Article

Determinants of Intention and Attempt to Quit Smoking: A Study in Kalidawir Tulungagung

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Abstract
Smoking cessation has been widely known as the right step to improve health. However, it has a low success rate. This research aims to identify demographic attributes (age, sex, income, and education), tobacco knowledge and spending and their impacts on smoking cessation intention and attempts in Kalidawir, Tulungagung Districts. A survey of 111 adult smokers is conducted using the GATS questionnaire. The data is analyzed using binary logistic regression. Most respondents, as many as 70 (63.1%), expressed a desire to quit smoking. Meanwhile, 41 respondents (36.9%) had no intention to quit smoking. Unfortunately, less than half, which is 43 (38.7%), had ever tried to quit smoking and more than half of the respondents, as many as 68 (61.3%), stated that they had never tried to quit smoking. Level of education and tobacco spending has a significant impact on intention to quit smoking (p-value 0,018 and p-value 0,024). While age, income, sex and knowledge do not affect the intention to quit smoking (p-value 0,954; p-value 0,145; p-value 0,975; and p-value 0,639). Education income and tobacco spending significantly impact the attempt to quit smoking (p-value 0,001; p-value 0,001 and p-value 0,008). While age, sex and knowledge do not affect the attempt to quit smoking (p-value 0,359; p-value 0,477; and p-value 0,993). Level of education and tobacco spending have significant impacts on intention and attempt to quit smoking while income only has an impact on smoking cessation attempts. The tobacco control program should consider these factors and make more comprehensive interventions.

Keywords: Smoking Cessation; Quit Smoking; Determinant

1. Introduction

Tobacco is responsible for 7 million global mortality, which may increase to 8 million deaths in 2030 [1]. A study also shows that smokers are likelier to live 10 years shorter than those who are not [2]. Health expenditure due to smoking-related disease is estimated at USD 422 billion or 5,7% of all health expenditures[3]. Furthermore, 80% of smokers live in low and middle-income countries, making the harmful consequences harder for most smokers[4].

Indonesia experiences a critical situation with tobacco prevalence. Based on a survey conducted by the Global Adult Tobacco Survey (GATS) 2021, the male smoker rate was 65,5%[5]. Similar findings from the Indonesia basic health research showed that number of male smokers was 61,4% in 2018 [6]. The country also comes third with the largest number of smokers after China and India[7]. Tulungagung, a city in East Java, Indonesia has a similar prevalence of smokers; the percentage of adult male smokers aged 30-59 years old is 59,18%. Children smokers in this region should also become a concern, with prevalence in boys aged 7-14 years old being 4,88% and in boys aged 1-6 years old being 2,06%[8].

Smoking cessation is a big step smokers can take to improve their life. Stop making not only will improve physical health but also reduce financial burden. It reduces the risk to morbidity and mortality related to heart and lung disease. It also cut down the risk of 12 types of cancer, including acute myeloid leukemia (AML), bladder, cancer of the lung, cervix, colon and rectum, esophagus, kidney, liver, mouth and throat (oral

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cavity and pharynx), pancreas, stomach, voice box (larynx)[9]. Tobacco spending is five times higher than spending on child education in Indonesia. Even though the benefits of quitting smoking are widely known, smoking cessation is not easy for smokers[10]. Demographic attributes (or sometimes mentioned as personal characteristics) and knowledge are mentioned in theory as impacting health behaviour[11]. Tobacco spending is also assumed to affect smoking cessation. Therefore, this research aims to identify demographic attributes (age, sex, income, and education), tobacco knowledge and spending and their impacts on smoking cessation intention and attempts in Kalidawir, Tulungagung Districts.

2. Materials and Methods

This study used a cross-sectional approach. Cross-sectional research is observational research that analyses variable data collected at a certain point in time across the entire sample population or predetermined subset. The independent variables in this research are demographic attributes (age, sex, income and education), tobacco harm knowledge and spending. The dependent variables are intention and attempt to quit smoking.

There is no data on an exact number of population for this study. However, based on data for Central Statistics Agency in 2017, number of population in Kalidawir Regency is 64.393 [12], with smoking prevalence in East Java is 25,95%[13]

. So approximate population is 16.710 people. The number of respondents was 111 adult smokers in Kalidawir, Tulungung Regency. The sampling technique is cluster sampling. We randomly chose 5 villages: Banyuurip, Kalidawir, Joho, Pagersari and Rejosari. We did not use a specific method to determine the number of samples. It is only based on our research capacity. The questionnaire used in this study is based form GATS (Global Adult Tobacco Survey). The statistical test used in this study is binary logistics regression, which is a method that describes the relationship between the dependent variable and several independent variables.

