

**THE EFFECT OF SLEEPING IN THE DARK ON
SLEEP QUALITY IN FACULTY OF MEDICINE
UNIVERSITAS ISLAM BANDUNG INDONESIA
STUDENTS**

***(PENGARUH TIDUR DALAM GELAP TERHADAP
KUALITAS TIDUR PADA MAHASISWA FAKULTAS
KEDOKTERAN UNIVERSITAS ISLAM BANDUNG
INDONESIA)***

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ABSTRACT

Sleep is a state where the body experiences active unconsciousness. The brain is in a relative rest phase but will remain reactive to internal stimuli. Sleeping in the dark can increase melatonin, which affects sleep quality and results in later fitness. This study examines how sleeping in the dark affects sleep quality and fitness in 4th-year medical students at Univesitas Islam Bandung (Unisba). This experimental study compares sleep quality and fitness in light and dark conditions. The study was conducted on 42 Faculty of Medicine Univesitas Islam Bandung (FK Unisba) students. The students previously slept in light conditions, and their sleep quality and fitness were measured after being asked to sleep in the dark with a special eye mask for 2 weeks. Sleep quality was assessed using the Pittsburg Quality Sleep Index (PSQI) questionnaire,

translated into Indonesian. The study found a significant difference in sleep quality ($p < 0.01$). Sleeping in the dark can lead to good sleep quality, which might be because melatonin production is optimized, helping us fall asleep faster and stay asleep longer.

Keywords: dark; PSQI; sleep; student

ABSTRAK

Tidur adalah keadaan di mana tubuh mengalami ketidaksadaran aktif, pada saat ini otak berada dalam fase istirahat relatif tetapi akan tetap reaktif terhadap rangsangan internal. Tidur dalam gelap dapat meningkatkan melatonin yang mempengaruhi kualitas tidur dan menghasilkan kebugaran di kemudian hari. Penelitian ini bertujuan untuk melihat pengaruh tidur dalam gelap terhadap kualitas tidur dan kebugaran pada mahasiswa kedokteran tahun ke-4 Universitas Islam Bandung. Penelitian ini bersifat eksperimental dengan membandingkan kualitas tidur dan kebugaran saat tidur dalam kondisi terang dan gelap. Penelitian dilakukan pada 42 mahasiswa Fakultas Kedokteran Unisba. Para siswa sebelumnya tidur dalam kondisi terang dan kualitas tidur serta kebugaran mereka diukur setelah diminta tidur dalam gelap dengan masker mata khusus selama 2 minggu. Kualitas tidur dinilai menggunakan kuesioner PSQI yang diterjemahkan dalam bahasa Indonesia. Hasil penelitian menemukan bahwa terdapat perbedaan kualitas tidur yang signifikan ($p < 0,01$). Tidur dalam gelap dapat menyebabkan kualitas tidur yang baik mungkin karena produksi melatonin dioptimalkan, membantu kita tertidur lebih cepat dan tetap tidur lebih lama.

Kata kunci: gelap; mahasiswa; PSQI; tidur

INTRODUCTION

Medical students with a heavier study load than students from other faculties cause many to reduce their sleep time. This reduction in sleep time is not accompanied by efforts to improve sleep quality. The results of a study in the United States found that medical students have poor sleep quality.¹ Meanwhile, a study in Indonesia conducted at the Faculty of Medicine, Udayana University in 2021 found that preclinical students at the Faculty of Medicine, Udayana University with good sleep quality were only around 41.7%, and the remaining 58.3% had poor sleep quality.² A study at Mulawarman University found that around 81.2% of the respondents had poor sleep quality.³ This shows that reduced sleep time is not accompanied by good sleep quality.

Sleep is a state of active unconsciousness. When sleeping, the brain is in a relative rest phase but will remain reactive to internal stimuli. Sleep quality is subjective; individuals feel satisfaction and calmness in sleep, and this can be measured quantitatively by looking at several subjects. Good sleep quality will cause the process of restoring brain and body function for survival and keeping the body in optimal condition, will get calm and regain energy and stamina, including fitness.^{4,5}

Melatonin hormone is said to be produced by the anterior pituitary gland in a state of sleep, and things that affect the release of this hormone include sleeping in the dark. This hormone can affect the quality of sleep.^{6,7,8} Sleep quality measurement is done using a questionnaire, one of which is the Pittsburg Quality Sleep Index (PSQI) questionnaire, which has been translated into Indonesian.⁹ this study aimed to see the effect of sleeping in dark conditions on sleep quality in medical faculty students.

METHOD

This research design is experimental by conducting sleep in the dark on medical students who previously slept in the light. This study's subjects were male students registered as fourth-year Faculty of Medicine, Bandung Islamic University students.

