



THE RELATIONSHIP BETWEEN KNOWLEDGE ABOUT THE DANGERS OF CIGARETTES AND SMOKING BEHAVIOR IN JUNIOR HIGH SCHOOL STUDENTS

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ABSTRACT

According to the Global Youth Tobacco Study, adolescent smoking behavior in Indonesia is of great concern. Adolescent smoking behavior has serious consequences, including social, economic, health and even mortality impacts. One of the causes of smoking behavior in adolescents is a lack of understanding about the dangers of smoking. The purpose of this study was to determine the relationship between knowledge about the dangers of smoking and smoking behavior in one of the X Junior High Schools in Sukoharjo Regency. This research design used an analytic observational approach with a cross sectional design. The population studied was all students of SMP X. The sample was taken using simple random sampling technique, obtained a sample of 108 respondents. Data collection was carried out using a questionnaire that had been tested for reliability validity so that the questionnaire was reliable. Data were analyzed using the Chi-square statistical test. The results of statistical tests showed that H_0 was rejected with a value of $p = 0.003$ or $p < 0.05$, meaning that there is a significant relationship between knowledge about the dangers of smoking with smoking behavior. Researchers suggest that schools socialize the dangers of smoking by providing education to students about the adverse effects of smoking behavior.

Keywords: behavior; knowledge; smoking; students

INTRODUCTION

Scientifically, smoking is harmful to both individuals and others. Despite that, according to the Southeast Asia Tobacco Control Alliance (SEATCA) report, the number of smokers in Indonesia is 65.19 million and ranks third in Southeast Asia after China and India in 2016 (Joung et al., 2016; SEATCA, 2018). The Global Youth Tobacco Study states that the prevalence rate of adolescent smoking in Indonesia is quite alarming, where around 25.9 million (37%) children have engaged in smoking behavior (Noviana et al, 2016). In addition, the incidence of smoking in the age group 10-18 years increased from 7.2% in 2013, to 9.1% in 2018 (Ilmaskal et al, 2022). According to data from the Central Bureau of Statistics, the level of adolescent smoking over the age of 11 in Central Java tends to fluctuate, where in 2019 there were around 12.92% cases of adolescents smoking, in 2020 it increased to 20.93%, and in 2021 it decreased to 19.72% (Badan Pusat Statistik, 2023).

According to Lawrence Green's theory, adolescent smoking habits are influenced by three main factors, namely predisposing factors, enabling factors, and reinforcing factors (Handayani, 2019). One of the common factors that influence adolescent smoking behavior is the level of knowledge and attitudes, which are included in the predisposing factors (Handayani, 2019). Knowledge plays an important role in shaping a person's behavior (Handayani, 2019; Sairo et al., 2020). When adolescents have good knowledge about the risks of smoking, they tend to prevent smoking behavior, and good knowledge will lead adolescents to be able to determine what is good and bad for them (E. Wijayanti, 2017). Knowledge is the result of understanding that arises after individuals observe or feel an object in a particular situation (Gallè et al., 2016;

Hidayati, Pujiana, 2020). When adolescents are in an environment with a high level of smoking behavior, they are likely to be influenced by the culture and environment (Albert-Lőrincz et al., 2019). Because adolescence is a stage of development that is full of changes in attitudes and behavior, it is not yet critical enough to deal with false or misleading information, given the instability of personality and the lack of knowledge of the dangers of smoking in adolescents (Albert-Lőrincz et al., 2019; Sari, 2019). This makes adolescents more vulnerable to the influence of smoking, considering that adolescents are still in the stage of self-discovery and maturation of mindset (Sari, 2019).

