
Effectiveness of Smoke-Free Campus Implementation on Smoking Behavior Control

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ABSTRACT

The tobacco industry is a significant obstacle in the effort to control smoking behavior, especially since they are allowed to promote their products to the public, including students. To address this issue, the Ministry of Health developed a smoke-free zone that may be implemented in universities to reduce smoking rates among adolescents. To know the effectiveness of implementing a smoke-free campus policy on smoking behavior control at Universitas Prima Indonesia by assessing aspects of student knowledge and compliance levels. This research is a descriptive quantitative study with a cross-sectional design and uses purposive sampling techniques with the criteria of active smoker students, 74 people in the medical study program of the Faculty of Medicine, Dentistry, and Health Sciences at Universitas Prima Indonesia. Data was obtained in February-April by distributing questionnaires directly to student smokers. The results showed that smoking behavior control among students increased in 50 (67.6%) out of 74 respondents. This is supported by the relationship between the level of knowledge and students' attitudes toward smoking behavior control in the smoke-free campus area, as indicated by a p -value < 0.05 ($0.005 < 0.05$ and $0.001 < 0.05$). This study found that students' knowledge and attitudes towards smoke-free campus areas are important aspects influencing the effectiveness of the smoke-free campus policy in controlling smoking behavior.

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INTRODUCTION

Smoking has become a major health issue worldwide, with significant impacts on public health in Indonesia. Both active and passive smokers are at risk of developing chronic diseases in the productive age range (15-64 years), which can result in high rates of morbidity and premature mortality (World Health Organization, 2020). Cigarettes contain harmful chemicals such as nicotine and tar, which can cause cancer and addiction. The effects involve various body organs, including blood circulation, heart, stomach, skin, bones, brain, lungs, mouth and throat, reproduction, and fertility. In addition, smoking may increase the risk of tuberculosis

infection (Salsabila et al., 2022). Nicotine also impairs the development of the pre-frontal cortex in adolescents, affecting cognitive and emotional functions (Soerojo et al., 2020). In addition to causing health problems, smoking also has an economic impact, both at the household and community level (Sodik, 2018).

The Global Youth Tobacco Survey (GYTS) in 2014 named Indonesia as the country with the highest adolescent smoking rate in the world (World Health Organization, 2019). Adolescents are a group that is very vulnerable to influence. The prevalence of adolescent smokers aged 10-18 years increased from 7.2% to 9.1% between 2016 and 2018, despite a target reduction to 5.4% by 2019. During the same period, electronic cigarette

use surged nearly tenfold, from 1.2% to 10.9% (Soerojo et al., 2020).

The habit of smoking is often considered to provide satisfaction for smokers. It gives students confidence and helps improve concentration when dealing with problems. Psychological aspects also play a role in shaping smoking patterns among adolescents. Becoming a smoker or experiencing smoking addiction is a process that involves various stages of initiation and adaptation (Sulastrri et al., 2018). This increase in prevalence shows that campaign efforts about the dangers of smoking are still not optimally implemented (Lestari, 2019).

Efforts to control the impact of consumption by students are regulated in Law No. 36 Year 2009 on Health, Government Regulation No. 109 Year 2012 on the Safety of Materials Containing Addictive Substances, especially Tobacco Products for Health, and Minister of Health Regulation No. 28 Year 2013 on the Inclusion of Health Warnings and Health Information on Tobacco Product Packaging. The National Cancer Committee also provides Guidelines for Strategies and Action Steps to Control Tobacco Consumption, which include increasing taxes and prices on tobacco production, bans on advertising, promotion, and sponsorship, protection against exposure to secondhand smoke, tobacco product hazard campaigns, and smoking cessation services (Argadikoesoema, S., 2019). In addition to implementing graphic health warnings on tobacco packaging, some other actions or strategies need to be considered to address the problem of smoking further. This suggests that while graphic warnings are important, they should be part of a broader strategy to reduce tobacco use and related health risks. health risks (Edison et al., 2021).