Purposive sampling was used to consider the inclusion and exclusion criteria. The inclusion criteria for the subjects of this study are: Students who are registered as Year 4, Students of the Faculty of Medicine, Bandung Islamic University, Male students aged 19 to 21 years, and Have a normal BMI. The exclusion criteria for the subjects of this study are Students who have cardiovascular disease or a history of cardiovascular disease, Students with

symptoms of anemia and students who have regular exercise habits.

Sample calculation: Using the paired numerical comparative formula, measuring twice, this study will take samples from male students of the Faculty of Medicine, Bandung Islamic University, with a total population of 36. The margin of error set is 5% or 0.05. For the total sample, 10% was added, and 40 samples were obtained. The research collection was subjected to inclusion criteria and excluded based on exclusion criteria, Initial measurement of sleep quality after two weeks, and re-measurement of sleep quality. Sleep quality using the PSQI questionnaire and. Statistical analysis was conducted using Statistical Product and Service Solution (SPSS) version 21 at a 95% confidence level and p-value of 0.05. The data was normal, and the pre and post-tests used a dependent t-test. The Ethics of Medical Faculty committee gave Ethical Approval, Bandung number 208/KEPK-Unisba/IX/2023.

RESULT

This study obtained a method to improve sleep quality. Forty-two samples met the inclusion and exclusion criteria.

Table 1. Frequency distribution of subject characteristics

Characteristic	Number of Variables (n)	Percentage (%)
Age		
20	3	7.1
21	33	78.5
22	5	11.9
23	1	2.3
Quality of Sleep		
Baik	35	83.3
Buruk		

After sleeping in the dark with the eyes covered with a special cover, a comparison of sleep quality scores and fitness was made. The Data is as follows:

Table 2. Differences in sleep quality and fitness after dark sleep intervention

Variable	Initial	After intervention	p
Score	9.5±2.2	7.78±2.18	0.001*
Quality of sleep	5		

*Independent t-test

There was a significant increase in score quality after treatment with special dark sleep conditions ($p < 0,01$). It means sleeping in the dark affects the quality of sleep.

DISCUSSION

It can be seen from the table above that most fourth-year FK Unisba students have poor sleep quality, which is in line with several studies on medical students. The results of a study in the United States found that Medical students have poor sleep quality.¹⁰ Meanwhile, research in Indonesia conducted at the Faculty of Medicine, Udayana University in 2021 found that preclinical students at the Faculty of Medicine, Udayana University with good sleep quality were only around 41.7%, and the remaining 58.3% had poor sleep quality.¹¹ Research at Mulawarman University found that around 81.2% of the respondents had poor sleep quality.¹² This shows that the reduction in sleep time in medical students is not accompanied by good sleep quality. The assessment of the sleep score category is good if the PSQI questionnaire results get a score of less than 5 points, while bad if the score is more than 5 to 20.¹³

It is because sleep quality is defined as the level of individual satisfaction with their sleep, both quantitatively and qualitatively, such as the length of time the individual sleeps, the time it takes to fall asleep, how often they wake up, and how soundly they sleep.¹⁴ Sleep quality can be influenced by many factors such as physical illness, lifestyle, medication, stress levels,

age, environmental influences, physical activity, and nutritional intake.¹⁵ Individuals can be said to have good sleep quality if they meet the following criteria: longer sleep time in bed (85%), can fall asleep in ≤ 30 minutes, no more than once wake up from sleep each night, and wake up ≤ 20 minutes after going to sleep.¹⁶ Based on research from Yilmaz,^{17,18} who researched some nursing students, there was a significant difference between the average PSQI results and students' smoking habits, total daily sleep hours, efficient wake-up time, and average daily coffee consumption ($p < 0.05$). However, there was no significant difference between age, gender, student residence, nap during morning class, presence of chronic disease, and average daily tea consumption. ($p > 0.05$).

The results showed that sleep quality was significantly better from a score of 9.5 ± 2.25 to 7.78 ± 2.18 , indicating sleep quality with a smaller score although still in the category of poor sleep quality. This difference is likely related to medical students' short sleep time, affecting the melatonin levels checked in the morning. The vo2max score increased significantly from 44.56 ± 12.59 to 77.83 ± 21.85 , which is in line with the quality of sleep, which also improved. The following research states that physical activity can directly affect sleep quality and indirectly affect

sleep quality through the independent mediating role of psychological resilience and social adaptation and the intermediary role related to both.^{19,20}

CONCLUSION

There were significant differences between sleep in the dark and sleep in the light based on sleep quality ($p < 0.01$). It means sleeping in the dark affects the quality of sleep.

CONFLICT OF INTEREST

All authors have no conflict of interest to declare.

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