

Analysis of Determinants of Smoking Behavior in Vocational High Schools of Karimun District

Auzykaimeldyanti¹, Irwan Saputra², Nurjannah³, Said Usman⁴, T. Maulana⁵

^{1,2,3,4,5}ShiaKuala University Banda Aceh, Aceh, Indonesia

Email address: auzykaimeldyanti@yahoo.com

Abstract—Introduction: Smoking behavior is a risk factor for non-communicable diseases, the number of male smokers in Indonesia is the highest in the world (third largest) after India and China. Based on GATS 2021, 34.5% of adults (70.2 million), 65.5% of men and 3.3% of women and the increasing prevalence of smoking among children aged 10-18 years from 7.2% in 2013 to 9.1% in 2018. **Objective:** to determine the determinants related to smoking behavior in Karimun Regency Vocational Schools. **Research method:** Descriptive quantitative research with a cross-sectional design (cross sectional with a sample of (356) students. Primary data source (questionnaire). Independent variables in this study include gender and smoking behavior. Data analysis includes univariate and bivariate using chi square and multivariate using multiple logistic regression. **Results:** univariate results, most of the 62.9% (224) respondents were non-smokers. Bivariate results relationship with smoking behavior is the gender variable, namely $p = 0.000$ OR = 10.387 (CI 95%). **Conclusion:** The variable that has the most influence on smoking behavior in Karimun Regency Vocational Schools is the gender variable to promote the movement for healthy living without smoking as early as possible in school-aged children and provide smoking cessation clinic services.

Keywords: Smoking Behavior, Gender.

I. INTRODUCTION

Vaccination behavior is the reaction, response and response of society or individuals to the vaccination program. This behavior can be behavior that accepts vaccination or behavior that refuses vaccination. The vaccination referred to here is the COVID-19 vaccination which is a Government program in dealing with COVID-19. Vaccination is the administration of a vaccine into the body through an injection process with the aim of causing and increasing a person's immunity against a disease. So that if one day the body is exposed to the disease, it will not get sick or will get sick with mild symptoms.

Tobacco kills more than 8 million people worldwide each year, with more than 7 million dying from direct tobacco use, while around 1.2 million are smokers. In Indonesia, 60.8 million adult men and 3.7 million adult women smoke, with child and adolescent smoking continuing to increase (WHO, 2020). Tobacco use is responsible for 25% of all cancer deaths globally, 40 percent of deaths of the global smoking population due to lung diseases, such as cancer, chronic respiratory conditions, and tuberculosis (Ministry of Health, 2019).

The global economic impact of tobacco is \$1.4 trillion. This figure includes expenses related to health care, reduced productivity due to illness, and other financial burdens stemming from illnesses caused by smoking (Ministry of Health, 2019). An estimated 600 million trees were cut down and 22 million liters were used to make cigarettes. Growing, manufacturing, and using tobacco poisons water, soil, beaches, and city streets with chemicals, toxic waste, cigarette butts, including microplastics, and e-cigarette waste. The harmful effects of the tobacco industry on the environment are extensive and increase the burden on the increasingly depleting natural resources and fragile ecosystems of the earth (Ministry of Health, 2022).

With an annual greenhouse gas contribution equivalent to 84 megatons of carbon dioxide, the tobacco industry contributes

to increasing global temperatures, climate change, reducing climate resilience, wasting resources and damaging ecosystems. Cigarette smoke also contributes to higher levels of air pollution. Around 3.5 million hectares of land are destroyed every year due to tobacco cultivation. Growing tobacco contributes to deforestation, especially in developing countries (Ministry of Health, 2022c; WHO, 2022). Currently, Indonesia has the highest number of male smokers in the world and the third largest number of smokers in the world after India and China. Based on GATS 2021, 34.5% of adults (70.2 million), 65.5% of men and 3.3% of women and the increasing prevalence of smoking among children aged 10-18 years from 7.2% in 2013 to 9.1% in 2018 (Risksdas Report 2018).

Smoking behavior is a risk factor for non-communicable diseases which contribute to the highest death rate in Indonesia. Apart from that, it causes stunting in children and increases the death rate due to COVID-19 compared to non-smokers. This condition influences the amount of funding for smoking-related diseases that must be borne by the state (Ministry of Health, 2022c). The cigarette industry must take responsibility for protecting and maintaining a healthy environment, especially as a result of the production waste it generates, which has great potential to cause air and environmental pollution. Even though there are corporate social responsibility efforts that have been made, these efforts are not commensurate with the resulting environmental damage (Ministry of Health, 2022c).

