Factors Affecting E-Smoking Behavior in Public Health Students of University Muhammadiyah Kalimantan Timur

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Abstract. Background The trend of using electronic cigarettes (vapor) has developed rapidly among teenagers in the United States, and the largest increase occurred in the United States and Canada in 2018. The increased use of electronic cigarettes occurred from 2011 to 2015 while the decreased use occurred in 2016 and 2017. However, in 2018, the National Youth Tobacco Survey identified the increased use of vapor among adolescents; a 30-day trial of e-cigarette use increased by 20.8% among adolescents, especially students. The results of a survey conducted 2.5% using e-cigarettes. Objectives This study aims to investigate factors that influence the electric smoking behavior of public health students. Methods This study employed quantitative research with a cross-sectional approach to determine the relationship of behavioral factors to e-smoking. This study involved 214 samples selected using simple random sampling. Results Factors that influence smoking behavior are knowledge with a p-value of 0.000 and attitude with a p-value of 0.000. Moreover, this study has found that modern women use e-cigarettes because they consider that it does not violate any rule. Conclusions Factors that influence smoking behavior are knowledge, attitude. Influential factors are knowledge and attitudes so it is necessary to prevent the use of e-cigarettes with health education, regulations

1 Introduction

Smoking is the main form of tobacco use. Nearly 80% of 1.1 billion smokers worldwide live in low and middle-income countries. In other words, the highest cigarette consumption is found in developing countries, and the heaviest burden of disease and death is related to tobacco use[1]. E-cigarettes refer to a type of alternative tobacco product and have lower health risks than conventional cigarettes do. An expert review of independent evidence published by Public Health England (PHE) concludes that e-cigarettes are significantly less

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harmful than tobacco and potentially help smokers quit. Professor Ann McNeil, an independent author of the review from King's College London, explains that "e-cigarettes could become a game changer in public health because they particularly reduce the enormous public health disparities from smoking [2]. In contrast, a study argues that E-cigarettes could cause various health problems, and nicotine in e-cigarettes could cause addiction [3]. The Basic Health Research (RISKESDAS) in 2018 reports the use of e-cigarettes in Indonesia based on age groups: 10.6% smokers aged 10-14 years, 10.5% smokers aged 15-19 years, and 7.0% smokers aged 20-24 years. Meanwhile, the data on gender characteristics of e-cigarette use show that the percentages between male and female smokers are not much different: 2.8% male smokers and 2.7% female smokers. In Indonesia, there are five provinces with the highest rate of e-cigarette smokers aged >10 years; they are the Special Region of Yogyakarta (7.4%), East Kalimantan (6%), DKI Jakarta (5.9%), South Kalimantan (4.9%), and Bali (4.2%) [4].

There are two factors that affect a person's behavior to smoke tobacco and e-cigarettes, namely knowledge and attitude. The data show that the number of e-cigarette smokers in Indonesia has reached 1.2 to 1.5 million. Cigarette use in nursing students is high. Although these students have knowledge of smoking and show a supportive attitude towards the provision of smoking cessation services, the high prevalence of smoking hamper them from effectively providing smoking cessation services [5].

Smoking attitudes towards electronic smoking behavior in students, smoking behavior is also influenced by knowledge, thus influencing health changes to change attitudes [6] Conventional smokers have the same risk as other smokers if they use the same brand of cigarettes, but each e-cigarette smoker has a different risk from other e-cigarette smokers. This is due to the large number of product brands (approximately 500) with 8000 different flavors. The risk does not only depend on the brand or batch of e-cigarettes, but also on the aroma, heating and cleanliness of the e-cigarettes, and other factors. smoker himself. E-cigarettes are increasingly popular as a substitute for conventional cigarettes with perception as a safe alternative.General perception who think e-cigarettes are not risky is not true because of the many compositions liquid in e-cigarettes [7]. E-cigarettes also contain Propylene Glycol and Glycerol, although they are declared safe to be consumed directly as a flavoring in butter when inhaled can potentially cause bronchitis to obliterate, a very serious liver disease. Mouth and throat irritation, Dry cough, Nausea, Dizziness, Changes in heart, rhythm, Changes in blood pressure [8].In realizing it, Indonesia is one of 193 countries that have also signed a commitment to realize the Sustainable Development Goals (SDGs) which have been ratified through 60 Indonesian Efforts. One of the SDG'S Goals is by 2030, the target is to reduce by one third the number of premature deaths from non-communicable diseases, with indicators of prevention and treatment, and to improve mental health and well-being through reducing the percentage of smoking in the population aged 10-18 years. Another target is to strengthen the implementation of the Framework Convention on Tobacco Control WHO in all countries as an appropriate step with an indicator of decreasing the percentage of smoking in the population aged 15 years [9]. The role of health education in changing behavior is very large, health education can change knowledge, attitudes and ultimately change a person's behavior [10].

