

ORIGINAL ARTICLE

Perceptions and Their Implications in Electronic-smoking Prevention Behavior in Adolescents: A Qualitative Study

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ABSTRACT

Introduction: Electronic cigarettes is another form of smoking behavior. Trends in electronic smoking is increasing. Preventive steps need to be taken to anticipate the spread of electronic cigarettes among adolescents. It is needed approach theoretically examines the factors that can prevent electronic smoking behavior. Perceptions based on the Health Belief Model theory are factors that can be used to predict individual prevention behavior. This aim of this study was to explore adolescent's perception about perceived risk, perceived barrier and perceived benefit. **Methods:** This study was descriptive qualitative study. Participant in this research from representative middle and high schools in the city of Yogyakarta, were taken from 4 schools. Semi-structured, individual interviews were conducted with 10 adolescents. Thematic analyses were used to identify themes. **Results:** In their perceived risk, adolescents convey that there are risks both from health and safety for users. Regarding the perceived barrier, adolescents said that factors from friends sometimes make it difficult for them to prevent them. Adolescents perceived benefit of preventing electronic smoking, including good health and being able to save more. **Conclusion:** Adolescent believed there are any risks about the dangers of electronic cigarettes. They know the risks they will experience if they do electronic smoking behavior. They also have perceived barrier to prevent them, including from within themselves and the external environment. Adolescents are able to have a good perception of benefit when they prevent electronic smoking. Emphasis on perception points is highly recommended to motivate adolescents to choose healthy behavior. *Malaysian Journal of Medicine and Health Sciences* (2025) 21(6):1-10. doi:10.47836/mjmhs.v21.i6.1413

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cigarette users in Indonesia shows that Yogyakarta is the highest province (9.6%) followed by Bali (8.5%) and East Kalimantan (8.1%) [6].

INTRODUCTION

Smoking is a health, social problem and increasingly growing, especially in countries with high incomes [1–3]. Trends in electronic smoking in the world in the youth category show that 18.6% of adolescents have ever tried electronic cigarettes. Data in Asia shows that 16% are lifetime electronic smokers and 11% currently smoke electronic cigarettes [3, 4]. Trends in electronic cigarettes in Indonesia based on the Global Adult Tobacco Survey (GATS) note that in 10 years there will be increase in electronic cigarette use from 0.3% in 2011 to 3% in 2021 [5]. Survey data on electronic

Electronic cigarettes were considered to be an alternative to reducing conventional cigarettes, although it turns out that the use of electronic cigarettes is actually another form of smoking behavior. The use of electronic cigarettes on the one hand increases nicotine use, especially among young people [7, 8]. Research in Australia and New Zealand explains that adolescents have a good perception of electronic cigarettes, although good perceptions or assumptions about electronic cigarettes still have a lot of controversy [1]. One of the perception is electronic cigarettes do not cause passive smoking [9]. The other problem is reducing stress and anxiety are being a reason often given by electronic smokers [10]. From this, it is hoped that there will be

health promotion regarding health information so that adolescents have awareness of the dangers of electronic cigarettes and preventive steps need to be taken to anticipate the spread of electronic cigarettes among adolescents [1, 11].

