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Information Motivation Behavior Determinants of Decision to Quit Smoking

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ABSTRACT

Background: Cigarette sales in Indonesia continue to increase, as does the number of people who consume cigarettes, children who smoke, and also deaths caused by smoking. This study aimed to analyze the factors that influence the decision to stop smoking in the Special Region of Yogyakarta using the information motivation behavior skills theory.
Subjects and Method: This research is an analytical observational study with a cross-sectional study approach conducted in the Special Region of Yogyakarta in June-July 2023. There were 212 adults consisting of 153 active smokers and 59 former smokers. The dependent variable is the decision to stop smoking. The independent variable is Information Motivation Behavior Skill (IMB). Data was collected using a questionnaire distributed online and analyzed using a path analysis test.
Results: Good information (b= 1.25; 95% CI= 0.32 to 2.17; p< 0.008) and high motivation (b= 2.23; 95% CI= 1.54 to 2.9; p< 0.001) were associated with smoking cessation skills, smoking cessation skills good (b= 1.72; 95% CI= 1.01 to 2.43; p< 0.000) is associated with the decision to stop smoking.
Conclusion: Good information, high motivation, and smoking cessation skills are statistically related directly and indirectly to the decision to stop smoking.

Keywords: quit smoking, information motivation behavior, path-analysis.

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BACKGROUND

Tobacco use is a common risk factor for most non-communicable diseases, this includes cancer which causes 70% of all deaths worldwide (Peruga et al, 2021). Apart from tobacco use, exposure to tobacco smoke is also the main cause of premature death and disease throughout the world (Navas-Acien, 2018). The growing tobacco market in ASEAN in 2020 is estimated to reach 505.65 billion cigarettes sold mainly in Indonesia, the Philippines, Thailand and Vietnam, tobacco producers in seven ASEAN countries (Indonesia,

Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam) producing 682.47 billion cigarettes, two ASEAN countries (Indonesia and Vietnam) were among the world's top 10 cigarette markets in 2020 (Tan and Dorotheo, 2020).

More than 80% of the 1.3 billion tobacco users come from middle-income and low-income countries, which have the highest burden of disease and the greatest chance of death due to tobacco (WHO, 2017). Based on the results of the Global Adult Tobacco Survey, the prevalence of adult smoking has increased significantly over the last 10 years, tobacco use in adults in 2021 will increase by 8.8 million people, in 2021 there will be 69.1 million smokers in Indonesia. The high prevalence of smoking in Indonesia makes it impossible for a large number of people to avoid disease and death and causes weak economic development in the country (Kurniawan et al., 2022).

Cigarette sales in Indonesia continue to increase as well as the number of people who consume cigarettes, children who smoke, and also deaths caused by cigarettes are increasing (Ministry of Health of the Republic of Indonesia, 2022). Around 225,700 people in Indonesia die from smoking, the prevalence of smoking among adults has not decreased over a 5 year period (WHO, 2020). In 2030, it is estimated that the death rate for smokers in the world will reach 10 million people, 70% of whom are smokers from developing countries. If the trend of deaths due to smoking continues, around 650 million people could be killed by smoking, half of whom are of productive age and will lose their life span by 20 to 25 years (Dewi, 2022).

If Indonesia wants to reduce the number of deaths and diseases caused by tobacco, there must be controls to prevent smokers from quitting smoking and the younger generation from using tobacco products (WHO, 2020). Smoking prevalence can decrease with support for controlling tobacco use (Agustin et al, 2019). Cigarettes pose a very fatal risk, so stopping smoking behavior in society is important (Rahmawati et al, 2022).

In general, smokers have the desire to stop smoking because they know the negative impacts on themselves, but smokers have difficulty refraining from smoking again (Husna et al., 2020). Strong intentions and motivation influence a person to stop smoking. This motivation is a psychological process that reflects the relationship between a person's attitudes, needs, perceptions and decisions (Yugistyowati and Rahmawati, 2018). Smokers who have a positive perception that quitting smoking can make the body healthier can be a factor that triggers success in quitting smoking (Janah et al., 2021).

Health determinants that influence a person's behavior consist of several factors. In the information motivation-behavioral skills (IMB) model, the factors are related to all health. These factors can change a person's health behavior which includes three factors, namely information and knowledge about behavior, individual motivation to carry out the behavior, and behavioral skills needed to carry out the behavior. (Fisher et al., 1996). This research aimed to determine the factors that influence the decision to stop smoking in the Special Region of Yogyakarta using the Information Motivation Behavior Skills (IMB) theory.

