Journal of Applied Holistic Nursing Science, e-ISSN 3090-1316
Vol. 1, No.3, June 2025
https://doi.org/10.70920/jahns.v1i3.197

Original Research/Systematic Review

The Relationship Between Smoking Behavior and Sleep Patterns in Young Adults (18–40 Years Old)

Sofiya Chairani[1], Idrawati Bahar[1], Yessi Fadriyanti[1]

[1] Ministry of Health Polytechnic of Health Padang, Indonesia

ABSTRACT

Background: *Sleep patterns reflect an individual's ability to obtain the amount of sleep needed. One of the lifestyle factors that affects sleep patterns is smoking behavior. In modern society, young adults are particularly affected by smoking habits, with some smokers believing that smoking helps them relax and forget life's problems, no matter how serious, and that smoking improves their mood. This study aimed to identify the relationship between smoking behavior and sleep patterns in young adults (18–40 years) in the Seberang Palinggam subdistrict.*

Methods: *This was a correlational analytic study with a cross-sectional design. Data were collected from September 2023 to July 2024. The population consisted of 1,478 young adults aged 18–40 years in Seberang Palinggam, and 100 participants were selected using probability sampling techniques. Data were collected using a questionnaire and processed through editing, coding, entry, cleaning, and tabulating. Analysis was conducted using the Chi-square test (95% CI).*

Results: *Statistical test results showed that most young adults engaged in heavy smoking behavior (52 respondents, 52.0%) and had poor sleep patterns (65 respondents, 65.0%). Based on bivariate analysis with the Chi-square test, the p-value was 0.027 (P < 0.05), indicating a significant relationship between smoking behavior and sleep patterns in young adults (18–40 years) in the Seberang Palinggam subdistrict.*

Conclusion: *The study shows a significant relationship between smoking behavior and sleep patterns. Most young adult heavy smokers have poor sleep. Educational efforts and interventions are needed to reduce smoking habits and improve their sleep quality.*

ARTICLE HISTORY
Received : 3-6-2025
Accepted: 6-6-2025

KEYWORDS
Smoking Behavior; Young Adults; Sleep Patterns;

CONTACT
Idrawati Bahar

dosenidrawati2023@gmail.com
Ministry of Health Polytechnic of Health Padang, Indonesia

Cite this as: Sofiyah Chairani, Idrawati Bahar, Yessi Fadriyanti(2025). *The Relationship Between Smoking Behavior and Sleep Patterns in Young Adults (18–40 Years Old). Journal of Applied Holistic Nursing Science,1(3)*

INTRODUCTION

Sleep is a basic human need involving complex physiological processes that occur within specific limits of activity and metabolism. It is marked by changes in consciousness, during which an individual's perception and response to the environment decrease (Respati Ambarwati, 2014). Sleep provides benefits such as helping restore stamina, returning body metabolism to normal after fatigue, reducing stress and anxiety, and enhancing focus and concentration for daily activities (Haswita & Sulistyowati, 2017).

Normal sleep patterns vary by age: infants need approximately 16 hours of sleep per day, adolescents about 9 hours, and adults 7–8 hours. Maintaining healthy sleep patterns helps ensure optimal body function and can prevent illnesses such as stress, diabetes, and heart disease (Ministry of Health RI, 2021). Data from 2017–2018 in the United States showed that working adults slept an average of ≤6 hours per 24 hours. About 34.8% of adults in the U.S. slept less than seven hours on average. Between 135,000 and 200,000 people reported excessive daytime sleepiness, more than 66% experienced sleep talking, and around 10–30% suffered from chronic insomnia (National, 2020).

In West Sumatra Province, the health department reported that 80.4% of young adults with sleep disorders were smokers, while other influencing factors included depression or anxiety (56.1%), eating before bed (54.2%), and prolonged daytime napping (51.8%) (Health Department, 2020). Sleep patterns reflect the ability of individuals to get the quantity of sleep they need. Several factors influence sleep patterns, such as lifestyle habits like smoking behavior, psychological stress, psychiatric problems, excessive napping, physical fatigue, illness, environmental factors, medication, and motivation (Susilo Yekti & Ari Wulandari, 2020). Normal sleep can be disrupted by lifestyle factors such as smoking. In the community, many young adults are affected by smoking behavior, believing it helps them relax and temporarily forget their problems, improving their emotional state (Gunawan, 2022).

According to Aritonang, smoking behavior is complex and results from the interaction of cognitive, psychological, and physiological factors. It can affect an individual's cognition and mental state. For young adults experiencing decreased work performance, smoking may bring a sense of calm, increased vitality, and better productivity. According to Astuti (2005), young adulthood is defined as the age range between 18–40 years. In modern society, young people face challenges completing education, starting full-time work, and taking on adult responsibilities. As they move into their late 30s, they often enter a stable phase, focusing on financial investment and emotional regulation.