Health Belief Model as a basic concept that is often used in health behavior research in its use has developed from the use of models on chronic diseases to the use of models on the nature of disease prevention. This model states that there are main constructs that determine individual health behavior, namely the perception of susceptibility to disease, the perception of severity of disease, the perception of obstacles to the actions taken (perceived barrier) and the perception of benefits in health behavior/behavioral change (perceived benefit) [12]. Some theories about health promotion such as the Health Belief Model emphasize that perception influences the way individuals think about achieving health. The Health Belief Model emphasizes that perceived risk, perceived barrier and perceived benefit are needed to increase individual awareness of health behaviors such as electronic smoking prevention behavior. In a study on the importance of perceived risk for disease, it was able to reduce electronic smoking behavior [13]. In other words, perceived risk is an important construct in studying health behavior [14]. Perceived risk and perceived benefit can be built from individuals who smoke or do not smoke. This perception is important to know because it is related to smoking initiation behavior [15]. Even in smoking prevention it is also necessary to know adolescents' perceptions about the benefits associated with smoking [16]. Next, the perceived benefit felt if adolescents stop or prevent smoking can be used to form a prevention construct smoking behavior [17]. Misperceptions about e-cigarettes can increase an individual's tendency to smoke e-cigarettes. Individuals who have low risk perceptions of e-cigarettes and high benefit perceptions of e-cigarettes are more likely to use e-cigarettes continuously [18]. The third perception is perceived barrier. Perceived barrier can be a reinforcing factor to stop smoking or do other risky actions. Individuals who have low perceive barriers to engage in healthy behavior will tend to choose risky behavior, and vice versa. So that need to be explored as an effort to control smoking behavior [19, 20].

Several studies explain perceptions about electronic cigarettes [21–23] and previous studies have examined perceived risk associated with electronic cigarette use in adolescents or young adults [24, 25]. However, specific research on adolescent perceived risk, perceived benefits and perceived barriers to support electronic smoking prevention behavior has not been carried out much and research examining theoretical constructs associated with health behavior is still limited. Because of this, the aim of this study is to examine relevant theoretical constructs, namely perceived risk, perceived barrier and perceived benefits in adolescents regarding electronic

smoking prevention behavior which is expected to be an effort to prevent smoking in adolescents. Purposes of this study are to know about:

1. How do adolescents perceived risk regarding electronic smoking behavior?
2. How do adolescents perceived barrier regarding electronic smoking prevention behavior?
3. How do adolescents perceived benefit regarding electronic smoking prevention behavior?

The Health Belief Model is often used in the intervention framework for smoking cessation. This model provides a construct that behavior can be changed with several underlying perceptions, including perceived susceptibility, perceived of severity, perceived benefits, perceived barriers and self-efficacy [13]. Perceived benefits based on Health Belief Model is a perception that explains the individual's analysis of available efforts to reduce the risk of perceived disease. While the perception of barriers is an obstacle that may occur if the individual stops the recommended behavior [12].

Perceived risk can be called as the perception of something that is threatening. Perceived risk can be formed from several factors, including personal experience, the superiority of available examples, and affective factors [26]. Perceived risk is explicitly stated in several theories about health such as the Health Belief Model [27] and a core variable that is often studied in health behavior theory [14]. The Health Belief Model provides a construct that if an individual has a perceived risk about a behavior then he will consider the choice in behaving. In smoking behavior, one study found that adolescents, both non-smokers and electronic cigarette smokers, knew the risk of harm that could be caused by electronic cigarettes [28]. Individuals who have low perceived risk of behavior and high perceived benefits of electronic smoking are more likely to engage in electronic smoking behavior [29]. In the study on quitting smoking, it is explained that individuals who start to quit smoking feel the perception of benefits including in health and economic aspects. Meanwhile, the perceived barrier in individuals who start to avoid cigarettes includes the existence of desires that are influenced from outside. The study on the perceived benefit explains that the higher the perceived benefit that individuals have in health behavior, the more motivated they will be to carry out the recommended behavior. In individuals who have the perceived barrier to carrying out health behavior, the motivation for the behavior will decrease [20].

Therefore, it is necessary to explore the perceived risk, perceived benefits and perceived barriers in adolescents who do not smoke electronic cigarettes to reaffirm the construct of the Health Belief Model in understanding electronic cigarette prevention behavior. The Health Belief Model framework used as the basis for this study is shown in Fig 1.