The results of qualitative research in the same place stated that using e-cigarettes was more practical, harmless because it contained zero nicotine and could choose various flavors and was practical and small. Based on the aforementioned background The results of the initial survey showed that some students brought e-cigarettes, the researchers are interested in investigating the relationship between knowledge level , attitude and behavior towards the use of e-cigarettes in students of Universitas Muhammadiyah Kalimantan Timur, Samarinda.

In fact, health students are candidates for health workers who will be at the forefront in exemplifying clean and healthy behavior that would be practiced by the community [11].

2 Material And Methods

This study employed quantitative research with a cross-sectional approach to determine the relationship between behavioral factors of e-smoking. The population in this study is 462, Total 214 samples selected using stratified random sampling is how to take samples by first making a classification based on class. The samples of this study were male and female students in the Faculty of Public Health who willingly became respondents, smoke e-cigarettes, and did not smoke e-cigarettes.

This study obtained ethical approval from the Health Research Ethics Committee Sekolah Tinggi Ilmu Kesehatan Mutiara Mahakam Samarinda, East Kalimantan (ethical approval number: 341/KEPK-STIKES-MM/X/2022).

3 Results and Discussion

3.1. Characteristics

The characteristics of the samples observed in this study are age, class, and gender.

Table 1. Distribution of respondents' age, class, and gender

No	Variables	Categories	Total	Percentages (%)
1	Age	17 years old	1	0.5
		18 years old	29	13.6
		19 years old	96	44.9
		20 years old	47	22.0
		21 years old	29	13.6
		22 years old	11	5.1
		23 years old	1	0.5
Total			214	100
2	Class (Semester)	2	124	57.9
		4	59	27.6
		6	31	14.5
Total			214	100
3	Gender	Male	58	27.1
		Females	156	72.9
Total			214	100

Source: Primary Data

Table 1 shows that the research samples are dominated by women: 156 women (72.9%) and 58 men (27.1%). The majority of the samples (96 students or 44.9%) are 19 years old while the fewest sample (1 student or 0.5%) is 17-23 years old. The samples of this study are public health students in semesters 2, 4, and 6; the majority of the samples (124 students or 57.9%) are in semester 2 while the fewest samples (31 students or 14.5%) are in semester 6.

3.2. Distribution of E-Cigarette Use Behavior Based on Respondents' Genders

Table 2 denotes that male e-cigarette users (15 respondents or 7.0%) dominate female e-cigarette users (3 respondents or 1.4%).

Table 2. Distribution of e-cigarette use behavior based on respondents' genders in Universitas Muhammadiyah Kalimantan Timur

Genders	E-Smoking Behavior				Total	
	Users		Not Users			
	N	%	N	%	N	%
Male	15	7.0	43	20.1	58	27.1
Females	3	1.4	153	71.5	156	72.9
	18	8.4	196	91.6	214	100

Source: Primary Data

3.3. Respondents' Level of Knowledge

Table 3. Respondents' knowledge of using e-cigarettes

Knowledge	Total	Percentages (%)
Good	81	37.9
Fair	87	40.7
Poor	46	21.5
Total	214	100

Source: Primary Data

The respondents' levels of knowledge were measured using a questionnaire that contains ten questions. The respondent's score for each question was summed up and categorized into three: "good", "fairly good", and "poor". Table 4.9 presents that the 87 respondents (40.7%) have a fairly good level of knowledge on using e-cigarettes. This number is the highest compared to respondents with good knowledge (81 respondents or 37.9%) and those with poor knowledge (46 respondents or 21.5%).