Based on the 2020 Basic Health Research Survey (Riskesdas), the smoking prevalence among Indonesians aged ≥15 years reached 28.69%. The number of adult smokers in Indonesia has increased over the last decade. Among occupations, daily smokers are most commonly farmers, fishermen, and laborers (44.5%), followed by entrepreneurs (39.8%), and employees (33.6%). Employees also topped the list of occasional smokers (7.4%) (Riskesdas, 2020).

A preliminary study of 10 young adults in Seberang Palinggam found that 7 (70%) smoked daily for years, 2 (20%) had smoked for less than a year, and 1 (10%) smoked only occasionally. Among the 7 daily smokers, 5 had irregular sleep and reported difficulties sleeping. Their reason for smoking was to relieve stress and cope with problems. Based on these findings, the researchers aimed to examine the extent of smoking's impact on sleep patterns in young adults (18–40 years), including comparisons among frequent, infrequent, and non-smokers, and to determine whether a significant relationship exists between smoking behavior and sleep patterns in this population.

MATERIALS AND METHOD

This study used a correlational analytic design with a cross-sectional approach. Data collection was conducted from September 2023 to July 2024. The study population consisted of young adults aged 18–40 years residing in the Seberang Palinggam subdistrict, totaling 1,478 individuals. A sample of 100 respondents was selected using a probability sampling technique. Data were collected using a questionnaire, and data processing included editing, coding, entry, cleaning, and tabulating. The data were analyzed using the Chi-square test with a 95% confidence interval (CI).

RESULTS
Characteristics

Table 1. Distribution of Young Adult Age in Seberang Palinggam Subdistrict

Variabel	Mean	Std.Dev	Min-Max	95%CI
Usia	28.8	5.565	18-40	26.97-29.09

Based on Table 1, the analysis showed that the average age of young adults was 28.8 years (95% CI: 26.97–29.09), with a standard deviation of 5.565. The youngest respondent was 18 years old and the oldest was 40 years old. The confidence interval estimate indicates that there is a 95% confidence that the average age of respondents lies between 26.97 and 29.09 years.

Table 2. Frequency Distribution of Young Adults by Gender and Occupation in Seberang Palinggam Subdistrict

Variabel	f	%
Gender		
Male	84	84.0
Female	16	16.0
Total	**100**	**100.0**
Pekerjaan		
Laborer	23	23.0
fisherman	14	14.0
Employee	25	25.0
Unemployed	28	28.0
Entrepreneur	10	10.0
Total	**100**	**100.0**

From Table 2, it can be seen that the majority of young adults who smoked were male, totaling 84 individuals (84.0%), while 16 were female (16.0%). In terms of occupation, the largest group of young adults worked as laborers (23.0%), and the smallest group were entrepreneurs (10.0%).

Univariate analysis covered sleep patterns and smoking behavior. The following is a description of the results :

Table 3. Frequency Distribution of Respondents by Sleep Patterns among Young Adults in Seberang Palinggam Subdistrict

Sleep Pattern	f	%
Good	35	35.0
Poor	65	65.0
Total	**100**	**100.0**

Based on Table 3, most young adults had poor sleep patterns, totaling 65 individuals (65.0%), while those with good sleep patterns totaled 35 individuals (35.0%).

DISCUSSION
Sleep Patterns

The results of this study align with the theory proposed by Respati Ambarwati (2014), which states that sleep patterns are part of fulfilling basic human needs and involve complex physiological processes occurring within specific activity and metabolism limits. These are marked by a change in consciousness when perception and reactions to the environment are reduced. Based on this research conducted among young adults in the Seberang Palinggam subdistrict, with a sample of 100 respondents, the average age was 24 years for 11

individuals. In the observed community cases, young adults' normal sleep patterns were disrupted due to lifestyle factors—specifically smoking behavior. This behavior negatively impacts sleep because, aside from creating irregular sleep schedules, nicotine in cigarettes affects the central nervous system, which in turn disrupts sleep patterns.

This finding is consistent with research by Pendi Gunawan (2022) on male civil engineering students at Andalas University, where 86.7% (203 respondents) experienced sleep problems. The average age was 19 years among 88 respondents. Many young adults believe that smoking helps them relax and temporarily forget their problems, improving their mood (Gunawan, 2022). The study also aligns with findings by Narwasti Rambu et al. (2023), who studied final-year forestry students at the Institute of Agriculture in Malang. They found that 50% of respondents had moderate sleep patterns. Similarly, research by Dewi Amanda Putri and Rizki Nugraha Agung (2019) at the State Secretariat Complex in South Tangerang showed that among 90 respondents, 54.4% (49 respondents) experienced severe insomnia. Firdaus (2018) also found that, among respondents aged 18 to 40 years, the most common age group experiencing sleep problems was 35 years old (12% of 106 respondents), which falls under early adulthood.

