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Original Research Paper

Relationship of environmental factors with smoking behavior in students

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Submitted: November 21, 2023

Revised: April 10, 2024

Accepted: June 9, 2024

Abstract

According to the World Health Organization (WHO), in 2020, the number of smokers worldwide was 991 million people. The Western Pacific has the highest number of smokers over 15, 377 million in 2020. South Asia is in second place, followed by Europe. In Indonesian students aged 13 to 15, two out of every three boys and one out of every five girls have tried tobacco products. This study aimed to identify the characteristics of respondents, environmental factors, and smoking behavior and analyze the relationship between environmental factors and smoking behavior in students. This study used correlational descriptive with a cross-sectional approach. Held in STIKes Panti Rapih Yogyakarta. The sample size used a total sampling technique with 73 samples. The result shows that most of the smoker respondents were aged ≥ 20 years (42.5%), had a positive environment (63.14%), and had moderate smoking behavior (64.4%). Bivariate analysis used the Spearman test with a sig (p value) of 0.000 ($< \alpha$ 0.05). There is a relationship between environmental factors and smoking behavior. Suggestions for smokers to reduce bad smoking habits, for institutions to provide guidance and re-explain the rules in student ethics books on smoking prohibition, and for future researchers to examine one of the factors that most influence smoking behavior

Keywords: cigarettes; environmental factors; smoking behavior; students

1. Introduction

The World Health Organization (WHO) reported that there were 991 million individuals worldwide who engaged in smoking in 2020. The global population in 2020 was a decrease of 35 million compared to 2015, totaling 1,026 billion. Despite the ongoing increase in the world population, the WHO anticipates that the number of smokers will continue to decrease to 35 million by 2025. This is attributed to numerous countries achieving global targets for tobacco control. The Western Pacific Region had the highest number of smokers aged 15 and above in 2020, totaling 377 million people. Europe ranked as the second-highest, with populations of 198 million and 176 million respectively, followed by South Asia.

The Western Pacific region has 377 million male smokers, making them the most prevalent gender group. Presently, Europe has 63 million female smokers. The majority of smokers fall within the age range of 45 to 54 years old (28,5%), with 14,2% aged between 15 and 24. Recent findings from the Global Youth Tobacco Surveys (GYTS) in 2019 reveal that among Indonesian students aged 13 to 15, two out of every three boys and one out of every five girls have tried tobacco products. 19,2% of students are smokers, with 60,6% facing no restrictions in purchasing cigarettes, and two-thirds of them buying cigarettes from retail outlets. Most students (90.29%) had seen cigarette advertisements, 55.88% of them saw people smoking in school areas and 46.88% saw teachers smoking at schools (Faisal et al., 2022).

The smoking prevalence among the population of D.I. Yogyakarta is outlined as follows: 25,8% in 2018, 22,87% in 2019, and 22,64% in 2020 according to data from the Social Economic Survey conducted by the Central Statistics Agency (2020). These percentages are still far below the national



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1 averages of 32,2% in 2018, 29,03% in 2019, and 28,69% in 2020. Smoking behavior is observed across all age groups, ranging from under 10 years old to over 65 years old. Result of National Basic Health Research (Riskesmas) of D.I Yogyakarta in 2018 indicates that individuals aged 35-39 show the highest rate of active smokers at 27,87%. Meanwhile, 25,86% fall within the age range of 24 to 34, and 23,86% between 25 and 29.

Smoking is a behavior where individuals are seen inhaling cigarette smoke and then exhaling it. This habitual act of inhaling smoke through a pipe or cigarette is referred to as smoking behavior, evolving through four stages: initiation, transition into becoming a smoker, and ongoing smoking habits (Sodik, 2018). Light and inexperienced Teenage smokers may experience indications of nicotine dependence, which indicates that they will likely continue to smoke for several years after they stop (Selya et al., 2016).