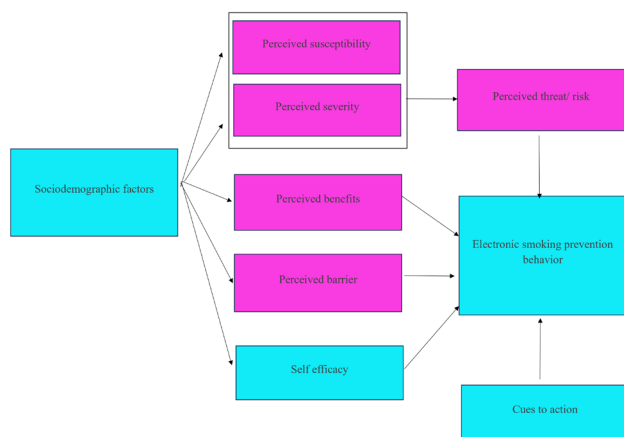


Figure 1: Framework used in research based on Health Belief Model

MATERIALS AND METHODS

Study design

This study is descriptive qualitative study and part of a larger study. The descriptive qualitative approach is widely used in health and can be used to study matters relating to perception [30]. The participants recruited were participants who had agreed to participate in previous studies. Participant in this research from representative middle and high schools in the city of Yogyakarta, were taken from 4 schools that were the research locations in previous studies. Participants in this study have stated informed consent both in written and oral form. The participants used the convenience sampling method to recruit adolescents who were willing to become informants. The inclusion criteria in this study include 1) adolescents attending middle school or high school in the city of Yogyakarta 2) adolescents who do not smoke electronic cigarettes or have tried but no longer use electronic cigarettes 3) have close friends or family who smoke electronic cigarettes. In total, 10 informants entered this research and stated that they were willing to become informants and obtained approval from the teacher where the informants attended school.

Data collection

Data collection was carried out using semi-structured in-depth interview that explored specific topics but used flexible questions and wording to allow detailed probing. A semi-structured interview guide was created as an interview guide. Field notes were taken in research both before, during and after interviews. This interview explored adolescents' perceived risks about electronic smoking behavior, perceived barrier when they carried out e-smoking prevention behavior and perceived benefits if adolescents carried out e-smoking prevention behavior. Researchers asked several questions :1) What do you think are the risks for adolescents if they are smoking electronics? 2) Do you think there are obstacles if adolescents carry out electronic smoking prevention behavior? 3) In your opinion, are there any benefits if

adolescents engage in electronic smoking prevention behavior? Data was collected by one researcher in the school environment (either in the classroom, library or other rooms provided). Interviews were conducted by one interviewer on 1 participant in the space provided. Data retrieval stops if no new information is obtained. Interviews were recorded using a voice recorder and transcribed verbatim by a research assistant. Interviews took between 20-40 minutes and were conducted between July 2024- November 2024. Transcripts that have been prepared are returned to participants to confirm the statements and content of the interview.

Analysis

Interviews were recorded and subsequently transcribed verbatim then were analyzed thematic analysis approach [31]. Two researchers read the transcripts independently. Transcripts were coded independently using a line-by-line coding approach. Coding of participant names was done using the first initial and age. The first researcher coded categories/themes from the interview results. Themes that had been found from the data were matched by a second researcher to match the suitability of the themes to several meetings. Two researchers identified data codes, discussed and confirmed existing data. The first researcher reassesses the themes and selects sentence fragments. The analysis was finalized after several discussions. The final categorized data coding is reported in the manuscript.

Trustworthiness

To ensure trustworthiness, this study focusing on credibility, dependability, confirmability, and transferability. Strategies employed to enhance credibility included member checking, peer debriefing, prolonged engagement, and consistent observation. Data analysis followed rigorous research procedures to ensure dependability [32]. The entire research team thoroughly discussed and approved the results before being shared with participants to validate their accuracy and consistency with their experiences. To enhance transferability, detailed descriptions, and diverse representation were provided.

Ethical approval

The study was conducted after get permission from ethics comitee of the Surya Global Institute of Health Science Yogyakarta under approval letter No. 7.10 / KEPK / SSG / VI / 2024. Research obtained both verbal and written consent from all participants before interview.