Smokers who start smoking at a young age are likely to continue smoking for about 16 to 20 more years, half of whom are likely to become heavy smokers in the future (Sygit et al., 2011). In addition, starting smoking at a young age will also increase the risk of various diseases (Zaenabu, 2014; WHO, 2020). Numerous scientific studies reveal that smoking is the leading cause of deadly diseases worldwide, such as bronchitis, high blood pressure, impotence, heart and blood vessel disorders, and lung cancer (Sari, 2019; WHO, 2018; Zaenabu, 2014). Based on data from the WHO, smoking causes about 4 million deaths each year at the global level, which is equivalent to about 10,000 deaths every day (WHO, 2020). In Indonesia, about 225,700 people die each year due to the effects of smoking or diseases related to tobacco use (WHO, 2020). Smoking produces smoke containing various harmful substances such as nicotine, carbon monoxide, benzopyrene, ammonia, and 4,000 other harmful substances, which are directly inhaled by active and passive smokers, potentially damaging the lungs (Basuki & Nilawati, 2011; Kemenkes RI, 2018). In addition, smoking also has adverse social and economic impacts (Husein & Menga, 2019). The economic impacts include decreased productivity which contributes to poverty levels as much of the income is used to buy cigarettes and increases health costs (Toukan, 2016). The social impacts can affect adolescents' behavior at school, namely the deterioration of adolescent behavior and morality, such as absenteeism, decreased learning achievement, dependence, and decreased motivation to learn (E. Wijayanti, 2017).

Based on the description above, it shows that there will be an increase in the number of smokers which is expected to be higher among adolescents. Researchers feel interested in conducting research on junior high school adolescents because they see some previous research related to knowledge and smoking behavior in adolescents on average conducted on high school (Hidayati, Pujiana, 2020; Maulidea Binita et al., 2016; Zaenabu, 2014). In addition, according to Wijayanti et al in 2018, the age of adolescents who start smoking tends to increasingly shift to be younger, namely at the age of <10 years (D. Wijayanti et al., 2018). of course this is unfortunate if it happens to the younger generation today. Therefore, researchers want to examine the relationship between knowledge about the dangers of smoking and smoking behavior in private junior high school students x.

METHOD

This research design uses a type of quantitative analytical research with a cross sectional approach, namely measurements or observations made at one point in time (Notoatmodjo, 2012). This research was conducted at X Junior High School (SMP) located in Sukoharjo Regency, Central Java Province, on June 16, 2023. The population that became the focus of the study were students of SMP X, totaling 150 people. Calculation of the number of samples using the Isaac and Michael Formula by determining the number of samples based on an error tolerance of 5%. Thus, the number of samples taken was 108 respondents. The process of selecting respondents was carried out randomly using the simple random sampling method. Data was collected using a questionnaire consisting of 25 questions. There were 15 questions

measuring the level of knowledge and 10 questions describing smoking behavior. All questions in the questionnaire were presented in multiple choice form. Assessment of the level of knowledge is categorized into good, enough and less. If the respondent answers 15-10 correct answers, it is categorized as good, but if the respondent answers 9-6 correct answers, it is categorized as enough, and if the respondent's answer is less than 6 correct, it is categorized as less. For the assessment of smoking behavior, respondents were categorized as smoking or not smoking, and there were 9 questions that asked why they smoked or did not smoke. The validity and reliability of the questionnaire was tested on 40 respondents who had similar characteristics. The results showed that 25 question items were valid, while 9 question items were invalid. The reliability test using Cronbach's alpha method showed a result of 0.716 which indicates that this questionnaire is reliable. This study has gone through a research ethics evaluation process authorized by the Research Ethics Commission of the Faculty of Medicine, Universitas Muhammadiyah Surakarta (Ethical No.4945/B.2/KEPK-FKUMS/IX/2023). The independent variable in this study is knowledge about the dangers of smoking while the dependent variable is smoking behavior. Data analysis was conducted through the univariate analysis method which resulted in the frequency distribution of each observed variable. Then, bivariate analysis was conducted using the Chi-square statistical test to determine the relationship between variables with a significance level of 0.05.

RESULT

Table 1.
Frequency Distribution of Respondent Characteristics (n=108)

Characteristic	f	%
Gender		
Male	63	58,3
Female	45	41,7
Age		
12	2	1,9
13	36	33,3
14	46	42,6
15	22	20,4
16	2	1,9

Based on the results of table 1. above the number of samples in this study included 108 respondents. It shows that the majority of respondents are male at 58.3%, while women are 41.7%. In addition, the majority of respondents were aged 13-14 years, as much as 75.9%.

