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Analysis of Smoking Behavior Risk Factors in Adolescent through Health Belief Model Approaches

Vina Yulia Anhar[1]*, Syamsul Arifin[2], Nur Laily[2], Fauzie Rahman[2], Agus Muhammad Ridwan[3], Bohari Bohari[4]

[1]Department of Health Promotion, Public Health Program Study, Faculty of Medicine, Lambung Mangkurat University, Banjarmasin, Indonesia; [2]Department of Health Policy Administration, Public Health Program Study, Faculty of Medicine, Lambung Mangkurat University, Banjarmasin, Indonesia; [3]Student of Master Programme in Public Health, Faculty of Medicine, Lambung Mangkurat University, Banjarmasin, Indonesia; [4]Department of Nutrition, Faculty of Medicine, Universitas Sultan Ageng Tirtayasa, City of Serang, Indonesia

Abstract

BACKGROUND: Teenagers who smoke are very susceptible to product degradation which is seen in the low quality of human resources. Identification of risk factors needed as a first step before health interventions to prevent and reduce smoking rates in adolescents.

AIM: This study aims to analyze the risk factors for smoking behavior in adolescents through the health believe model approach.

METHODS: The design of this study is observational using a cross-sectional approach with the sample size, namely, 156 respondents. The instrument planned to be used in this study is a questionnaire that has been tested for validity and reliability. This study has received permission from relevant parties, including having received approval from the ULM FK Ethics Commission. The variables to be studied are, dependent: Smoking and independent behavior: Gender, knowledge, attitude, parent influence, peer influence, and cigarette advertising. The data analysis used Chi-square test and Fisher's exact test with a significance level of $p < 0.05$.

RESULTS: Frequency distribution, 139 (89.1%) respondents do not smoke, 81 (51.9%) respondents were female, 147 (5.8%) respondents are well-informed, and 141 (90.4%) respondents have a positive attitude, the number of respondents who are not affected by the smoking behavior of the elderly is 142 people (91%). Number of respondents who are not affected by peer smoking behaviors is 150 people (96.2%) and 144 people (92.3%) of the respondents were exposed to cigarette advertisements in the high category. Statistical tests show that the variables that have a significant relationship with smoking behavior are gender ($p = 0.000$), attitude ($p = 0.000$), parental influence ($p = 0.000$), and cigarette advertising ($p = 0.000$).

CONCLUSIONS: There are four variables which have a relationship with smoking behavior, namely, there is a relationship between gender, attitude, the influence of parents, and cigarette advertising with smoking behavior.

Introduction

Smoking is a health disaster that results in the emergence of various diseases leading to death. There are no exceptions in the community who apply this behavior, both rich-poor, high-low educated, high-low income, old age, and even young age such as teenagers also practice smoking behavior in their lives [1]. Based on data from the Global Youth Tobacco Survey of Indonesia, 32.1% of students (teenagers) have used various tobacco products including cigarettes. As many as, 35.3% of teenage boys consume tobacco cigarettes. The consumption of tobacco in women is 3.4%. Teen smokers on average smoke <1 cigarette, with a percentage of 36%. The most frequent smoking initiation begins in the age range 12–13 years, with a percentage of 43.2% [2].

The results of a research conducted by the Research and Development Center for Public Health Efforts by the National Health Research and Development Agency with the WHO, note that in Indonesia, 17.32% of all students and 32.82% of male students tried smoking for the 1st time at the age of ≤13 years, while the percentage of female students is 3.04% who first tried smoking at the age of ≤13 years. About 11.52% of students and 22.03% of male students smoked 1 or more days during the past 30 days, whereas 1.56% of female students smoked 1 or more days during the past 30 days. More male students (3.81%) than female students (0.05%) smoked all 30 days [3]. Based on this age range, it can be said that teenagers start smoking starting at the age of junior high school. The age of middle school ranges from 12 to 16 years [4]. Meanwhile, according to Permendikbud Number 14 of 2018 concerning Admission of New Students in 2018, the age of junior high school is the highest 15 years [5].

Based on the results of Riskesdas in 2018, it is known that, in the age group (specifically), the percentage of smokers is more at the age of 10+ and

15+, which is equally 24.3%. Nationally, the average number of cigarettes consumed is 12.8 cigarettes. Whereas in the Province of South Kalimantan itself, the average number of cigarettes is higher than the national figure of 16.72 cigarettes. The proportion of 1st time smokers in the population aged ≥10 years based on the characteristics of the age group, it is known that the age group of 10–14 years has a percentage of 87.5%. Based on the proportion of the age of first smoking in the population aged ≥10 years by province, in South Kalimantan itself, the age range of 10–14 years has a percentage of 24.3%, higher than the national rate of 23.1% [6].