RESULT

Characteristics of the Participants

The average participant was 16 years old and 2 people had tried e-cigarettes but now did not e-smoke. Meanwhile, 8 other informants had never tried electronic cigarettes. Six participants were male adolescents and 4 participants were female adolescents.

Perceived risk

Perceived risk is the susceptibility/risk felt by adolescents about electronic smoking behavior. From the interview results, several themes were obtained regarding the perceived risk felt by adolescents. Theme 1 is about emerging health risks. Adolescents feel that health risks can arise if they do not carry out preventive behavior. These risks include, among other things, the addictive nature of electronic cigarettes and the physical impacts they cause and can cause disease. Theme 2 is about hazard impact assessment. This hazard impact assessment is based on sub-themes, namely the type and nature of the hazards caused, as well as physical and environmental impacts.

Four out of 10 informants stated that other possible dangers include that electronic cigarettes create passive smoking and can be more dangerous than conventional cigarettes. *“If I see a friend vaping in my heart I say, for now you’re like that (sometimes short of breath, coughing) tomorrow you won’t feel that good...”* (K, 14 years old). Another informant expressed concern about the risks posed by not carrying out preventive behavior, namely cancer *“...I’m afraid of cancer...”* (I, 17 years old)

Perceived risk is also felt in the form of assessing the dangerous impact of electronic cigarettes, both from the physical and technical aspects of electronic cigarettes. Adolescents believe that electronic cigarettes have a negative impact on both health and the environment. Apart from that, the risk of exploding from electronic cigarettes is also a consideration for adolescents when assessing the impact of electronic cigarettes *“...the battery could explode and hurt the user...”* (R, 17 years old).

The results of category, subtheme and theme from analysis of perceived risk are shown in table I and to clarify the thematic analysis process is shown in Fig. 2.

Perceived barrier

Explain what obstacles adolescents experience when carrying out electronic smoking prevention behavior. Informants said there were relative any obstacles to implementing electronic smoking prevention behavior. The results of the theme analysis obtained results in the

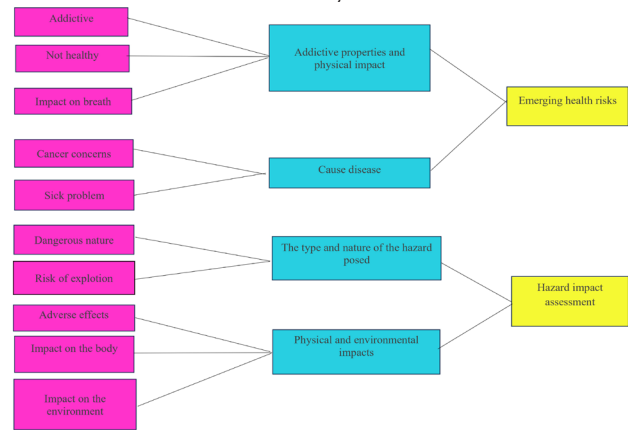


Fig 2: Analysis tree of perceived risk

form of theme 1, namely obstacles from the environment and theme 2, namely barriers from adolescents. Theme 1 was obtained from a subtheme which discussed a

Table I. Category, subtheme and theme from analysis of perceived risk

Quotation	Cate-gory	Sub theme	Theme
Ar, 16 years old “I think it’s dangerous because the ingredients are addictive”	Addic-tive	Addictive properties and physi-cal impact	Emerg-ing health risks
Ar, 16 years old “...makes it unhealthy..”	N o t healthy		
K, 14 years old “..sometimes I think for a moment if it’s going to be difficult, then my breath will be like this”	I m - pact on breath		
I, 17 years old “..I’m afraid of cancer..”	Cancer c o n - cerns	Cause dis-ease	
M, 17 years old “..cigarettes can make you sick yourself..”	S i c k problem		
Al, 17 years old “...dangerous in my opinion...”	Danger-ous nature	The type and nature of the haz-ard posed	Hazard impact assess-ment
R, 17 years old “...more dangerous he said..” “...passive smokers are more dangerous than active smokers like that..”			
A, 17 years old “..even more dangerous..”			
Y, 15 years old “..I think the danger is the same or maybe more...”			
R, 17 years old “..the battery could explode, injuring the user...”	Risk of explosion		
R, 17 years old “Because the bad impact is not good...”	Adverse effects	Physical and environmental impacts	
K, 14 years old “When I see a friend vaping in my heart, I say, now you’re like that, tomorrow you won’t feel good”		Impact on the body	
Ar, 16 years old “...it’s also not good for the environment and health...”		Impact on the environ-ment	