SUBJECTS AND METHOD

1. Study Design

A quantitative study that uses analytical observational methods with a cross-sectional study approach in the Special Region of Yogyakarta in June-July 2023.

2. Population and Sample

The population in this study is active smokers and former adult smokers in the Special Region of Yogyakarta in 2023 with a minimum of 200 research subjects. The sample in this study was selected using fixed disease sampling and snowball sampling techniques to obtain 212 adults consisting of 153 active smokers and 59 former smokers.

3. Study Variables

The dependent variable is the decision to stop smoking. The independent variable is Information Motivation Behavior Skill (IMB).

4. Operational Definition of Variables

Information Motivation Behavior Skill for the decision to stop smoking is the knowledge information obtained by research subjects in making the decision to stop smoking and the instrument used is a questionnaire with a categorical measurement scale. The motivation obtained by research subjects in making the decision to stop smoking and the instrument used was a questionnaire with a Likert scale measurement scale. The behavioral skills used by research subjects in making the decision to stop smoking and the instrument used was a questionnaire with a Likert scale measurement scale.

The decision to stop smoking is a condition of research subjects who have successfully stopped smoking and the instrument used is a questionnaire with a categorical measurement scale.

5. Study Instruments

This research uses primary data using questionnaires distributed online on social media to obtain research subjects according to the sample determined by the researcher. This research data collection technique uses a questionnaire covering information, motivation and behavioral skills.

6. Data analysis

Researchers carried out univariate analysis to see the frequency distribution and characteristics of research subjects, as well as bivariate and multivariate analyzes to examine the relationship between the independent variables and the dependent variable. The research data were analyzed using path analysis.

7. Step of Path-Analysis

a. The model specification described the correlation between the variables to be studied.
b. Model identification was carried out on the number of measured variables, the number of exogenous variables, endogenous variables, and variables to be estimated. At this stage, the degree of freedom (df) calculation was carried out to show whether path analysis can be performed.
c. The suitability of the model based on tests and checks with the saturation model was Chi squared p ≥0.05, GFI, NFI, CFI values was respectively ≥0.90, RMSEA was <0.05
d. Parameter estimation is a causal correlation of variables indicated by regression coefficients both standardized and non-standardized.
e. Model re-specification is the final step of the path analysis stage.

RESULTS

1. Sample Characteristics

Table 1 showed the distribution of research subjects who are active smokers and former adult smokers in the Special Region of Yogyakarta. The characteristics of the research subjects in this study were divided into 6 characters, namely gender, place of residence, age, education level, marital status, status of success in quitting smoking.

Table 1. Sample characteristics (categorical data).

Characteristics	Category	Frequency (n)	Percentage (%)
Gender	Female	29	13.7%
	Male	183	86.3%
Adress	Sleman	73	34.4%
	Kota Yogyakarta	77	36.3%
	Bantul	41	19.3%
	Gunung Kidul	7	3.3%
	Kulon Progo	14	6.6%
Age	17-29	185	87.2%
	30-39	23	10.8%
	40-60	4	1.8%
Educational Background	PS	3	1.4%
	JHS	11	5.2%
	SHS	97	45.7%
	Bachelor Degree	101	47.6%
Marital Status	Single	121	57.1%
	Married	91	42.9%
Smoking Habit Status	Active smoker	153	72.2%
	Ex-smoker	59	27.8%

Based on table 1, it can be seen that the research subjects consisted more of men, namely 183 people (86.3%) compared to 29 women (13.7%). Most research subjects came from the city of Yogyakarta with 77 people (36.3%) compared to Sleman 73 people (34.4%), Bantul 41 people (19.3%), Gunung Kidul 7 people (3.3%), and Kulon Progo 14 people (6.6%). The majority of research subjects came from the age range 17-29, namely 185 people (87.2%). The highest educational level status of the research subjects was Bachelor's degree with a total of 101 people (47.6%) and the lowest was from elementary school graduates with 3 people (1.4%). The subjects with the highest marital status were 121 unmarried subjects (57.1%) compared to 91 married subjects (42.9%). The majority of research subjects' smoking habit status was active smokers, namely 153 people (72.2%) compared to 59 former smokers (27.8%).

2. Bivariate analysis

The results of bivariate analysis showed in table 2, it can be seen that the relationship between information and motivation on smoking cessation skills. Table 2 showed that good information (OR= 5.06; p= 0.001), high motivation (OR= 0.35; p= 0.002) have a good relationship with smoking cessation skills.

