COMPETITOR:
JURNAL PENDIDIKAN KEPELATIHAN OLAHRAGA
e-ISSN: 2657-0734 & p-ISSN: 2085-5389 || Volume 17, Number 3, 2025 || P.2707-2710

The Relationship Between Exercise Habits And Sleep Quality In Adults Aged 45-55 Years

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ABSTRACT

This study aimed to investigate the relationship between exercise habits and sleep quality in individuals aged 45-55. A descriptive quantitative study with a cross-sectional design was employed. The sample consisted of 40 women aged 45–55 who actively participated in gymnastics in Pasar Terusan Village, RT 09, with data collected via the Pittsburgh Sleep Quality Index (PSQI) and an exercise habit questionnaire. The Chi-Square test revealed a significant relationship between exercise habits and sleep quality, with a significance value (Asymp. Sig. 2-sided) of 0.022 ($p < 0.05$). These findings suggest that regular exercise is significantly associated with sleep quality in middle-aged adults. However, the relationship may not be linear, indicating that the intensity and timing of exercise are crucial factors that warrant further investigation to provide optimal health recommendations for this demographic.

ARTICLE HISTORY
Received: 2025/10/11
Accepted: 2025/10/16
Published: 2025/10/20

KEYWORDS
Exercise;
Habits;
Sleep Quality;
Adults;
Aged 45-55 Years.

AUTHORS' CONTRIBUTION
A. Conception and design of the study;
B. Acquisition of data;
C. Analysis and interpretation of data;
D. Manuscript preparation;
E. Obtaining funding

Cites this Article : Amelia, Ully; Palmizal, Palmizal; Mardian, Roli. (2025). The Relationship Between Exercise Habits And Sleep Quality In Adults Aged 45-55 Years. **Competitor: Jurnal Pendidikan Kepelatihan Olahraga**. 17 (3), p.2707-2710

INTRODUCTION

Sleep is one of the most important aspects of maintaining an individual's health and well-being. Good sleep quality plays a crucial role in various bodily functions, including energy restoration, cognitive performance, and emotional regulation (Asri & Octaviana, 2021). As individuals age, they often face increasing challenges in obtaining quality sleep. Therefore, it is essential to understand the factors that influence sleep quality and potential interventions, such as exercise, that can improve it.

Individuals aged 45–55 years often experience high levels of responsibility in their work, family, and caregiving roles. These stressors make them more vulnerable to chronic stress, which can increase cortisol levels and disrupt sleep patterns, leading to insomnia or frequent awakenings during the night (Supriadi et al., 2023). Poor sleep quality can negatively affect productivity, emotional stability, and overall health,

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increasing the risk of chronic diseases such as hypertension, diabetes, and obesity (Kasingku & Lotulung, 2024).

Exercise has been shown to have a significant positive effect on sleep quality. Physical activity helps reduce stress and anxiety through the release of endorphins and promotes a drop in body temperature after exercise, helping the body prepare for deeper sleep (Supriadi et al., 2023). Exercise also helps regulate circadian rhythms and improve REM sleep, which are vital for mental and physical recovery.

According to Andalasari and Berbudi (2018), regular exercise also helps reduce stress, improve mood, and enhance overall physical performance. The more consistent a person's exercise routine, the less likely they are to experience sleep disturbances or excessive stress. However, individuals aged 45–55 often face physical limitations, such as joint pain and reduced flexibility, which can hinder their ability to maintain regular exercise. If performed at inappropriate intensity or duration, exercise can even lead to fatigue or injury that negatively affects sleep quality.

Therefore, specific guidance on the type, intensity, and timing of exercise is required for individuals aged 45–55 years to ensure maximum benefits without adverse effects. Sleep problems among middle-aged adults are a growing concern, as they not only affect physical health but also mental and social balance (Zain & Hanif, 2023).