Health School Panti Rapih Yogyakarta is a higher education institution focusing on health disciplines, guided by the I CARE values introduced by the Sisters of Carolus Borromeus. One of its goals is to achieve international standards in healthcare education by 2041. Despite the campus regulations prohibiting smoking, many students still engage in this behavior. Smoking has become a common behavior among individuals, including students at Health School Panti Rapih Yogyakarta. The number of smokers, including students, is on the rise. While only a few students have been identified as smokers, others may remain unidentified. The following environmental factors were significantly related to the likelihood of cigarette smoking: home secondhand smoke (SHS) exposure, smoker friends, outside SHS exposure, school SHS exposure, and smoker parents (Liang et al., 2022). In rural areas, the influence of peer groups on smokers was found to be 58.33%, while in urban areas, it was approximately 62.5% (Kulkarni & Varma, 2017).

In a preliminary study conducted by researchers in October 2022, through online Zoom sessions, involving 15 respondents consisting of 10 male and 5 female students from Health School Panti Rapih Yogyakarta, it was found that almost all of them, totaling 12 individuals (10 male students and 2 female students), or 80% reported smoking daily. The remaining 3 individuals (female students), making up 20%, mentioned smoking occasionally. These respondents were active students of Health School Panti Rapih Yogyakarta enrolled in the Diploma Three Nursing, Nutrition Bachelor's, and Nursing Bachelor's programs. Additionally, the study revealed that respondents attributed their smoking habits to environmental influences such as family members, housemates, and social circles who smoke, indicating their susceptibility to external factors. Some Nursing Bachelor's students have reported that they previously did not smoke due to nobody in their environment smoked. However, after socializing in a different environment where 90% of individuals smoked, they tried smoking and have continued to do so until now. Those who smoke daily mentioned consuming 8-10 cigarettes per day.

The findings from these respondents indicate that those influenced by their surroundings to smoke find it challenging to avoid environments that promote smoking behavior, as these environments have become integrated into their daily routines. While on campus, they make efforts to resist smoking, but the presence of smoking peers often tempts them to join in. Female respondents noted feeling a sense of social validation when smoking, as it aligns them with their peers. They perceive smoking alongside male peers (students) as more enjoyable and socially appealing.

2. Research Methods

This research uses a quantitative research design, using a correlational descriptive method with a cross-sectional approach. It was conducted at Health School Panti Rapih Yogyakarta. The study involves a population of 73 smokers, using a total sampling technique. Data collection occurred between December 10th and 20th, 2022, and involved the distribution of two questionnaires: one focusing on 20

environmental factors and the other on 25 aspects of smoking behavior. Analysis was performed using Spearman's correlation test.

This research was conducted at Health School Panti Rapih Yogyakarta. The study involved a population of 73 smokers using a total sampling technique. Data collection occurred between December 10th and 20th, 2022, involving the distribution of two questionnaires: one focusing on 20 environmental factors and the other on 25 smoking behavior aspects. Analysis was performed using Spearman's correlation test.

Once authorized, the researcher began data collection by explaining the research objectives to potential respondents and obtaining informed consent. Upon the respondents agreeing to participate, the researcher distributed the questionnaire using Google Forms. After respondents completed the questionnaire, the researcher analyzed the collected research data.

3. Results and Discussion

3.1. Respondent Characteristics

Tabel 1. Distribution of Age and Gender Characteristics

Age	n	%	Gender	n	%	Total	
						n	%
≤20 years old	17	23.3	Male	49	67.1	73	100
20 years old	25	34.2	Female	24	32.9		
≥20 years old	31	42.5					

Source: Primary Data, 2022

Table 1 shows that the majority of smoking respondents, 31 individuals (42,5%) of the total 73 respondents, are under the age of 20. The Association of Southeast Asian States (ASEAN) reported in The Tobacco Control Atlas ASEAN Region 4th Edition that Indonesia has the highest percentage of smokers aged between 25 and 64 years in the ASEAN region. There are 1,3 billion smokers globally, with 942 million males and 175 million females (Salsabila, 2022). Comparing theoretical perspectives and research findings reveals alignment, as there are more respondents (42,5%) above 20 years old compared to those under 20 years old (23,3% and 34,2%). The committee of the American Foundation of Pediatrics (AAP) recommends upholding the least age prerequisite of 21 a long time for tobacco item deals (Hageman et al., 2023). Adolescents whose families smoke have a higher risk of smoking, for boys, the risk is 2.34 times higher, and for girls, the risk of smoking is 2.62 times higher (Joung et al., 2016). The normal age to start smoking was 13-14 a long time ancient. More than 28% of members smoked in school (Nowak et al., 2018).