Although smokers are aware of the dangers of smoking, they often ignore them. Smoking behavior is currently a common symptom that can be found in all places, such as on the streets, crowded places, bus terminals, hospitals, schools, and colleges. To address this, the Ministry of Health has developed Smokefree Areas in seven settings to reduce cigarette addiction. Based on Law No. 36 of 2009 and Government Regulation No. 109 of 2012, local governments should establish Smokefree Areas in their areas in seven settings, such as health care facilities, teaching and learning places, children's playgrounds, places of worship, public transportation, workplaces and other designated public places (Tarigan & Yulianti, 2019). Smoke-free areas are defined as rooms or areas declared free from smoking

activities or producing, selling, advertising, and/or promoting tobacco products (Keloko, 2019).

One of the seven smoke-free areas is places of learning, including universities. If smoke-free areas in universities can be realized, it will be a form of positive participation in Tobacco Control Efforts in Indonesia (Mustakim et al., 2022). Several universities in Indonesia have effectively established smoke-free area regulations, including Universitas Petra Christian Surabaya, the Universitas Indonesia, Universitas Muhammadiyah Surakarta, Universitas Diponegoro, Universitas Muhammadiyah Yogyakarta, and Universitas Bogor Agricultural (Garcés, 2018).

According to the 2023 census data from the Central Bureau of Statistics of North Sumatra Province, the percentage of the population aged 15 and over who smoke increased from 25.32% in 2022 to 26.28% in 2023 (Central Bureau of Statistics, 2023). From these data, tobacco control regulations, and policies still have implementation shortcomings, especially in universities. As an institution that educates future medical professionals, the Study Program of Medicine, Faculty of Medicine, Dentistry, and Health Sciences at Universitas Prima Indonesia should be a role model for implementing the smoke-free area policy. However, is implementing the smoke-free campus policy effective in reducing smoking behavior?

Self-control plays a crucial role for smokers, allowing them to manage their behavior effectively (Patandung & Feriyanto, 2022). Health behavior is influenced by various factors, including attitudes, social support, health knowledge, and autonomy in decision-making (Susanti & Suraji, 2019). Therefore, the researcher focuses on understanding knowledge and attitudes toward the smoke-free campus policy as determinants of smoking behavior control.

The smoke-free campus policy at Universitas Prima Indonesia aims to reduce the number of students who smoke and control overall smoking behavior. However, the existence of violations indicated the need for further research on the effectiveness of implementing this policy, especially in the context of students' knowledge and attitudes toward smoking behavior control.

METHOD

This study used quantitative methods with descriptive research design and a cross-sectional approach. This research was conducted from February to April 2024 at Universitas Prima

Indonesia, Medan. The sampling technique used was purposive sampling, a sample selection technique based on specific criteria, such as smokers, someone who has smoked at least one cigarette per day in the last month and is an active student (Ningrum & Febriyanto, 2021).

The sample size obtained was 74 students who fit the sample selection criteria in the medical study program at the Faculty of Medicine, Dentistry and Health Science, Universitas Prima Indonesia. The dependent variable in this study was smoking behavior control, while the independent variables were knowledge and attitude toward the smoke-free campus policy. Data was collected through a questionnaire consisting of 38 questions with a Likert scale for each variable. Validity and reliability tests for each variable showed validity <0.05 and Cronbach's alpha >7. Data analysis was conducted using two approaches: univariate analysis and bivariate analysis using the chi-square test. Data were collected through an online survey via Google form and distributed directly via WhatsApp on campus.

This research has received a ethical clearance from the Health Ethics Committee Universitas Prima Indonesia with the number 026/KEPK/UNPRI/III/2024.