Table 2. Relationship of information and motivation to smoking cessation

Variable	Category	Smoking cessation				Total		OR	p
		Lacking		Good					
		n	%	n	%	n	%		
Information	Less	29	78.3	8	21.6	37	100	5.06	0.001
	Good	73	41.7	102	58.2	135	100		
Motivation	Low	68	87.1	10	12.8	78	100	0.35	0.002
	High	34	25.3	100	74.6	134	100		

3. Path analysis

Processing research data using the STATA program version 13. The results of research using path analysis are as follows:

1) Model Specification

The model specification describes the relationship between the variables studied. This research includes 4 variables which include information, motivation, behavioral skills, and the decision to stop smoking. Figure 1 presents the relationship between exogenous variables and endogenous research variables.

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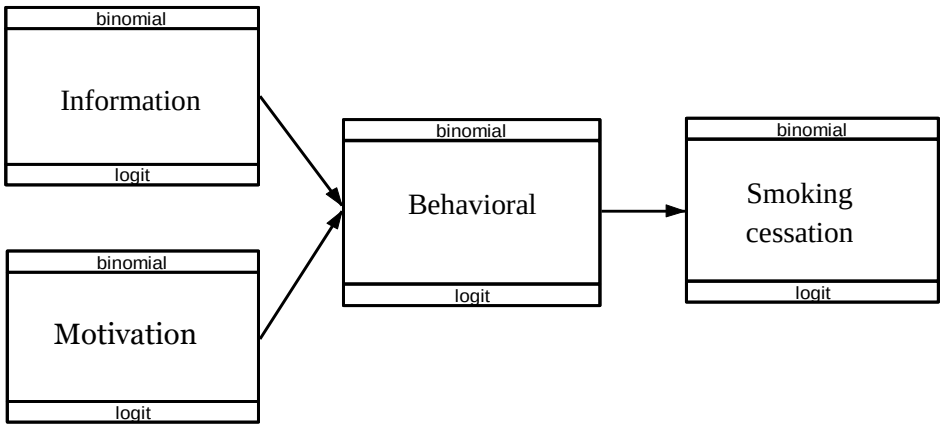

Figure 1. Path-analysis diagram

2) Model Identification

Model identification is carried out by identifying the number of measured variables, the number of endogenous variables, exogenous variables, mediating variables, and parameters to be estimated. Exogenous variables are variables that in the model are not influenced by other variables. In this research, exogenous variables consist of external information and motivation. Endogenous variables are variables that are influenced by other variables, in this study namely the decision to stop smoking. Mediating variables are intervening variables that lie between exogenous and endogenous variables so that the exogenous does not directly influence the endogenous. Path analysis can be carried out if df≥ 0. The result of calculating the degree of freedom in this study is 2, which is called over identified path analysis so that path analysis can be carried out.

3) Model Suitability and Parameter Estimation

Figure 2 presents a structural model between the decision to stop smoking with estimates of the influence of each exogenous variable on the mediating and then endogenous variables.

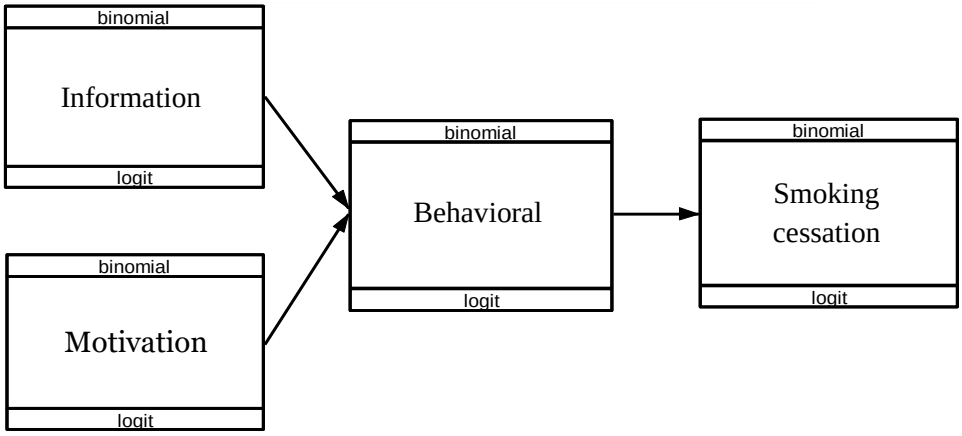

Figure 2. Path analysis diagram of the application of information, motivation, behavioral skill models in the decision to stop smoking.