Given the high prevalence of sleep disturbances in this age group and the known benefits of physical activity, research on the relationship between exercise habits and sleep quality among adults aged 45–55 years is essential. A clearer understanding of this relationship may lead to evidence-based recommendations, helping individuals in this age range optimize their physical activity without compromising their sleep or overall health. Therefore, this study aims to investigate the "Relationship Between Exercise Habits and Sleep Quality in Adults Aged 45–55 Years."

METHODS

This research employed a descriptive quantitative approach with a cross-sectional design to analyze the relationship between exercise habits and sleep quality. The study was conducted in August 2025 in Pasar Terusan Village, Batanghari Regency, Jambi Province. The population for this study comprised all women who regularly participate in gymnastics activities in the village.

A purposive sampling technique was used to select a sample of 40 women aged 45–55 who actively participate in gymnastics at least three times a week. Data was collected using two primary instruments: a Likert-scale questionnaire to assess exercise habits (frequency, duration, and type) and the standardized Pittsburgh Sleep Quality Index (PSQI) to measure sleep quality. The PSQI is a validated, standard instrument; therefore, a new validity and reliability test was not conducted for this study. The relationship between the two categorical variables was analyzed using the Uji Chi-Square with a significance level (α) set at 0.05.

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RESULTS AND DISCUSSION

Result

The analysis of data from 40 respondents showed that 27.5% had 'Baik' (Good) exercise habits, while 72.5% had 'Sangat Baik' (Very Good) exercise habits. Regarding sleep quality, 62.5% of respondents had 'Baik' (Good) sleep quality, and 37.5% had 'Buruk' (Poor) sleep quality. The hypothesis was tested using the Chi-Square test to determine the relationship between exercise habits and sleep quality. The results are presented below:

Table 1.
Chi-Square Test Results

	Value	*df*	Asymp. Sig. (2-sided)
Pearson Chi-Square Test	5.225	1	0.022

The analysis yielded a significance value (Asymp. Sig. 2-sided) of 0.022, which is less than the significance level of 0.05 ($p < 0.05$). This result indicates that the null hypothesis (H0) is rejected, and the alternative hypothesis (Ha) is accepted, confirming a significant relationship between exercise habits and sleep quality in the 45–55 year age group.

Discussion

Interestingly, the data revealed a non-linear relationship. A vast majority of respondents with 'Baik' (Good) exercise habits (90.9%) reported good sleep quality. However, among those with 'Sangat Baik' (Very Good) exercise habits, a substantial portion (48.3%) reported poor sleep quality. This finding suggests that very high frequency or intensity of exercise might not always correlate with better sleep and could even have adverse effects. Similar results were reported by Asri & Octaviana (2021) and Supriadi et al. (2023), who found that excessive exercise intensity may interfere with the body's recovery process and sleep regulation. Thus, the relationship between exercise and sleep quality may depend not only on the act of exercising but also on its intensity, timing, and type.

CONCLUSION

Based on the data analysis, it can be concluded that there is a significant relationship between exercise habits and sleep quality among individuals aged 45-55 years, as evidenced by the Chi-Square test result ($p = 0.022$). However, the relationship is not straightforward, as very good exercise habits did not consistently lead to better sleep quality.

Therefore, for individuals in the 45-55 age group, it is recommended to maintain regular physical activity but also pay close attention to the intensity and timing of their exercise. High-intensity workouts should be avoided close to bedtime to prevent interference with the sleep initiation process. Managing exercise as part of an integrated healthy lifestyle, focusing on both the quantity and quality of the activity, is essential to reap its optimal benefits for sleep.

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ACKNOWLEDGMENT

The author would like to express sincere gratitude to Allah SWT, the Almighty God, for His endless blessings, strength, and guidance throughout this research. Deepest appreciation is also extended to the author's beloved parents, whose prayers, encouragement, and unwavering support have been a continuous source of motivation and perseverance during the completion of this study. Finally, sincere thanks are conveyed to the residents of Pasar Terusan Village, Batanghari Regency, who kindly participated and provided valuable responses in completing the questionnaires. Their cooperation and contribution were essential to the success of this research.

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