RESULTS

Table 1. Frequency of smoking behavior based on semester level

Level	f	%
2 nd semester	30	40,5
4 th semester	24	32,5
6 th semester	20	27,0

The characteristics of respondents based on semester level in Table 1 above show that smoking behavior was found in the 2nd-semester group with 30 respondents (40.5%), 4th semester with 24 respondents (32.5%), and followed by the 6th semester with 20 respondents (27.0%). Based on these data, it can be concluded that smoking behavior is most often found in 2nd-semester students, with a percentage of 40.5%, followed by

4th-semester students with 32.5%, and the least is 6th-semester students with 27.0%.

Table 2. Frequency distribution of smoking behavior control on smoke-free campus policy

Smoking behavior control	f	%
Controllable	50	67,6
Uncontrollable	24	32,4

The results of the frequency distribution of the smoking behavior control on the smoke-free campus policy, as shown in Table 2 above, show that students with a higher level of controlled smoking behavior were 50 respondents (67.6%). Meanwhile, students with uncontrolled levels of smoking behavior were 24 respondents (32.4%).

Table 3. Distribution of respondent characteristics based on knowledge of smoke-free campus

Knowledge	f	%
High	54	73,0
Low	20	27,0

The research results on the knowledge level of smoking students regarding a smoke-free campus, as shown in Table 3 above, indicated that most smoking students have high knowledge, totaling 54 individuals (73.0%). Those with low knowledge numbered 20 individuals (27.0%).

Table 4. Distribution of respondent characteristics based on attitudes toward smoke-free campus policy

Attitudes	f	%
Positive	58	78,4
Negative	16	21,6

The research results on the attitudes of smoking students toward the smoke-free campus policy, as shown in Table 4 above, indicate that the majority of students have a positive attitude toward the policy, with 58 individuals (78.4%). In contrast, 16 students (21.6%) are negative toward the smoke-free campus policy.

Table 5. Chi-square test results of the relationship between knowledge of smoke-free campus and smoking behavior control

Knowledge	Smoking Behavior Control				Total		p-value
	Controllable		Uncontrollable		f	%	
	f	%	f	%			
High	42	56.8	12	16.2	54	73.0	0.005
Low	8	10.4	12	16.2	20	27.0	

The research results on the relationship between knowledge of a smoke-free campus and the control of smoking behavior, as shown in Table 5 above, indicated a correlation between knowledge of a smoke-free campus and the control of smoking behavior. This is demonstrated

by a p-value of 0,005. These findings are also supported by Kaufman's research, which states that individuals with a good understanding of the health risks associated with smoking tend to avoid smoking behavior (Kaufman et al., 2020).

Table 6. Chi-Square test results on the relationship between attitudes toward smoke-free policy and smoking behavior control

Attitudes	Smoking Behavior Control				Total		p-value
	Controllable		Uncontrollable		f	%	
	f	%	f	%			
Positive	45	60.8	13	17.6	58	78.4	0.001
Negative	5	6.8	11	14.9	16	21.6	

The research results on the relationship between attitudes toward the smoke-free campus policy and smoking behavior control, as shown in Table 6 that indicate a correlation between attitudes toward the smoke-free campus policy and the control of smoking behavior. This is demonstrated by a p-value of 0,001, which is smaller than the significance level.

DISCUSSION

In this study, after completing data collection through questionnaires, an improvement in smoking behavior control was observed in 50 respondents (67.6%). Conversely, 24 respondents (32.4%) experienced a decline in smoking behavior control. The distribution of decreasing smoking behavior across semesters shows that 2nd-semester students had the highest percentage at 40.5%, followed by 4th-semester students at 32.5%, and the lowest percentage was among 6th-semester students at 27.0%. Students' success in reducing smoking behavior in this study could also enhance the smoke-free campus policy's effectiveness during and outside academic sessions (Dewi et al., 2020).

Aspects that contributed to increased students' knowledge about a smoke-free campus were signs indicating smoking bans in campus areas and easy access to information through the Internet (Citra et al., 2020.). However, there are still respondents with low knowledge about the smoke-free campus. A significant factor contributing to this low level of knowledge is the lack of socialization regarding the smoke-free campus (Pamungkas et al., 2020).