Among smoking respondents, the majority, 49 individuals (67,1%) are male. The risk of smoking among male students increased 13.94 times (95%CI: 11.56–16.81) compared to female students (Faisal et al., 2022). More young ladies than boys expressed that considering the taste of cigarettes is appalling, not being permitted to smoke by guardians, knowing smoking is unsafe, not being permitted to smoke some time recently the age of 18, not needing to be dependent on smoking, which smoking makes you scent terrible were critical reasons for choosing not to smoke cigarettes (Kjeld et al., 2021).

The researcher suggests that individuals aged over 20 are likely to have more extensive social connections and interactions, which could influence them to start smoking. In contrast, those under 20, often adolescents, may simply be trying out anything in their surroundings. The researcher also suggests that differences influence the higher prevalence of smoking among males in social interactions between genders. There is a stigma that smoking is more acceptable for males, while it is viewed as less common

for females. Women who smoke may do so because of frequent socialization with smokers, leading them to adopt the behavior by taking up smoking.

3.2.Data of Environmental Factor

Table 2. Distribution of Environmental Factors

Environmental Factor	n	%	Total	
			n	%
Positive	46	63.14	73	100
Negative	27	36.98		

Source: Primary Data, 2022

Table 2 shows a predominance of positive environmental factors, with 46 respondents (63,14%), while negative environmental factors are represented by 27 respondents (36,98%). Both types of factors play a significant role in shaping an individual's smoking behavior. The research findings indicate that smoking respondents tend to experience a higher prevalence of positive environments compared to those with negative environments. This phenomenon is influenced by factors originating from parental or familial influences, social interactions, and the surrounding social environment of the respondents.

Positive environmental factors are those that positively influence individuals within that environment. In contrast, negative environmental factors influence or lead to bad behavior, resulting in undesirable individual behaviors. Up to 82.1% of smokers in the student body discovered that their playmates and 71.8% of their school friends also smoked (Dayfi et al., 2024). Curiosity was the most commonly reported reason to start smoking (39%) and for the second row, they indicated to start smoking due to tobacco user friends (30.6%) (İçmeli et al., 2016). Students are more motivated to stop smoking when they are in an environment that offers strong support for doing so (Melizza et al., 2020). Increasing the visibility of tobacco legislation and implementing tobacco prevention activities at school have more favorable effects on smoking intention in student (Scalici & Schulz, 2020). Maintaining gains in avoiding school-age youth smoking initiation will require continuing to prioritize policies and practices that create and foster healthy school environments (Evans et al., 2023).

The researcher suggests that environmental factors play a significant role in shaping human behavior, habits, and other aspects. A positive environment mostly influences good impact, while on the other hand, negative environments often lead to unfavorable impacts on behavior.

3.3.Data on Smoking Behavior

Table 3. Distribution of Smoking Behavior

Smoking Behavior	n	%	Total	
			n	%
Light	7	9.6	73	100
Moderate	47	64.4		
Heavy	19	26		

Source: Primary Data, 2022

Table 3 shows that the smoking behavior of respondents is primarily moderate, with 47 respondents (64,4%) out of the total of 73 respondents. This is evidenced by the research findings, which reveal that these 47 respondents typically consume 11 to 20 cigarettes per day, rarely smoke in public areas, and have occasional smoking sessions.

The World Health Organization (WHO) classifies smokers into three groups: light smokers, who consume 1 to 10 cigarettes per day; moderate smokers, who smoke 11 to 20 cigarettes per day; and heavy smokers, who smoke 20 or more cigarettes per day. Most respondents in this research fall into the moderate smoking category, smoking between 11 and 20 cigarettes per day. According to the current study's findings, the majority of respondents exhibited moderate smoking behavior. Generally, 8% of school-aged children detailed smoking, within the final 30 days 52% detailed smoking every day, and predominance expanded with age (Evans et al., 2023). In general, smoking behavior is linked to a few factors, such as habit, preference for smoking locations, and quantity of cigarettes smoked (Melizza et al., 2020).

