muscle tension during alertness. The parasympathetic nervous system becomes more active and the sympathetic nervous system becomes less active during sleep. Therefore, a person can expect a 10-30% decrease in basal metabolic rate, dilation of skin blood vessels, decreased pulse rate, decreased blood pressure, and decreased respiratory rate. Both phases greatly affect sleep quality with physical fitness levels. If the

quality of sleep is good, the level of physical fitness will be good (Nugraha & Pudjijuniarto, 2019).

This study is in line with the research of Maulana & Andrijanto, (2020) based on the results of this study, it was found that there was a close and significant relationship between students who had good sleep patterns and good levels of physical fitness with students who had poor sleep quality and poor levels of physical fitness. A person's sleep quality is influenced by several hormones that work in a complex way. Melatonin, a hormone produced by the pineal gland, plays a key role in regulating the sleep-wake cycle. Melatonin production typically increases at night, making us feel sleepy and ready to sleep. Meanwhile, serotonin, a hormone associated with mood and emotions, also plays a role in regulating the sleep-wake cycle. However, cortisol, a stress hormone produced by the adrenal glands, can disrupt sleep quality if its levels are too high at night. The balance between these hormones is essential for maintaining good sleep quality. Disruptions in the hormonal balance can lead to sleep problems such as insomnia or hypersomnia. Therefore, understanding the role of hormones in sleep can help us take steps to improve sleep quality and maintain hormonal balance.

This study is also in line with Putra's research, (2022) which stated that physical fitness in physical education students has a good level of physical fitness and good sleep quality so that a significant relationship is obtained in the moderate category.

Students with poor sleep quality tend to have lower physical fitness. This is due to factors such as stress, fatigue, and lack of physical activity experienced by students with poor sleep quality. According to previous studies, the close relationship between sleep quality and physical fitness levels can affect students' performance and concentration, which can affect their learning outcomes. Therefore, efforts are needed to improve the sleep quality and physical fitness of practicing and non-practicing anesthesiology students at Universitas Aisyiyah Yogyakarta.

#### **D. Conclusion**

There is a significant relationship between sleep quality and physical fitness levels in Practical and Non-Practical Anesthesiology Nursing Students at 'Aisyiyah University. The relationship between sleep quality and physical fitness levels in Practical Anesthesiology Nursing Students in the moderate category and Non-Practical in the strong category at 'Aisyiyah University with a positive relationship (moving in the same direction).

#### **Thank-you note**

Praise be to Allah SWT, the Almighty God, for the abundance of His grace and gifts, so that the author can complete the thesis entitled " The Relationship between Sleep Quality and Physical Fitness Level in Practical and Non-Practical Anesthesiology Nursing Students of Aisyiyah University of Yogyakarta . The author realizes that in the preparation of this thesis there are still many shortcomings and errors, and it is still far from perfect due to the limitations of the author's knowledge and abilities. Therefore, the author apologizes and is open to constructive criticism and suggestions. May Allah SWT give an appropriate reward to all parties who have helped the author. Finally, the author hopes that the results of this thesis can provide significant benefits for the readers.

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