This study indicates that knowledge and attitudes toward the smoke-free campus policy are crucial factors in reducing smoking behavior among students. Knowledge is a significant factor that can influence an individual's ability to control smoking behavior. This is supported by the

research results indicating that students with a good knowledge of the smoke-free campus policy tend to experience an improvement in smoking behavior control, amounting to 56.8%. Based on this, good knowledge about smoke-free campuses influences smoking students in improving their smoking behavior control. According to Putra (2018), efforts to enhance smoking students' understanding of the risks of smoking and smoke-free areas are essential for increasing their awareness and concern for the smoke-free campus policy (Putra & Widarsa, 2018).

Good knowledge and positive behavior make individuals or even communities less susceptible to influences from their surroundings (Wijaya et al., 2024). This is evidenced by the results of the Chi-Square analysis on the Odd Ratio value of 5.25, which means that groups of students with high knowledge about smoke-free campuses have a fivefold more significant chance of improving their smoking behavior control compared to students with low knowledge about smoke-free campuses.

In this study, attitudes toward the smoke-free campus policy represent students' or individuals' compliance responses to the rules of the smoke-free campus policy. In this study, the majority of smoking students strongly agree with the smoke-free campus policy. There are 45 students (60.8%) have a positive attitude toward the smoke-free campus policy, resulting in improved smoking behavior control. Students' positive attitudes were supported by understanding the smoke-free campus policy's benefits, impacts, and sanctions for non-compliance. This study's results are consistent with research showing that 40.2% of respondents complied with the smoke-free campus area policy at Universitas Hasanuddin. Students' compliance with the smoke-free campus policy can enhance their smoking behavior control (Hudriani, 2023).

In this study, attitudes toward the smoke-free campus policy refer to the student's or individuals'

responses to implementing the rules of the policy to protect both smokers and non-smokers from exposure to cigarette smoke. The frequency distribution of respondents' answers shows that most students strongly agree that everyone has the right to breathe clean air. The positive attitude of smoking students toward complying with the smoke-free campus policy is supported by their understanding of the policy benefits, impacts, and the sanctions imposed for non-compliance. However, there are still respondents with negative attitudes, influenced by a lack of information about the dangers of smoking, personal experiences, or environmental factors (Simangunsong et al., 2024).

In implementing the smoke-free campus policy, the campus authorities prohibit students from smoking in campus areas such as classrooms and other environments. Additionally, the campus has implemented socialization measures, including strict warnings to students violating the policy. Students attitudes can be assessed based on their response to the smoke-free campus policy (Sualang et al., 2019). The Chi-Square analysis reveals an Odds Ratio of 7.6, indicating that students with a positive attitude toward the smoke-free campus policy are eight times more likely to improve their smoking behavior control than those who do not comply. These findings support the implementation and strengthening of smoke-free policies on college campuses, complemented by a strong education program to ensure that all students are aware of and

understand the policy. These measures contribute to reducing smoking rates and promote a healthier campus environment for all students. Future efforts should address knowledge gaps and ensure strict enforcement to achieve greater compliance.

CONCLUSION

This study concludes that the level of knowledge and attitudes toward the smoke-free campus policy are crucial factors in determining the effectiveness of its implementation in controlling smoking behavior. The results indicate that the implementation of the smoke-free campus policy is effective in controlling smoking behavior. Students understanding of the smoke-free campus policy and their attitudes toward it significantly impact the success of its implementation. Students with high knowledge about the benefits of a smoke-free campus are likelier to support and comply with the policy, thereby increasing its effectiveness. However, some respondents have low knowledge and attitudes toward the smoke-free campus policy. Therefore, the researchers suggest enhancing socialization through anti-smoking campaigns conducted via seminars or workshops to raise students' awareness about the dangers of smoking and the importance of adhering to the smoke-free zone policy.

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