Table 2.
Overview of Respondents' Knowledge (n=108)

Knowledge Level	f	%
Less	11	10,2
Enough	52	48,1
Good	45	47,1

Bents had sufficient knowledge about the risks of smoking as much as 48.1%. Meanwhile, 41.7% of the respondents showed a good level of knowledge, but the remaining 10.2% had insufficient knowledge about the dangers of smoking.

Table 3.
Behavioral Overview of Respondents (n=108)

Smoking Behavior	f	%
Smoking Behavior		
Smoking	27	25,0
No Smoking	81	75,0

From the data in table 3. above that the frequency distribution of smoking behavior in junior high school students x illustrates that most respondents, namely 75%, do not smoke. Meanwhile, about 25% of the respondents showed smoking behavior.

Table 4.
Respondents' smoking behavior (n=108)

Behavior	f	%
Reasons for Smoking		
Strong nicotine addiction	15	10,2
Feeling of relaxation or comfort	9	8,3
Difficult to cope with stress	6	5,6
Improves concentration & Creativity	1	0,9
Start Smoking		
4-6 years	1	0,9
7-10 years	9	8,3
11-12 years	8	7,4
13-14 years	9	8,3
No Smoking	81	75,0
Number of Smokes a Day		
1-5 cigarettes	23	21,3
16-20 cigarettes	4	3,7
Affects smoking		
None	3	2,8
Parents	5	4,6
Friends	18	16,7
Advertisement	1	0,9
How to get cigarettes		
Friends	15	13,9
Buy it yourself	8	7,4
Parents	4	3,7

Table 5.
Behavior of respondents not smoking (n=108)

Behavior	f	%
respondents not smoking		
Yes, but I have quit	33	30,6
No, I never smoke	46	42,6
Reasons Not to Smoke		
My health	50	46,3
Health of those around me	12	11,1
Costs associated with smoking	12	11,1
Social factors and stigma against smokers	8	7,4
Social Reasons		
Avoiding unpleasant cigarette odor	33	30,6
Avoiding environmental side effects	27	25,0
Influencing others not to smoke	3	2,8
Saving money	19	17,6
Advantages of not smoking		
I feel healthier and more energetic	41	38,0
I have more money to spend on other things	7	6,5
I am freer and less dependent on the cigarette habit	32	29,6
No changes in my lifestyle	2	1,9

Table 4 shows the variation in the age at which respondents started smoking: 8.3% started at 13-12 years, 7.4% at 11-12 years, 8.3% at 7-10 years, and 0.9% at 4-6 years. Most (21.3%) smoked 1-5 cigarettes per day, while 3.7% smoked 16-20 cigarettes. The influence of friends in smoking behavior was dominant (16.7%), followed by the influence of parents (4.6%). The

majority obtained cigarettes from friends (13.9%), 7.4% bought themselves, 3.7% from parents. Reasons for smoking: 10.2% due to nicotine addiction, 8.3% for comfort, 5.6% to cope with stress, and 0.9% for concentration. The results of the study based on table 5. above, provide an overview of the reasons why respondents do not smoke. The majority of respondents chose not to smoke due to health considerations at 46.3%. 11.1% of respondents avoided smoking due to cost considerations, and 7.4% due to social factors and the stigma attached to smoking, as reasons for not smoking. In addition, other social reasons included avoiding the unpleasant smell of cigarettes 30.6%, avoiding the side effects of smoking on the environment 25.0%, and the desire to save money 17.6%. Other benefits of not smoking involved feeling healthier and more energetic 38.0%, having more money to spend on other things 6.5%, and feeling less dependent on smoking 29.6%.

Table 6.
Relationship between knowledge level and smoking behavior (n=108)

Relationship between knowledge level and smoking behavior (n=108)							
Smoking Knowledge	Smoking Behavior						<i>p</i>
	Ya		Tidak		Total		
	f	%	f	%	f	%	
Less	5	45,5	6	54,5	11	100,0	0,001
Enough	19	36,5	33	63,5	52	100,0	
Good	3	6,7	42	93,3	45	100,0	
Total	27	25,0	81	75,0	108	100,0	

Based on Table 6, it can be seen that out of a total of 108 respondents, 75% of respondents do not smoke, from this group 38.8% (points) of respondents have good knowledge, 30.5% of respondents have enough knowledge, and 5.5% of respondents have less knowledge. Meanwhile, of the 25% of respondents included in the smoker group, 2.7% had good knowledge, 17.5% of respondents had enough knowledge, and 4.6% of respondents less knowledge. These results were corroborated by hypothesis testing which showed a *p* value of 0.001 (<0.05), indicating a significant relationship between the level of knowledge about the dangers of smoking and smoking behavior at X Junior High School.