Hidayat (2012) tried to identify the factors that influence smoking behavior through attitude variables (individual beliefs) with the Health Belief Model (HBM) theory approach. The results of his study showed that this attitude was the most dominant factor influencing smoking behavior. The HBM theory was developed to overcome behavioral problems that cause health problems [7]. HBM postulates that the likelihood of someone engaging in health-related behavior is determined by their perception of the following six variables: Perception of vulnerability; perception of severity; perceived benefits; perceived obstacles; cue for action; and self-efficacy [8].

These six health determinants are identified by HBM as a useful framework for designing long- and short-term behavioral health interventions. The main focus of HBM on health determinants, therefore, is most suitable for overcoming problematic behaviors that have health consequences [8]. The previous research has shown that determinants of HBM are predictors of inadequate behavior. This is due to the main limitations of HBM: Low predictive ability of determinants; small effect size; and the lack of clear rules for the combination of variables and the relationships between them [9]. The main strength of HBM is the use of simplified health-related constructs that make it easy to implement and test. This model is most widely adopted by researchers in the promotion of health behavior. HBM has provided a useful theoretical framework for investigating cognitive determinants of various behaviors for more than 3 decades. This model has focused the attention of researchers and health professionals on variables that are prerequisites for health behavior. Therefore, HBM has formed the basis for many practical interventions on various behaviors [9].

Besides attitude, other factors that influence smoking behavior of junior high school adolescents are peer group interaction, family interaction, and smoking attitude [10]. The results of Alamsyah and Nopianto's research (2017) show that knowledge and cigarette advertisements are aspects that influence smoking behavior in adolescents [11].

Based on the above background, researchers are interested in conducting a study to identify the smoking behavior of junior high school adolescents. The things that will be examined are the factors that influence the smoking behavior of junior high school adolescents. In this study, the plan is to use the HBM theory approach to identify several factors that influence the smoking behavior of junior high school adolescents.

This study aims to analyze the risk factors for smoking behavior in adolescents through the HBM approach.

Materials and Methods

The design of this study is observational using a cross-sectional approach, which aims to explain the relationship between sex, knowledge, attitudes, parental influences, the influence of friends, and cigarette advertisements with teenage smoking behavior. In this study, the measurement of variables, both independent and dependent, was carried out only once in a period of time (point time approach). This research is planned to be conducted in junior high school or equivalent in Banjarbaru City, South Kalimantan Province. The duration of the study is planned to take place from March to August 2019.

The population in this study were all junior high school students or equivalent in Cempaka Subdistrict, Banjarbaru City. According to the Banjarbaru Education Office, the population is 1082 people. Samples were taken from three schools in Cempaka District. This sample technique is used to determine the sample if the object to be examined or a very wide data source such as Banjarbaru. The group drawn from this study consisted of geographical units. From 38 junior high schools or equivalent in Banjarbaru City, researchers divided into five clusters of research areas. Take the area that will be sampled in the following manner: (1) Divide the population into several subgroups; (2) select one or a number of groups from these groups by drawing; and (3) determine the sample from one or a number of groups chosen at random. Based on the divided population, it can be seen that there are five subgroups in the Banjarbaru Subdistrict, namely, South Banjarbaru, North Banjarbaru, Cempaka, Liang Anggang, and Ulin Platform. Then, the draw is held to get the area that will be the place of research. Then, the results of the draw were found in the Cempaka region at SMP Negeri 3, SMP Negeri 12, and MTs Miftahul Khairiyah with a total of 1082 students. The calculation of the sample size used in this study is the Z test (Hypothesis Test for the Proportion of Two Populations). Based on these calculations, the number of respondents obtained by 156 students as a minimum sample of 1082 populations. To select 156 students as respondents to be normally distributed, a proportional random sampling formula was applied. The proportion

of students who were respondents in each school was as follows:

Middle School 3: 759/1082 × 156 = 109.43 = 110 students

Public Middle School 12: 72/1082 × 156 = 10.38 = 10 students

Miftahul Khairiyah MTs: 251/1082 × 156 = 36.18 = 36 students

After proportional random sampling, students in each school obtained a sample of 156 students because of rounding fractions for human counts then rounded up into one.