3.4. Respondents' Attitude

The respondents' attitudes were categorized into two: “positive” and “negative”.

Table 4. Respondents' attitudes toward e-cigarette use

Attitude	Total	Percentages (%)
Positive	203	94.9
Negative	11	5.1
Total	214	100

Source: Primary Data

The respondents' attitudes were measured using a questionnaire that contains eight statements. The respondent's score for each question was summed up and categorized into "positive" and "negative". Positive attitude is an attitude that states that e-cigarettes are dangerous and you should not smoke e-cigarettes. A negative attitude is an attitude that leads to the use of e-cigarettes. Table 4.10 concludes that the majority of the respondents (203 respondents or 94.9%) have a positive attitude towards the use of e-cigarettes. Meanwhile, only 11 respondents (5.1%) have a negative attitude towards the use of e-cigarettes.

3.5. Relationship of Knowledge, Attitudes, and Smoking Behavior

The statistical test on the relationship between knowledge and electric smoking behavior has revealed a confidence level of 95% with a p-value = 0.000. This finding indicates that the p-value is smaller than the alpha value (5%). Thus, this study concludes that there is a significant relationship between the respondents' levels of knowledge and their use of e-cigarettes ($p = 0.000 < 0.05$).

The statistical test on the relationship between attitude and smoking behavior has revealed a confidence level of 95% and a p-value of 0.000. Since the p-value is smaller than the alpha value (5%), this study concludes that there is a meaningful relationship between the respondents' attitudes and their use of e-cigarettes ($p = 0.000 < 0.05$)

3.6. Discussion

Smoking behavior or tobacco consumption behavior includes consumption habits of suction cigarettes, e-cigarettes, shisha, and chewing tobacco (4). E-cigarette use behavior was measured by investigating e-cigarette use for 30 the last days. This measurement is based on Riskesdas (2018), which states that smoking behavior includes the daily or occasional smoking habit in one month. In 2018, Riskesdas reports that the use of cigarettes in men and women is not much different, namely 2.8% in men and 2.7% in women. Recently, the use of e-cigarettes in women is not considered taboo, globalization and the trend of using e-cigarettes. his statement is supported by Tedjasukmono and Susanto (2019) who prove that women use e-cigarettes (vaping) because they consider vaping as an art, hobby, or fun activity that does not endanger their health [12]. Modern women believe that they are not prohibited from vaping [13]. This statement is also supported by research, which has revealed that knowledge and attitudes affect smoking behavior [14]. The use of e-cigarettes is currently starting to receive attention from some cigarette users [15]. The use of e-cigarettes considers various things and factors that affect the environment [16]. Various health education about smoking behavior is carried out through counseling in class [17]. Dissemination of health information can also use various social media to change smoking behavior because at this time social media is very popular with teenagers [18]. Health education can change knowledge, attitudes, practices in the health sector, so it is hoped that health status will increase.

3.7 Strength and limitation

This study measures the knowledge, attitudes and behavior of e-smoking health students, using primary data using a large sample. The use of sample selection with stratified random sampling so that each population has the same opportunity to be selected. . Some weaknesses of this research measuring knowledge and attitudes, while many factors influence the behavior of using e-cigarettes such as ease of access, peers, price, taste, environment.

4 Conclusion

Behavioral factors of e-smoking in the Faculty of Public Health are knowledge and attitude. Influential factors are knowledge and attitudes so it is necessary to prevent the use of e-cigarettes with health education, regulations. Health education is expected to change the behavior of e-smoking. Regulations will limit the use of e-cigarettes in the campus environment so that they force users not to use them while on campus

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