BPOM's opinion (2017), citing WHO's opinion, states that although there is no data at the global level, data, especially from North America, the European Union (EU) and the Republic of Korea, shows that the use of electronic cigarettes has increased at least 2 (two) times among teenagers from the period 2008 to 2012 (BPOM, 2017). A survey of electronic cigarette use in 4 (four) countries in 2013 stated that the prevalence in the US was 15%, 10% in the UK, 4% in Canada and 2% in Australia, overall the highest consumption by the young age group. Electronic cigarette users show a trend that is higher among school/university students. This has also become

a serious health problem in Indonesia. Over time, the prevalence of smoking in our country has not decreased, but has increased, especially among teenagers.(Ministry of Health, 2022c).

Electronic cigarettes or vapes are products that are currently popular and are thought to be an intermediary product to start smoking (smoking initiation), especially among young people and teenagers. Apart from that, cases of vape abuse by including illegal drugs and narcotics are increasing and difficult to control(Ministry of Health, 2022c). WHO (2020), also says that tobacco and related industry tactics for marketing to children and young people include: More than 15,000 flavors, most of which attract the attention of children and young people using Influencers and social media marketing(Ministry of Health, 2020a). In the Riau Islands province, the proportion of people aged ≥ 10 years who first smoked each day: (2.9%) aged 5-9 years, (24.2%) aged 10-14 years, (51.2%) aged 15 -19 years old(Risquesdas, 2018).

Through the 2020-2024 RPJMN, the Government is committed to prioritizing efforts to control smoking, especially to reduce new smokers. There is a target to reduce the percentage of child and adolescent smokers aged 10-18 years from 9.1% to 8.7% in 2024 as well as a mandate for the revision of Government Regulation number 109 of 2012 concerning Safeguarding of Materials Containing Addictive Substances in the Form of Tobacco Products for Health. The behavior of quitting smoking and refusing cigarette inducements must be a shared commitment and determination of the entire community, including children and teenagers, which aims to preserve the environment, improve health, save lives and reduce the burden on the country due to smoking-related diseases.(Ministry of Health, 2022c).

Preventing smokers, especially among men, non-smokers, and especially the younger generation, from using tobacco products is very important, if in general Indonesia wants to reduce the number of deaths and diseases related to tobacco, as well as the resulting burden on resources. humans and the economy and specifically Karimun Regency. Based on the description above, researchers are interested in conducting research on the Analysis of Determinants of Smoking Behavior in Karimun Regency Vocational High Schools in 2024.

II. METHOD

This research uses a quantitative type of research. The research design used is cross sectional, namely research that aims to determine the relationship between variables. The independent variable and dependent variable are identified at one unit of time

A. Location

The location of this research was carried out at the Karimun Regency Vocational High School, Riau Islands Province.

B. Time of Research

This research was carried out from 07 February to 03 April 2024.

C. The Sample in this Research

The number of samples determined in this study was 356 students at the Karimun Regency Vocational High School.

III. RESEARCH RESULTS

Analysis of the independent variable in this research is in the form of categorical data, namely gender. The dependent variable categories are smoking behavior and nonsmoking behavior. The univariate analysis of these two variables is described in the following table;

Based on table 1, a picture of the independent variables of respondents is obtained as follows: the majority are male (75.6%), while for the picture of the dependent variable there are a number (31.7%) of respondents who smoke.

TABLE 1. Frequency Distribution of Demographic Characteristics

Variable	N	(%)
Independent Variable		
Gender		
Man	269	75.6
Woman	87	24.4
Dependent Variable		
Smoking Behavior		
Smoke	132	37.1
Do not smoke	224	62.9

Table 2 Data analysis shows a number of variables that are related to smoking behavior. First, the gender variable has a significant relationship with smoking behavior, where men are 14.668 times more likely to smoke than women, with an Odds Ratio (OR) value of 14.668 (p value = 0.000 < 0.05).

TABLE 2. Relationship between Dependent Variable and Independent Variable

Variable	Smoking Behavior				Total		P value	OR
	Smoke		Do Not Smoke		F	%		
	F	%	F	%				
Gender								
Man	127	47.2	142	52.8	269	100	0,000	14,668
Woman	5	5.7	82	94.3	87	100		

Multivariate analysis with a logistic regression test was carried out as a follow-up to the bivariate test by including all variables that were statistically significant (p<0.05) and variables that had a value of p<0.25 as the selection limit for including variables that were considered substantially important. Variables that meet the requirements and do not

meet the requirements for multivariate testing are;

Table 3 shows that all variables that meet the requirements (p<0.25) are suitable for inclusion in the stepwise backward method because the number of variables is very large.