3. Results

3.1. Respondent Characteristics

The total number of respondents in this study is 111 respondents. The details of their demographic attributes are listed below:

Table 1. Respondents Characteristics

Characteristics	Frequency	Percentage
Gender		
Man	108	97.3%
Woman	3	2.7%
Age		
18-29 years old	26	23,4%
30-39 years old	33	29,7%
40-49 years old	34	30,6%
>49 years old	18	16,2%
Income		
IDR 0-2 million	76	68,5%
IDR 2,1-4 million	29	26,1%
>IDR 4 million	6	6%
Education		
Elementary School	12	10,8%
Junior High School	25	22,5%
High School	60	54,1%
Higher Education	14	12,6%

Characteristics	Frequency	Percentage
Tobacco Knowledge		
Poor	78	70.3%
Sufficient	30	27.0%
Satisfactory	3	2.7%
Tobacco Spending		
IDR. 0-100,000	4	3,6%
IDR. 101,000-200,000	8	7.2%
IDR. 201,000-300,000	35	31.5%
IDR. 301,000-400.000	49	44,1%
IDR. > 400,000	15	14.5%
Intention to Quit Smoking		
Yes	70	63,1%
No	41	36,9%
Attempt to Quit Smoking		
Yes	43	38,7%
No	68	61,3%

Based on the data in the table, it can be stated that male is the dominant gender for as many as 108 respondents (97,3%). The age distribution of the respondents is quite even. Respondents in their 20s, 30s, 40s and even those in their 50s and above have a similar percentage. The highest percentage is respondents aged 40-49 years, with a total of 34 (30.6%) below the age of 30-39 years, with a total of 33 respondents 29.7%

Most of the respondent's income, as many as 76 respondents 68.5%, is IDR 0 - 2,000,000. Respondents with an income of IDR 2,100,000-4,000,000 are 29 respondents or 26.1%. A minority of respondents have a salary of more than IDR 4.000000. Most respondents with high school education, 60 (54.1%); below are respondents with junior high school education, 25 (22.5%). Respondents who have completed their education in tertiary institutions come third, as many as 14 (12.%), and the last is respondents with education in the last elementary school 12 (10.8%).

The respondent knowledge is classified based on Arikunto (2019), which states that satisfactory knowledge is 76-100%, sufficient knowledge is 56-75%, and poor knowledge is 0-55%[14]. Most respondents had poor knowledge about the harm of smoking, as much as 78 (70.3%). Respondents with sufficient knowledge were 30 (27.0%), and respondents with satisfactory knowledge came last as many as 14 (12.6%). Most of them only understand a few of the diseases and other adverse health impacts caused by smoking. Regarding tobacco spending, almost half of the respondents, more precisely 49 (44.1%), spend IDR 301,000 - 400,000 to buy cigarettes monthly. As many as 35 respondents (31.5%) spent IDR 201,000-300,000. 15 respondents spent more than IDR 400,000 a month, and the rest spent less than IDR 200,000 to buy cigarettes.

Most respondents, as many as 70 (63.1%), expressed a desire to quit smoking. Meanwhile, 41 respondents (36.9) had no intention to quit smoking. Unfortunately, less than half, which is 43 (38.7%), had ever tried to quit smoking and more than half of the respondents, as many as 68 (61.3%), stated that they had never tried to quit smoking.

3.2 Tobacco Knowledge and Spending on Intention to Quit Smoking

The value of the Nagerkelke Square form binary logistic test was 0.258. It can be concluded that 25.8% of the reasons a person stops smoking are due to the variables in the study, and the remaining 74.2% are due to factors outside the study. The significantly impactful independent variables in this research are education and tobacco spending. The p-value for education is 0,018, and the p-value for spending is 0,024. The statistical test show that the higher education experienced by the smoker, the more likely their intention

to stop smoking. The same conclusion is also same for tobacco spending. The higher spending on tobacco, the more likely their intention to stop smoking. The other variables do not significantly impact the intention to stop smoking. Some demographic attributes are not significant to the intention of smoking cessation. The p-value for age is 0,954, income is 0,145, and sex is 0.975. Knowledge does not significantly impact the intention to quit smoking with p-value of 0,639.

Table 2. Binary Logistic Test Result

Covariate	Quit Intention		Quit Attempt	
	P Value	Nagerkelke R Suare	P Value	Nagerkelke R Suare
Age	0,954	0,258	0,359	0,547
Income	0,145		0,001	
Sex	0,975		0,477	
Education	0,018		0,001	
Knowledge	0,639		0,993	
Spending	0,024		0,008	

3.3 Tobacco Knowledge and Spending on Attempt to Quit Smoking

The value of the Nagerkelke Square form binary logistic test was 0.547. It can be concluded that 54.7% of the reasons smokers have tried to stop smoking are due to the variables in the study, and the remaining 45.3% are due to factors outside the study. This research's significantly impactful independent variables are income, education, and tobacco spending. The p-value for income is 0,001, the p-value for education is 0,001, and the p-value for spending is 0,008. The statistical test show that the higher the smokers' income group, the higher the chance they have tried to stop smoking. The higher education experienced by smokers, the more likely they have tried to stop smoking. The same conclusion is also same for tobacco spending. The higher spending on tobacco, the more likely they have tried to stop smoking. The other variables do not significantly impact the attempt to stop smoking. Some demographic attributes are not significant to the intention of smoking cessation. The p-value for age is 0,359, and for sex is 0.477. Knowledge does not significantly impact the intention to quit smoking, with a p-value of 0,993.

