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The Effect of Physical Activity on Sleep Quality Among UiTM Seremban 3 Students



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Abstract | Good physical activity enhances sleep quality. The main purpose of this study is to investigate the effect of physical activity on sleep quality among UiTM Seremban 3 students. It aims to identify key factors contributing to better sleep quality, such as being physically active and having an active lifestyle. Using a Cross-sectional design of a waist-worn accelerometer (Actigraph GT3X+), the study investigates the effect of physical activity on sleep quality among UiTM Seremban 3 students ($n=26$, age 22.3 ± 1.04) through descriptive analysis and simple linear regression. The study revealed that 38% of 26 participants showed poor physical activity results, with only 8% having a good physical activity level. In addition, 58% experienced average sleep quality, while only 12% experienced good sleep quality. Physical activity has an insignificant effect on sleep quality (Simple Linear Regression = 0.671, $p < 0.05$). It showed that physical activity has no impact on sleep quality. In conclusion, the majority of students experience a lack of physical activity due to their hectic lifestyles, which results in low physical activity. It is suggested that good physical activity will help you have great sleep quality.

Keywords: *Accelerometer, sleep quality, physical activity.*

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I. INTRODUCTION

There are many kinds of physical activity, such as aerobic, anaerobic, mild, moderate, and vigorous exercises. Anaerobic exercises like weightlifting develop muscular strength, whereas aerobic exercises like walking and cycling improve cardiovascular endurance. Walking casually is considered a light activity. In contrast, moderate and intense activities cause a noticeable rise in heart rate and respiration [1].

Exploring how exercise affects university students' sleep quality revealed that thoughtful thinking and mindfulness were involved in a chain reaction [2]. This study advanced our theoretical knowledge of the factors influencing university students' sleep quality. It offered helpful guidance to educators and students on increasing sleep quality by engaging in physical activity. Furthermore, investigated the effect of physical activity on improving sleep quality among young adults, emphasizing the significance of being physically active in enhancing sleep outcomes [3].

In Addition, several factors influence sleep quality in young adults, including lifestyle habits, environmental conditions, and psychological well-being. Lifestyle choices such as irregular sleep schedules, excessive use of electronic devices before bedtime, and consumption of caffeine or alcohol can significantly impair sleep quality [4]. A previous study found that the use of electronic media in the evening is associated with delayed sleep onset and reduced sleep duration, highlighting the impact of technology on sleep patterns [5].

Conclusion, engaging in different types of physical activity, such as aerobic and anaerobic exercises, has numerous health benefits including improved cardiovascular health, metabolic function, and mental well-being. Health organizations provide guidelines for the optimal amount of physical activity, and lack of sleep can have negative effects on overall health and well-being. Factors such as lifestyle habits and the use of electronic devices can impact sleep quality in young adults.

II. METHODS

This study involved a total of twenty-six ($N = 26$) UiTM Seremban 3 students aged (22.3 ± 1.04) years old. The inclusion criteria for the potential participant were include healthy, not under medication.

A. Instruments

i. Physical Activity and Sleep Quality

The participants wore an ActiGraph GT3X+ on their waist which was performed over 5–7 days. This research measured total sleep time (TST), sleep efficiency, bedtime, and wake-up time. The actigraph unit was worn around the waist. This analysed actigraphy data using the algorithm supplied by the ActionW-2 clinical sleep analysis software package for Windows (Ambulatory Monitoring Inc.) and a sleep diary. Sleep and activity levels were scored according to the Cole-Kripke formula.

B. Statistical Analysis

Statistical analysis was carried out using Jamovi version 2.4.8. Regression analysis was used to examine the effect of physical activity on sleep quality. Statistical significance level was accepted at $p < 0.05$.

III. RESULTS AND DISCUSSION

Among students at UiTM Seremban 3, an insignificant effect of physical activity of sleep quality among UiTM Seremban 3 students has been established using simple linear regression analysis. The result is presented in Table 1, the simple Linear Regression was conducted to see if there was any significant effect of physical activity on sleep quality among UiTM students. Table 1 shows that there is no significant difference of physical activity on sleep quality $p = 0.671$. In addition, the researcher failed to reject the null hypothesis.

TABLE 1
LINEAR REGRESSION

Predictor	SE	<i>t</i>	<i>p</i>	Stand. Estimate
Sleep quality	256	-0.431	0.671	-0.087

The result achieved from Simple Linear Regression stated that there was no significant effect physical activity on sleep quality among UiTM Seremban 3 students. This finding is similar to previous study which suggests that physical activity is negatively associated with sleep quality in college students, indicating that physical activity may not significantly impact sleep quality among university students [6].

This result shows that there is a complex interaction between physical activity and sleep quality that is affected by several factors. Firstly, the length of the workouts may be different through students, some may work out for just ten minutes, while others may work out for longer. Exercise schedule is also very important. Exercising too soon before bed can raise body temperature and heart rate, which makes it more difficult to fall asleep. These variations make it difficult to conclude the overall effect of physical activity on sleep quality.

Other than that, the research also discovered that students' academic commitments, especially around exam times, frequently have an impact on physical activity. It is because they prioritised academic study rather than being physically active during the day. Even though past research shows that if an individual is physically active late at night, such as playing futsal or badminton, the time they spend might be close to bedtime, which can affect their sleep time and affect their next day routine [7].

IV. CONCLUSIONS

The results from the simple linear regression analysis indicated that there was no significant effect of physical activity on sleep quality among UiTM Seremban 3 students. This finding aligns with previous research suggesting that physical activity may not significantly impact sleep quality among university

students [4]. These findings highlight the need for a deeper understanding of how various elements interact to influence sleep quality. They also underscore the importance of considering individual differences and external pressures when evaluating the impact of physical activity on sleep. Future interventions aimed at improving sleep quality in university students should adopt a total approach, not only physical activity but also academic workload, stress management, and overall lifestyle.

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