TABLE 3. Variables That Meet Multivariate Test Requirements

No	Variable	P value	Information
1	Gender	0,000	Qualify

IV. DISCUSSION

Relationship between Gender and Smoking Behavior

Results of this research shows that the gender variable has a significant relationship with smoking behavior, with $(p \text{ value}=0.000) < \alpha$. These findings indicate that men are more likely to smoke than women.

This is in line with the results of research in Banten Province where there is a significant relationship between gender $(p \text{ value} = 0.028) < \alpha$ with smoking behavior, the OR result of 206.522 can be concluded. Teenage boys have a chance of smoking 206.522 times greater than teenage girls (Direja & Febrimuliani, 2021). Another study conducted on adolescents aged 14 to 19 years living in Switzerland, also found that there was a significant relationship between gender and smoking behavior $(p= 0.007)$ and OR 1.39. Where Respondents with female gender are more at risk of smoking than men (Altwicker-Hámori et al., 2024).

Other research also found that there is a relationship between gender and smoking behavior, namely gender differences regarding the smoking behavior of students in Thailand, men are 15 to 20 times more likely to smoke than women, a total of 364 participants, consisting of 321 men and 43 women. This research shows that smoking behavior is higher in men than women; men are more likely to smoke daily than women (67.0 and 41.9% respectively, $(p \text{ value}=0.002)$ (Chinwong et al., 2018a).

Furthermore, the research results show that the prevalence of smoking tends to be higher among male adolescents than female adolescents (Alamsyah & Nopianto, 2017; Chinwong et al., 2018b; 2000). Teenage boys are more at risk of smoking because of the influence of social and cultural norms that view smoking as acceptable behavior or even considered masculine for men. (Nurul Kodriati & Pursell, 2018).

Several risk factors for smoking behavior in adolescents were also found to differ based on gender. In adolescent boys, factors such as peer influence, lack of parental supervision, and positive attitudes towards smoking tend to be more influential (Leonardi-Bee et al., 2011). Meanwhile, in adolescent girls, psychological factors such as stress and depression are stronger predictors of smoking behavior (Karyadi et al., 2014).

Research also shows that male gender identity which is characterized by masculine traits, such as independence and assertiveness, can be a risk factor for smoking behavior in adolescent boys. (Courtenay, 2000).

In contrast to the lower proportion of teenage girls smoking, this is because women are influenced by perceptions of themselves or body image, during adolescence women want to look more beautiful. Although there are women who smoke, their reasons are primarily out of curiosity and being influenced by their friends who smoke (Simarmata, 2012)

In high-income countries, differences in smoking prevalence between men and women tend to be smaller. For example, in New Zealand the prevalence of smoking in men is 16.6% and in women 13.8% (Ministry of Health NZ, 2021). The

statistical test results obtained $p \text{ value} = 0.832 > \alpha$ so it can be concluded that there is no significant relationship between gender regarding the dangers of smoking and smoking behavior in students (Somantri, 2020).

Apart from the above, researchers assume this may be due to the fact that cigarette advertising and promotions are often aimed at men, involving artists or influencers who are mostly male, such as advertisements for teenagers playing basketball, with an attractive appearance, and contemporary slogans, such as "Just enjoy, it's okay, it's not busy, go Ahead, and so on", all advertisements associate cigarettes with masculinity, freedom and fun.

Researchers also assume that the social factors and pressures experienced by men as potential leaders of themselves, their families and society become a burden on their shoulders, so that their escape to negative things, one of which is smoking, as they see their peers smoking, this can also influence smoking habits. in men more than women.

V. CONCLUSION

The conclusions in this research are:

1. There is a significant relationship between gender and smoking behavior at the Karimun Regency Vocational High School $(P \text{ value} = 0.000 \text{ and } OR = 14.668)$.
2. The variable that has the most influence on smoking behavior in Karimun Regency Vocational High Schools with a value of $P = 0.000 \text{ and } OR = 10.387$ is gender, meaning that the male genital chance 10.4 times against smoking behavior compared with respondents who are female gender.

RESEARCH ETHICS

Research ethics have been issued by the Chair of the Health Research Ethics Committee (KEPPKN) of the Faculty of Medical Sciences, Syiah Kuala University (USK) with registration number: 1171012P. Ethical Exempted with letter number: 216/EA/FK/2023.

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