Table 3. Path Analysis Results of the Application of information, motivation, behavioral skill models in the Decision to Quit Smoking in Adult Smokers

Dependent Variables		Independent Variables	b	CI 95%		p
				Lower Limit	Upper Limit	
Direct effect						
Smoking cessation skills	←	Information	1.25	0.32	2.17	<0.008
Smoking cessation skills	←	Motivation	2.23	1.54	2.91	<0.001
Decision to stop smoking	←	Behavioral skill	1.72	1.01	2.43	<0.001
N observation= 212						
Log likelihood= -225.86						

Table 3 showed that there is an influence of information on smoking cessation skills. Adult smokers who have good information, on average, have smoking cessation skills 1.25 units higher than those with bad information and this statement is statistically significant (b = 1.25; 95% CI = 0.32 to 2.17; p < 0.008). Table 3 also shows that there is an influence of motivation on smoking cessation skills. Adult smokers who have high motivation on average have smoking cessation skills 2.23 units higher than those with low motivation and this statement is statistically significant (b= 2.23; 95% CI= 1.54 to 2.9; p< 0.001), and there is an influence of smoking cessation skills on the decision to stop smoking. Adult smokers who had good smoking cessation skills had an average quit decision score 1.72 units higher than those with poor smoking cessation skills and this statement was statistically significant (b= 1.72; 95% CI= 1.01 to 2.43; p< 0.001).

DISCUSSION

Based on the research results, researchers found a direct and indirect relationship between information, motivation, behavioral skills and the decision to stop smoking. Information influences smoking cessation skills, where adult smokers who have good information have a higher average behavioral skill. Someone who has good information will get benefits that will encourage that person to stop smoking and increase a person's life chances (Golechha, 2016). Many people who smoke have tried to quit many times and tried various alternatives

(Lindson et al, 2019). In maintaining health, a person's level of education will influence their knowledge, attitudes and behavior in seeking various health information (Juliansyah and Rizal, 2018).

The results of research with smokers who had a bachelor's degree were 101 people (47.6%) who had better behavioral skills, this agrees with He et al. (2021) who stated older smokers on average had a lower willingness to quit and smokers who had a college education level or higher were significantly more likely to consider quitting smoking in the future than those who were illiterate and smokers those in manual labor or other professions were significantly less likely to quit smoking.

The results showed that adult smokers who had high motivation had smoking cessation skills 2.23 units higher on average than those with weak motivation and this statement was statistically significant (b= 2.23; 95% CI= 1.54 to 2.9; p< 0.001). Someone who has high motivation has a greater impact on someone's behavior (Julina, 2017). Motivation describes the interaction of a person's attitudes, perceptions, needs and decisions from a psychological process where knowledge plays an important role in forming motivation (Azizah et al, 2018). Worse physical health is one of the motivations for smokers to quit (He et al, 2021). Health problems and the condition of smokers are very strong motivations that make smokers willing to stop smoking because they want to improve their health. The right motivation has an important role in causing changes in a person's behavior (Buczkowski et al., 2014).

The results showed that adult smokers who had good smoking cessation skills had an average quit smoking decision score of 1.72 units higher than those who had poor smoking cessation skills and this statement was statistically significant (b= 1.72; 95% CI= 1.01 to 2.43 ; p< 0.000). A person's behavior plays an important role in supporting the process of quitting smoking (Lindson et al, 2021). Poor behavioral control of smoking cessation behavior creates negative effects on nicotine dependence, and smoking ban warnings buffer against the detrimental effects of nicotine dependence poor behavioral control (Chen et al, 2021).

Nicotine dependence is a complex phenomenon in which physical and psychological components go hand in hand and is a major obstacle to quitting smoking (Falomir-Pichastor et al., 2020). In response to warnings about the prohibition of smoking, some people become more motivated to stop smoking and some other smokers agree not to smoke in areas where smoking is prohibited, but some other smokers respond with an attitude of dislike because they feel cornered and feel unable to comply (Meijer et al. ., 2015). A person's cognitive control contributes to behavior aimed at maintaining smoking cessation behavior, as well as the ability to divert attention from thoughts of smoking by remaining focused on alternative activities (Posner et al., 1998). A person can maintain the behavior of quitting smoking by diverting his mind with other things that are not related to smoking.

AUTHOR CONTRIBUTION

Danu Aprilianto as the main researcher who chose this topic carried out data collection searches in this research. Hanung Prasetya and Bhisma Murti carried out data analysis and reviewed research documents.

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This study is self-funded.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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