DISCUSSION

Knowledge plays an important role in shaping individual actions (overt behavior). In the PRECED-PROCEED theoretical framework, the level of knowledge is known as a predisposing factor related to individual attitudes towards the behavior they will perform (Maulidea Binita et al., 2016). The results of chi-square statistical analysis in the study showed that the *p* value = 0.001 $< \alpha$ 0.05 H_0 was rejected, meaning that there was a significant relationship between knowledge about the dangers of smoking and smoking behavior in junior High School students. This finding is in line with research conducted by Pradipta in 2019, which also found a significant relationship between the level of knowledge about the dangers of smoking and smoking behavior in adolescents in Sambangan Village, with a *p* value of 0.000 <0.05 (Stevens et al., 2019). But the research is not in line with the results of Julaecha's research in 2021 which shows that there is no significant relationship between knowledge and smoking behavior in students of SMP Negeri 2 Lubuk Alung with a *p*-value obtained ($P>0.005$), so H_0 is accepted (Julaecha & Wuryandari, 2021).

The relationship between the level of knowledge about the dangers of smoking to an action taken with knowledge will make people more aware of smoking habits, and more likely to take action taken. This is in line with predisposition theory which states that knowledge plays a role in the decision-making process and action. Adolescents with good knowledge about the dangers of smoking tend to avoid smoking behavior because they understand the risks and negative effects. It is also stated in Pakaya's research in 2013 that good knowledge prefers not to smoke (Pakaya, 2013). Education level affects a person's propensity to use tobacco. The higher a

person's level of education, the lower their propensity to smoke. This is due to an increased awareness of the risks of smoking that is more formed in individuals with higher levels of education. This finding is in line with the results of the National Institute of Health Research and Development Ministry of Health of Indonesia in 2011 on tobacco, that the prevalence of smoking is higher in individuals who have a low level of education (Tee et al., 2016). Research in China in 2018 also supports this, showing that individuals with higher levels of education are less likely to engage in smoking behavior (Wang et al., 2018). In addition, low levels of education also tend to make individuals make less effort to quit smoking, and can even increase dependence on cigarettes (Wang et al., 2018).

The results showed that most respondents had a good and sufficient level of knowledge about the dangers of smoking, and most respondents did not smoke. The level of knowledge which includes knowing, understanding, application, analysis, and evaluation is in line with the theory of Notomodjo in 2014 (Notoatmodjo, 2014). Based on this theory, that Primary X High School students have reached the application knowledge level. Most of the respondents understood the dangers of smoking behavior, including their understanding of the harmful substances contained in cigarettes, the health effects caused, and the difference between passive and active smoking. This shows that respondents are able to apply knowledge related to the dangers of smoking in their behavior. In line with Chotidjah et al in 2012 research which found that adolescents' knowledge about smoking was in the high category as much as 83.63%, believing that smoking causes disease, as well as health problems identified by respondents (Chotijah, 2012). Supported by the theory put forward by Notoatmodjo explains that the more information a person receives, the greater the knowledge he has, and the higher the knowledge, the better a person's ability to take positive action (Notoatmodjo, 2012).

However, some respondents who have good and sufficient knowledge still have smoking behavior. Because of the respondents' positive attitude towards smoking and lack of confidence in smoking. This can be caused by environmental and social influences, as explained in Fitri's research in 2015 that factors such as education, experience, age, socio-culture, and environment can influence a person's knowledge, which is included in Lawrence Green's theory of enabling and reinforcing factors that influence adolescent smoking behavior (Fitriani, Neng Andriyani, 2015). Many things affect the level of knowledge because a person's existence and self-confidence can fall into negative or positive things. these factors can interact with each other, and there is no single factor that fully determines the level of knowledge of respondents.

