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Sleep Quality among Male University Students Who Use Conventional Cigarettes, Electronic Cigarettes, and Non-Smokers in Serang

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Abstract: This study aims to examine the differences in sleep quality among conventional cigarette smokers, electronic cigarette users, and non-smokers among male university students in Serang. Sleep quality is a crucial component for maintaining physical and mental health, yet smoking—whether conventional or electronic—can disrupt the sleep cycle due to the stimulant effects of nicotine. The study employed a cross-sectional design with stratified random sampling to select active male university students in the Serang area. Sleep quality was measured using the standardized Indonesian version of the Pittsburgh Sleep Quality Index (PSQI) questionnaire. Data analysis was conducted using the Kruskal-Wallis test to determine significant differences between the groups. Results showed that the majority of conventional cigarette smokers (63%) and electronic cigarette users (56%) experienced poor sleep quality (PSQI score > 5), while most non-smokers had good sleep quality (PSQI score ≤ 5). Statistical significance indicated a meaningful difference across the three groups with a p-value of 0.042. The impaired sleep quality is attributed to the stimulant effects of nicotine on the central nervous system, which disrupt normal sleep processes. Additionally, academic stress and unhealthy lifestyle factors exacerbated poor sleep quality among smokers. The study concludes that smoking—both conventional and electronic—has a significant negative impact on the sleep quality of male university students in Serang. Therefore, it is recommended that educational institutions implement educational programs on smoking hazards and provide support to foster healthy habits to improve sleep quality and overall student health.
Keywords: sleep quality, conventional cigarettes, electronic cigarettes, university students, PSQI, smoking

INTRODUCTION

Smoking remains a major public health issue that continues to receive global attention. The habit of smoking has been proven to have wide-ranging negative impacts not only on physical health but also on mental health and overall quality of life. In the past decade, a new trend has emerged in the form of electronic cigarette use as an alternative to conventional cigarettes. However, recent studies have shown that electronic cigarettes also carry harmful effects comparable to conventional cigarettes, particularly due to nicotine content, which acts as a stimulant affecting the central nervous system.

Sleep quality is an important aspect in supporting overall health. Adequate and high-quality sleep plays a vital role in physical and mental recovery processes and contributes to one's cognitive and emotional performance. However, sleep disturbances such as poor sleep quality may arise from several risk factors, one of which is nicotine consumption from tobacco products, including conventional and electronic cigarettes. Recent studies indicate that nicotine can disrupt the sleep cycle by inhibiting deep sleep and shortening sleep duration, thereby increasing the risk of chronic sleep disorders.

University students are a group highly vulnerable to poor sleep quality due to academic pressures, lifestyle changes, and irregular sleep patterns. In Serang City, the prevalence of smoking among male students is relatively high. When associated with the potential sleep disturbances caused by nicotine, this may negatively impact their health and academic performance. Studies conducted over the past five years indicate that students who smoke, whether conventional or electronic cigarettes, tend to have poorer sleep quality compared to non-smokers (Husnani & Pranata, 2024; Padhila et al., 2024; Advani et al., 2022)

In addition to nicotine, factors such as academic stress, unhealthy lifestyles, and lack of health education also contribute to the deterioration of sleep quality among university students. The decline in sleep quality not only leads to physical health problems such as metabolic and immunological disorders but also contributes to psychological issues such as anxiety and depression. Therefore, it is important to conduct research that thoroughly examines the differences in sleep quality between conventional cigarette users, electronic cigarette users, and non-smokers among male university students.

This study is expected to provide a clear and comprehensive overview of the impact of smoking on sleep quality, particularly among male students in Serang. Furthermore, the findings of this study are expected to serve as a basis for educational institutions and related stakeholders to design promotive and educational programs aimed at reducing smoking habits and improving students' sleep quality in order to maintain their health and academic performance.

With the contribution of the empirical data obtained, this research will also serve as an important reference

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for the development of student health policies, while enriching the body of literature on the impact of electronic cigarettes, which remains relatively new compared to research on conventional cigarettes.

METHOD

This study employed a cross-sectional design with a descriptive-analytic quantitative approach. This design was chosen to examine differences in sleep quality among male students who use conventional cigarettes, electronic cigarettes, and those who do not smoke, simultaneously at a single point of measurement.

The study was conducted in Serang City, with the main population consisting of active male university students in the area. The research sample was selected using a stratified random sampling technique, dividing groups based on smoking status: conventional cigarette users, electronic cigarette users, and non-smokers.

The inclusion criteria were active male students aged 18–25 years who were willing to participate as respondents. The exclusion criteria were students who used sleeping medication, were ill during data collection, or did not complete the instrument in full.

The variables in this study consisted of:

- ✓ Independent variable: Smoking status (conventional cigarette users, electronic cigarette users, non-smokers)
- ✓ Dependent variable: Sleep quality

DISCUSSION

A. Respondent Characteristics

This study involved male university students from Serang City, divided into three groups based on their smoking habits: conventional cigarette users, electronic cigarette users, and non-smokers. The sample was selected using a stratified random sampling technique to ensure proportional representation in each group. The respondents' characteristics included age, educational level, and smoking status. Their ages ranged from 18 to 25 years, with generally good health conditions according to the inclusion criteria.

B. Sleep Quality Scores

In this study, the Pittsburgh Sleep Quality Index (PSQI) was used to measure the sleep quality of all respondents. The analysis results showed that the majority of conventional cigarette users (63%) had a PSQI score greater than 5, indicating poor sleep quality. Similarly, 56% of electronic cigarette users also demonstrated poor sleep quality based on the same measure. In contrast, the majority of the non-smoker group had PSQI scores of 5 or less, reflecting good sleep quality.

C. Statistical Test

The Kruskal–Wallis test was conducted to detect significant differences in sleep quality scores among the three groups of respondents. The test results showed a p-value of 0.042, indicating a significant difference in sleep quality between conventional cigarette users, electronic cigarette users, and non-smokers at the 5% significance level. This confirms that smoking status serves as a factor influencing students' sleep quality.

D. Discussion

The findings of this study are consistent with theories and previous research, which state that nicotine in both conventional and electronic cigarettes is a stimulant that increases alertness and consequently disrupts normal sleep processes. Nicotine interferes with the sleep cycle, shortens sleep duration, and reduces overall sleep quality.

In addition to the direct effects of nicotine, supporting factors such as academic pressure, stress, and unhealthy lifestyle patterns also contribute to poor sleep quality, particularly among student smokers. This highlights the need for interventions that not only address smoking habits but also support stress management and healthy lifestyle practices.

The practical implication of this study is that educational institutions and healthcare providers should offer programs and services that promote smoking reduction and the improvement of students' sleep quality. Such programs are expected to enhance students' mental health and cognitive performance, ultimately contributing to better academic achievement.

CONCLUSION

Based on the results of this study, it can be concluded that there is a significant relationship between smoking habits and sleep quality among male university students in Serang. Both conventional and electronic cigarette users tend to have poorer sleep quality compared to non-smokers. This indicates that smoking, whether conventional or electronic, negatively affects students' sleep patterns and quality. Therefore, smoking habits may serve as a risk factor for decreased sleep quality, which has the potential to impact students' health and academic performance.

THANK-YOU NOTE

For Educational Institutions

Educational institutions are encouraged to implement regular educational programs on the dangers of smoking, particularly its effects on sleep quality and overall health. In addition, it is recommended that institutions provide

facilities or support programs to assist students in reducing or quitting smoking.

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