The instrument planned to be used in this study is a questionnaire that has been tested for validity and reliability. The validity and reliability test is carried out in a junior high school or equivalent in the Banjarbaru City area in addition to the research location, with a minimum of 30 respondents in the study, the goal of a limit between a few and many would be to approach the phenomenon of true nature or nature. Validity testing in this study uses the correlation formula. Each question item from the questionnaire that has been compiled is calculated to get the value of r arithmetic, then the value of r arithmetic that has been obtained compared with the value of r table. The question is said to be valid if r count is greater than r table, while the question is said to be invalid if r count is smaller than r table [12]. The correlation value (r) for each question is> 0.50 (moderate).

The research procedure has several stages, namely:

1.	Preparation stage

The preparation phase is research licensing to the ULM FK Ethics Commission, the Banjarbaru Health Office, the Banjarbaru Education Office, and Junior High School or equivalent in the Banjarbaru City area. Furthermore, research preparation is carried out in the form of preliminary observations to schools along with the preparation of research instruments, namely, preparing a variable measuring instrument that is examined using a questionnaire. After preliminary observations and preparation of the instrument, the validity and reliability of the questionnaire were carried out.

2.	Implementation phase

The data collection stage is carried out with the following steps:

a.	After obtaining a research permit, prospective researchers explain the purpose of the study and confirm the tools and materials that will be used in the study

b.	Measuring research variables by distributing questionnaires.

3.	Reporting stage

The reporting phase consists of:

a.	Recapitulate the acquisition of research data and the collection of all data

b.	Perform processing and analysis of research data obtained

c.	Analyzing data are done using computerized aids

d.	Prepare research reports.

The data analysis techniques are: Explaining the frequency distribution and percentage of each dependent and independent variable; explain the relationship between independent variables on the dependent using the Chi-square test with a degree of confidence of 95% (α = 0.05). This study has received permission from relevant parties, including having received approval from the Faculty of Medicine, Universitas Lambung Mangkurat Ethics Commission and all respondents agree and are willing to be respondents in this study.

Results and Discussion

Table 1 shows that based on univariate analysis, frequency distribution, 139 (89.1%) respondents do not smoke, 81 (51.9%) respondents were female, 147 (5.8%) respondents are well-informed, and 141 (90.4%) respondents have a positive attitude, the number of respondents who are not affected by the smoking behavior of the elderly is 142 people (91%). Number of respondents who are not affected by peer smoking behaviors is 150 people (96.2%) and 144 people (92.3%) of the respondents were exposed to cigarette advertisements in the high category.

Table 1: Univariate analysis of respondent frequency respondents distribution

Variable	n	%
Smoking behavior		
Smoke	17	10.9
Do not smoke	139	89.1
Gender		
Male	75	48.1
Female	81	51.9
Knowledge		
Less	9	94.2
Well	147	5.8
Attitude		
Negative	15	9.6
Positive	141	90.4
Parental influence		
Affected	14	9
Not affected	142	91
Peer influence		
Affected	6	3.8
Not affected	150	96.2
Cigarette advertising		
High	12	7.7
Low	144	92.3

Table 2 shows that of 75 (100%) male respondents, there were 17 (22.7%) respondents who had smoking behavior. A total of 58 (77.3%) other male respondents did not smoke. This study shows that the female respondents, namely no one smokes, and the majority of smoking behavior in men. Based on the results of statistical tests, it can be seen that there is a relationship between sex and smoking behavior (p = 0.000).

Table 2: Bivariate analysis of the relationship of smoking behavior

Variable	Smoking behavior				Total		p
	Smoke		Do not smoke				
	n	%	n	%	n	%	
Gender							
Male	17	22.7	58	77.3	75	100	0.000*
Female	0	0	81	100	81	100	
Knowledge							
Less	0	0	9	100	9	100	0.599**
Well	17	11.56	130	88.44	147	100	
Attitude							
Negative	15	100	0	0	15	100	0.000**
Positive	2	1.4	139	98.6	141	100	
Parental influence							
Affected	14	100	0	0	14	100	0.000**
Not affected	3	2.1	139	97.9	142	100	
Peer influence							
Affected	1	16.7	5	83.3	6	100	0.506**
Not affected	16	10.7	134	89.3	150	100	
Cigarette advertising							
High	9	75	3	25	12	100	0.000**
Low	8	5.6	136	94.4	144	100	

*p-value used Chi-square test. **p-value used Fisher's exact test.