The results showed that the majority of respondents' behavior, about 75%, was non-smoking, while the other 25% were smokers. This smoking habit began to appear in different age ranges, where some started at an early age such as 4-10 years, and 11-14 years. Binita's in 2014 research states that adolescents over the age of 16 are more likely to smoke because they feel more mature and have the right to do what they want, including smoking (Maulidea Binita et al., 2016). Conversely, adolescents under the age of 16 tend to be in the dabbling stage and have not yet become smokers (Maulidea Binita et al., 2016). According to Lianzi in 2014 there are three categories of levels in smoking habits. The first category is light smokers, who smoke about 2 - 8 cigarettes per day. The second category is moderate smokers, who consume cigarettes in quantities of about 9 - 15 cigarettes per day. While the third category is heavy smokers, who smoke more than 15 cigarettes per day (Lianzi & Pitaloka, 2014). In the results of this study, a small proportion of respondents smoked 1-5 cigarettes per day, falling into the light smoker category.

Adolescents today engage in smoking at a young age for various reasons. The results showed that of the respondents' smoking behavior, most were influenced by friends. In line with research by Prihatiningsih that the reasons that influence include pressure from friends, the urge to seek sensation, efforts to look cool, imitation of adults, efforts to overcome stress, reduce boredom, maintain prestige, the need for recognition, social interaction, and the desire to feel the pleasure of smoking (Prihatiningsih et al., 2020; Reqyrizendri et al., 2020). The middle school phase is very vulnerable to being influenced by peers because of the phase of self-discovery and the process of mental development (Gusti, 2013). In this study respondents were subjected to the influence of invitations from friends who smoke and get cigarettes from friends. this is in accordance with research conducted by Hasanah in 2011. The study indicated that peers have an important role in influencing adolescent smoking behavior. In addition to peer influence, parents also play a role in influencing adolescent smoking behavior (Hasanah, Arina Uswatun, 2011). In this study smoking was influenced by parents as found in Mentari's in 2020 research, family and environment contribute to adolescent smoking habits. When parents are smokers, it can be a bad example for children (Mentari, 2020). Apart from peer and parental factors, respondents' smoking behavior was also influenced by cigarette advertisements. in line with the findings of research conducted by Nurmayunita in 2015 that individuals who are often exposed to cigarette advertisements tend to be influenced to smoke. Advertising is created with the aim of providing information and stimulating consumer interest to try or follow what is shown in the advertisement (Nurmayunita et al., 2014).

The scientific reason adolescents smoke is because cigarettes contain nicotine, which has pharmacological effects on the brain by affecting individual feelings and habits. This causes dependence on cigarettes (Julaecha & Wuryandari, 2021). The results showed that respondents continued to smoke because of nicotine addiction, in line with the findings of Aditama who emphasized that nicotine can affect a person's feelings and habits, triggering dependence on cigarettes. The psychological effects of nicotine, such as feelings of relaxation and stress reduction, can encourage adolescents to maintain smoking habits (Aditama, 2015). While respondents who have good knowledge related to smoking tend not to smoke for health reasons, avoid cigarette smoke, save money and other dangers. This is in line with Wijayanti's research in 2018 that respondents who have a strong understanding of the dangers of smoking, including their understanding of the impact of smoking, sources of information, and parties affected by smoking, tend to choose not to smoke because they are very aware of the negative implications of smoking behavior. Therefore, it is necessary to increase adolescents' understanding of the risks of smoking, its negative consequences. Therefore, educational efforts, creating a supportive environment, and providing access to accurate and reliable information are essential in improving knowledge about the dangers of smoking. With a deeper understanding, students who smoke can become more aware and concerned about health, and are not easily influenced.

CONCLUSION

The results showed that there was a significant relationship between knowledge about the dangers of smoking with smoking behavior in students with a p value of 0.001 ($p < 0.05$) H_0 was rejected. These findings have important implications in efforts to prevent smoking among adolescents and can form a healthier and more knowledgeable younger generation, it is recommended that the school for socialization to schools about the dangers of smoking by providing education to students about the impact of smoking behavior, more aimed at students who smoke to quit the habit of smoking. Parents can set an example by not smoking because smoking behavior is largely influenced by the social environment with peers and the family environment.

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