The researcher suggests that respondents are classified as moderate smokers due to the impact of their daily routines. These routines involve occasional smoking in the mornings and throughout the day, smoking in public areas, while driving, and having infrequent smoking durations. In contrast, heavy smokers typically engage in frequent smoking in public places, while driving, and have longer smoking durations, thereby dividing between light, moderate, and heavy smokers.

3.4.Data on the Correlation Between Environmental Factors and Smoking Behavior

Table 4. Distribution of Smoking Behavior

Smoking Behavior		
Environmental Factor	R	0.741
	P value	0.000
	N	73

Source: Primary Data, 2022

Table 4 shows a significance value (p value) of $0,000 < \alpha 0,05$. Consequently, H_0 is rejected, signifying a correlation between environmental factors and smoking behavior. The correlation coefficient (r) is 0,741, indicating a strong positive correlation, implying that as environmental factors become more positive, smoking behavior improves. Within this research, 46 respondents (63,14%) were found to have positive environments, suggesting that their immediate family members did not smoke, and their surroundings did not influence them to smoke.

The researcher suggests that the environment surrounding individuals can influence their habits and behaviors. In this research, it was found that the environment plays a significant role in shaping one's smoking behavior. Whether positive or negative, the environment equally affects individuals.

Adolescents are highly vulnerable to adopting unhealthy lifestyles during their teenage years. They are easily influenced by negative habits like smoking, alcohol consumption, drug use, fighting, and other undesirable behaviors (Nowak et al., 2018). Among these, smoking is the most prevalent issue. University students typically exhibit increased stability in their personality due to fewer emotional disruptions. To develop a realistic perspective of themselves and their surroundings and to act and think more maturely, they tend to firm up their decisions and carefully consider their actions. Consequently, they are less likely to be swayed or influenced by their environments.

In the student ethics handbook of Health School Panti Rapih Yogyakarta, Article 11 outlines violations of student ethics, with point 2, subpoint 'g', stating that smoking within the campus environment during academic and non-academic engagements constitutes a violation of student ethics. As health science students, it is expected that individuals maintain and practice healthy lifestyles, as outlined in the student ethics handbook. One aspect of a healthy lifestyle involves smoking on campus, whether during academic or non-academic activities.

4. Conclusion

The research titled “The Correlation between Environmental Factors and Smoking Behavior at the Health School Students Panti Rapih Yogyakarta” was carried out from December 10th to 20th, 2022. The conclusions drawn from this research are as follows:

According to the characteristics of the respondents, it was observed that a majority of them were male, consisting of 49 respondents (69,1%), and the majority were aged ≥ 20 years, constituting 31 respondents (42,5%).

The overview of environmental factors among students at Health School Panti Rapih Yogyakarta reveals that out of 73 respondents in total, 46 individuals (63,14%) demonstrate positive environmental factors, while 27 respondents (36,98% exhibit negative environmental factors.

As for smoking habits among these students, data from the same group of 73 respondents indicate that 47 individuals (64,4%) show moderate smoking behavior, 19 respondents (26%) engage in heavy smoking, and 7 respondents (9,6%) have light smoking habits.

According to the Spearman correlation test results, the p-value is 0,000 (p-value<0,05, indicating a significant correlation between environmental factors and smoking behavior among students at Health School Panti Rapih Yogyakarta.

Acknowledgements

The author expresses deep gratitude to the following:

- a. The Lord Jesus Christ, whose blessings, ease, and health have enabled me to conduct this research.
- b. To Mrs. Ag. Sri Oktri Hastuti, SKM., M.Kep., PhD NS, as my first supervisor, whose patiently guided the fullest guide possible, supported, and offered invaluable input to complete this report.
- c. To Mr. Dwi Antara Nugraha, M.Tr.Kep, as my second supervisor, for consistently providing feedback on my report, ensuring its successful completion.
- d. To my parents, who have always supported, prayed, and motivated me throughout the process of completing this report.
- e. To my big family, who has supported and prayed for me since the beginning of my university journey until almost completed it.
- f. To my classmates, who have always supported each other to complete this report, whose names I cannot mention individually.

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