Many studies have been conducted on smoking behavior, most of which focus on adolescents. However, contrary to those studies, the reality is that smoking prevalence among adults is increasing. Based on this study in the Seberang Palinggam subdistrict, most young adults were found to have poor sleep patterns caused by smoking behavior. This could be due to the addictive substances in cigarettes that impact both the physical and psychological state of users, particularly their sleep patterns.

Smoking Behavior

This study is consistent with the theory of Notoatmodjo (2018), which states that smoking behavior involves an individual's smoking activity, measured by frequency, timing, and the role of smoking in daily life. Levy et al. (1984) added that smoking behavior involves lighting and inhaling cigarettes and the smoke potentially being inhaled by others. Smoking behavior is closely related to health behavior because it has become a habit in Indonesian society and can harm health (Notoatmodjo, 2018). According to the data from this study, involving 100 young adults in the Seberang Palinggam subdistrict, smoking behavior is influenced by young adults' routines and their busy lifestyles. This is evidenced by the occupational data, showing that many were employees (25.0%), unemployed (28.0%), or self-employed (10.0%). Smoking behavior affects cognition and psychological states, with many believing that smoking helps improve concentration and performance. When this behavior is combined with work-related stress, it leads to poor sleep patterns among young adults.

This finding is also consistent with the research by Dewi Amanda Putri and Rizki Nugraha Agung (2019), who found that most respondents were heavy smokers (61.1%). Narwasti Rambu Boba et al. (2023) similarly found that 75% of respondents had heavy smoking behavior. Based on this study, most young adults in Seberang Palinggam displayed heavy smoking behavior, which is a major factor influencing poor sleep. Many smokers believe that smoking calms them and helps them forget life's burdens.

Bivariate Analysis

This study supports the theory by Kozier, Erb, Berman, and Snyder in Lismalinda and Alam (2018), which explains that smoking affects sleep patterns. When smoking, nicotine is absorbed by the taste receptors in the tongue and transmitted to the brain. On the way to the brain, nicotine passes through the hypothalamus, which releases dopamine and serotonin. Nicotine triggers dopamine release, which stimulates the brain to feel calm, improve focus, boost energy, and suppress drowsiness, thus disrupting sleep. Smokers typically find it harder to fall asleep and often describe themselves as waking up at dawn or early morning.

Based on the findings of this study, the assumption is that smoking behavior among young adults in Seberang Palinggam significantly affects sleep patterns. This is supported by

a Chi-square test result showing a p-value of 0.027 (P < 0.05), indicating that the increased consumption of cigarettes among young adults is related to worsening sleep quality. These results are consistent with research by Dewi Amanda Putri and Rizki Nugraha Agung (2019), who found a statistically significant relationship (p = 0.016 < α 0.05) between smoking consumption (duration and intensity) and insomnia among adults in the State Secretariat Complex. The odds ratio (OR) was 3.206, meaning adult smokers were 3.2 times more likely to experience insomnia.

Similarly, Pendi Gunawan's (2022) study on male civil engineering students at Andalas University found that 86.3% of smoking respondents had poor sleep quality. Of the 94 moderate smokers, 78% had poor sleep quality. Of the 104 heavy smokers, 98 had poor sleep quality. Among 24 very heavy smokers, 100% had poor sleep quality. The Chi-square test in that study produced a p-value of 0.000 (p < 0.05), confirming a statistically significant relationship between smoking behavior and sleep quality.

Chintani (2018) also reported that among 30 smokers, 83.3% (25 respondents) had poor sleep quality. Among 8 light smokers, 7 had poor sleep; of 7 moderate smokers, 3 (42.9%) had poor sleep; and 100% of 15 heavy smokers had poor sleep.

Based on this study, poor sleep patterns in young adults were primarily caused by heavy smoking behavior. This issue can be prevented or mitigated by reducing smoking, which is a major risk factor for sleep disruption. To address this, it is suggested that the local authorities in Seberang Palinggam collaborate to enhance health education among young adults (18–40 years), so they can reduce or quit smoking and meet their sleep needs through more positive habits, such as regular exercise. This is expected to improve the quality of sleep and maintain good health among young adults.

CONCLUSION

Based on the results of bivariate analysis using the Chi-Square test, a p-value of 0.027 (P < 0.05) was obtained, indicating a significant relationship between smoking behavior and sleep patterns among young adults (18–40 years old) in the Seberang Palinggam subdistrict. Conclusion : The study shows a significant relationship between smoking behavior and sleep patterns. Most young adult heavy smokers have poor sleep. Educational efforts and interventions are needed to reduce smoking habits and improve their sleep quality.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to Mrs. Ns. Idrawati Bahar, S.Kep, M.Kep as the main supervisor, and Mrs. Ns. Yessi Fadriyanti, S.Kep, M.Kep as the assistant supervisor, for their time, energy, and guidance throughout the preparation and completion of this research.

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