Teenagers are the nation's future assets [13]. Adolescent behavior will affect the teen's future [14]. Risk behaviors such as smoking will cause the health status of adulthood to decline [15]. The results of this study indicate that the majority of male respondents have smoking behavior compared to women. Men tend to smoke more than women. There was a relationship between sex and smoking behavior [1]. The proportion of male smoking is greater because in general, they are more easily influenced by their peers. In addition, in a state of stress, anger, or annoyance, men express it in the form of deviant actions, one of them by smoking. There is a significant relationship between sex and smoking behavior. Teenage boys smoke more than girls. For teenagers, especially boys, smoking is a symbol of power, virility, and maturity. Teenagers do not want themselves to be called "cowards." In addition, adolescent boys are more willing to take risks than women, as one example is risky smoking behavior [16].

Variable knowledge shows that out of 147 (100%) respondents who have good knowledge, there are 17 (11.56%) respondents who have smoking behavior. However, of 9 (100%) respondents who lacked knowledge, there were no respondents who found smoking behavior. The results of this study can show that respondents who have good knowledge have more behavior not to smoke, even though there are 17 (11.56%) respondents who have smoking behavior. Based on the results of statistical tests, it can be seen that there is no relationship between knowledge and smoking behavior (p = 0.599).

The results showed that there was no relationship between knowledge and smoking behavior because the proportion of respondents who smoked and had less knowledge (0%) was lower than the proportion of respondents who smoked but had good knowledge (11.56%). There is no relationship between knowledge about and smoking behavior because the proportion of respondents who smoke and have low knowledge (20.4%) is lower than the proportion of respondents who smoke but have high knowledge

(25.5%) and obtained p = 0.233 which states that there is no relationship between knowledge about smoking with smoking behavior [17]. One of the predisposing factors that influence someone to behave is the aspect of knowledge. Those who have high knowledge are expected to behave positively. Knowledge has levels, namely, know, understand, application, analysis, synthesis, and evaluation. The insignificance of the relationship between the knowledge of the dangers of smoking and smoking behavior of respondents is caused by smokers and non-smokers just knowing the dangers of smoking, but has not been able to understand and apply the knowledge they have [18].

Variable attitude shows that as many as 15 (100%) respondents who smoke have negative attitudes, in this case supporting smoking behavior. As many as, 139 (98.6%) respondents who did not smoke had a positive attitude, in this case, it did not support smoking behavior. The results of this study can show that the majority of respondents who smoke have negative attitudes. Based on the results of statistical tests, it can be seen that there is a relationship between attitude and smoking behavior (p = 0.000).

The results showed that there was a relationship between attitude and smoking behavior. The findings of this study report less negative or supportive attitudes toward smoking behavior compared to positive attitudes or those that do not support smoking behavior. Attitude variable is a composite variable (combined) of susceptibility, severity, threat, benefit, barrier, and self-efficacy. Attitude has three elements, namely, cognitive (knowledge), affective (emotion, feeling), and connective (action). In terms of emotions or feelings, adolescents can be triggered to be negative toward cigarettes because they see advertisements in mass and electronic media that display a picture that a smoker is a symbol of virility or glamor even though he actually has good knowledge about cigarettes, where high or low knowledge is not influence someone in smoking habit [19]. Attitude as a pattern of behavior, tendency or anticipatory readiness, predisposition to adjust to social situations, or simply, attitude is a response to social stimuli that have been conditioned. Attitudes are also often said to be a hidden behavior (covert behavior) so that attitudes have a direct influence on behavior. The direct effect of attitude on behavior is more in the form of predisposing behavior that will be actualized only when conditions and situations allow [7].

Variable parental influence shows that as many as 14 (100%) respondents who smoke are affected by the smoking behavior of parents. A total of 139 (97.9%) respondents who did not smoke were not affected by their parents' smoking behavior. The results of this study can show that the majority of respondents who smoke are affected by the smoking behavior of parents. Based on the results of statistical tests, it can be seen that there is a relationship between the influence of parents with smoking behavior (p = 0.000).