4. Discussion

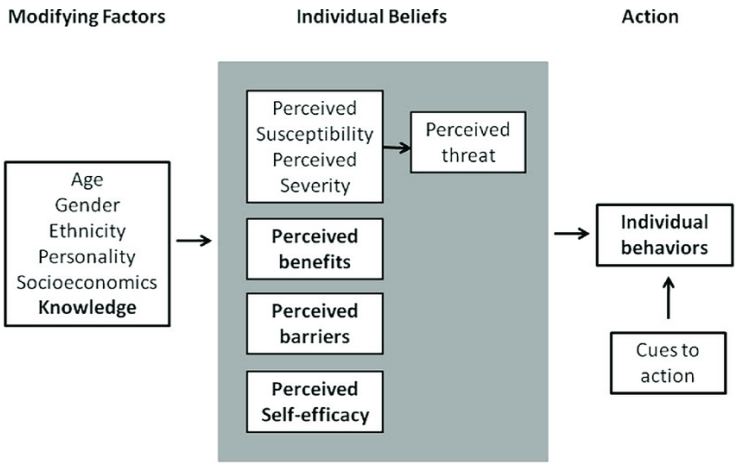
It is not surprising that the education level significantly affects the intention and attempt to quit smoking. Cigarettes, in several studies, have been described as closely related to low levels of education[15, 16]. Negative correlation between smoking and higher education not only because it increases understanding of the harms of smoking but also because the expectations of the immediate environment of highly educated people encourage them not to smoke[17]. Other studies also state that smokers with higher education are easier to quit for many reasons. Some are because higher education forms the type of jobs, understanding and friendship that is more supportive for someone to quit smoking[18].

The statistical test results show an influence between income and smoking cessation attempts. These results are in accordance with several studies that identified a link between smoking cessation and high income[19, 20]. Income in the discussion of health promotion is one of the determinants of health. People with high incomes have more access to information, quit smoking services and a supportive environment to have a healthy lifestyle[21]. The results also indicate that smokers who have low incomes have less access to knowledge, services, and physical and social environments that support smoking cessation. So, it makes sense that income is a factor in the attempt to quit smoking in this study.

Knowledge of tobacco has not significantly impacted the intention and attempt to quit smoking. No impact of knowledge to quit smoking may because lack of variabilities of respondent knowledge, which is dominated by low and sufficient levels of knowledge. The other explanation is that this phenomenon can happen because knowledge is only a small part of shapping someone acts. There are other factors, according to the theory Health Belief Model (HBM) that shapes behaviour such as perceptions of smoking-related diseases, perceived barriers to quit smoking, social support etc. Several research also shows no relationship between knowledge and smoking status[22, 23]. Tobacco control programs should be encouraged again and not only increase knowledge but also increase perceptions and a supportive environment for quitting smoking. Such as by holding smoke-free areas, providing posters, and banning tobacco advertisements in the surrounding environment.

Spending on tobacco is a significant predictor of intention and attempt to quit smoking. If we correlate the research finding with HBM theory, the greater the cigarette spending, the greater the perception threat will be. Thus, It will encourage someone to quit smoking. Furthermore, some smokers are those who have low incomes, so increased spending on cigarettes will reduce the intention to become smokers. The concept of increasing prices so that cigarettes are not affordable for the poor is a strategy that has been known to be effective[24]. In addition, studies also show that interventions that smoking-induced deprivation interventions have a strong potential to be successful [25].

Graph 1. Health Believe Model Concept[26]



The Indonesian government needs to increase its political will to control tobacco consumption in Indonesia. Until now, tobacco control efforts in Indonesia have been ineffective[27]. The government must sign the Framework Convention on Tobacco Control (FCTC) to maximize the impact of the tobacco control program and make it more aligned with the guidelines given by WHO. Based on HBM theory, many factors will shape perceptions of someone to carry out health behaviour. Thus, there needs to be a comprehensive approach (like FCTC) that create a supportive environment for smoking cessation, such as increasing cigarette prices, making public places smoke-free, and regulating cigarette advertisements.

5. Conclusions

Level of education and tobacco spending have significant impacts on intention and attempt to quit smoking, while income only has an impact on smoking cessation attempts. The tobacco control interventions in Indonesia, especially in Kalidawir should take these factors as consideration and make more comprehensive interventions.

6. Patents

Author Contributions: Study Design, Riza Yuliawati, M. Ali Yuliawati, and Indasah; Data Collection, Riza Yuliawati, M. Ali Yuliawati, and Indasah; Supervision, Riza Yuliawati, M. Ali Yuliawati, and Indasah; Data Analysis, Riza Yuliawati, M. Ali Yuliawati, and Indasah; Manuscript Writing, Riza Yuliawati, M. Ali Yuliawati, and Indasah; Literature review, Riza Yuliawati, M. Ali Yuliawati, and Indasah; Reference, Riza Yuliawati, M. Ali Yuliawati, and Indasah; Manuscript Revision, Riza Yuliawati, M. Ali Yuliawati, and Indasah. All authors have read and agreed to the published version of the manuscript.

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