The results of this study indicate that there is a relationship between the influence of parents with smoking behavior. There is a relationship between family interactions with smoking behavior in adolescents [10]. Middle school adolescents are inseparable from the family environment. Although at this stage teenagers often gather with peers, family remains an important thing for individuals. Values that have been formed in the family environment remain attached even though new values from peers enter the soul. Parents remain role models for adolescent normative behavior. Especially if the exposure of parents' behavior has long been in line with the development of adolescents in the family, then the pattern of the pattern remains strong. This is also supported by the situation of adolescents who are still not independent, dependent on parents [20]. The family is a very influential environment for individual development. Apart from being a place where residence is relatively long, this environment is also responsible for the transformation of values and norms to individuals as children. Parents who are leaders in the family environment have a big part in the transformation process. The role of parents is very meaningful in shaping children's behavior and as a successor to previous family values. This is how the pattern of value transformation spreads to other family members for generations [7]. According to the theory of behavior formation, behavior can be transmitted through modeling behavior. Parents and siblings are models for other family members. The more often parents and siblings behave smoking in the family environment, the intensity of exposure will also be stronger in non-smoking family members. This will be more severe if parents' permissive attitudes do not regulate smoking behavior in their children [7].

Variable peer influence shows that of 150 (100%) respondents who were not affected by peers, there were 16 respondents (10.7%) who had smoking behavior. The results of this study also showed that of 6 (100%) respondents who were affected by peers, there were 1 (16.7%) respondent who had smoking behavior. In this study, it was found that respondents who were not affected by peers were more likely to have the behavior not to smoke. Based on the results of statistical tests, it can be seen that there is no relationship between the influence of parents with smoking behavior (p = 0.506).

Based on the results of this study, there is no relationship between peer influence and smoking behavior due to the fact that although respondents have friends who smoke and 16.7% are affected by peers to smoke, but 89.3% of them are not affected by peers to behave in smoking. There is no relationship between peers and smoking behavior because even though respondents have friends who smoke and 48.4% of respondents have been invited by their friends to smoke, but 71.8% of them were not affected by the invitation [21]. The relationship of one of the reinforcing factors is the influence of peers with health behavior, which means that when a teenager has a smoking behavior, it will affect the smoking behavior of other teenagers. There is support, mutual understanding, mutual encouragement in whatever case he gets from his peers as well as positive influences both from his behavior, and good way of thinking, so adolescents have a high sense of self-esteem that adolescents are highly accepted, valued, and recognized in peer environment so that more motivated because of the good support and influence. Conversely, if the teenager gets rejected or not noticed by his peers, he will feel lonely and arouse feelings of hostility so that the teenager has a low sense of self-esteem and has less learning achievement [22].

Variable cigarette advertising shows that 9 (75%) respondents who smoke have high exposure to cigarette advertisements. A total of 136 (94.4%) respondents who did not smoke had low exposure to cigarette advertisements. In this study, it is known that respondents who smoke tend to have high exposure to cigarette advertisement. Based on the results of statistical tests, it can be seen that there is a relationship between the influence of parents with smoking behavior (p = 0.000).

The results showed that there was a relationship between cigarette advertising with adolescent smoking behavior. There is a relationship between cigarette advertising with adolescent smoking behavior. Knowledge about cigarettes is obtained through cigarette advertisements, both the latest types of cigarettes and the dangers of smoking itself [10]. The perception of cigarette advertising is how a person sees and interprets information about cigarette products that have been presented by certain media. Perceptions of cigarettes are formed through seeing, hearing, and reading based on experience. Advertisements on television and mass media will influence adolescents to imitate and follow the behavior of models in introducing cigarette products, coupled with the image formed by the model in cigarette advertisements so that it looks as if people who smoke are successful, cool, mature, and tough that can get through any obstacles [23]. The number of advertisements circulating today always aims to create a good image for smokers when in fact there are chemicals in cigarettes that are harmful to health. Cigarette advertising will make teens have certain perceptions of smoking so that it will affect smoking behavior in adolescents. This is because teenagers who are still in the process of searching for self-identity and emotional states that are still unstable will be easily persuaded by the cigarette advertisement. As a result, adolescents will be affected to smoke [23].

Conclusions

The conclusion of this study is that of the six variables studied, only four variables have a relationship

with smoking behavior, namely, there is a relationship between gender, attitude, the influence of parents, and cigarette advertising with smoking behavior. This result is expected to be a guideline for the school and the PSKM to design interventions based on community empowerment to prevent and overcome the problem of smoking behavior in adolescents.

Acknowledgments

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