non-conductive friendship environment and negative treatment from friends. Theme 2 comes from the sub-themes of inconvenience to prohibit and effort to do something good. Carrying out electronic smoking prevention behavior sometimes encounters both internal and external obstacles. From the inside, I am unable to forbid it, I don’t like to forbid it, and I find it difficult to

encourage people to do good things. From the external barriers felt, among others, most people smoke, friends initiate the behavior, don't want to be reminded, rejection from friends, being ridiculed and shunned by friends. One informant stated, *"Inviting kindness is difficult, sometimes our friends don't follow our advice"* (O, 15 years old)

"Actually, it's not difficult to prevent electronic smoking, and it also depends on friendship, if we don't smoke, our friends won't invite us either, we both know, in fact sometimes those who smoke are the ones ridiculed, you smoke, okay?" (K, 16 years old)

The results of category, subtheme and theme from analysis of perceived barrier are shown in table II and to clarify the thematic analysis process is shown in Fig 3.

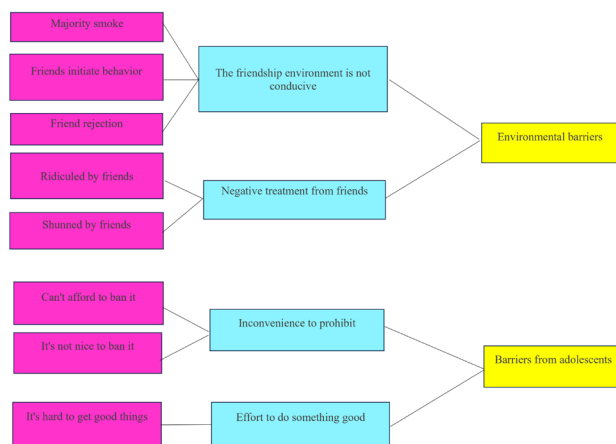


Fig 3: Analysis tree of perceived barrier

Table II. Category, subtheme and theme from analysis of perceived barrier

Quotation	Category	Sub theme	Theme
A1, 17 years old "...it's a bit difficult, because most of them smoke..."	Majority smoke	The friendship environment is not conducive	Environmental barriers
O, 15 years old "...sometimes there are friends at home playing and then smoking..."	Friends initiate behavior		
M, 17 years old "...rejection from friends, reminded but avoided"	Friend rejection		
I, 17 years old "...like the environment, ..you can say it's stupid..."	Ridiculed by friends	Negative treatment from friends	
M, 17 years old "...friends have become a bit distant..."	Shunned by friends		
O, 15 years old "... sometimes can not to mbak we forbid friends not to smoke like that .."	Can't afford to ban it	Inconvenience to prohibit	Barriers from adolescents
	It's hard to get good things	Effort to do something good	

Continue

Table II. Category, subtheme and theme from analysis of perceived barrier (cont.)

Quotation	Category	Sub theme	Theme
O, 15 years old "... sometimes can not to mbak we forbid friends not to smoke like that .."	Can't afford to ban it	Inconvenience to prohibit	Barriers from adolescents
A, 17 years old "... sometimes feel uncomfortable too for example again gathered like that .. then sometimes remind also there are those who want there are not .."	It's not nice to ban it		
E, 15 years old "...inviting positive things is difficult..."	It's hard to get good things	Effort to do something good	

Perceived benefit

Perceived benefit in this research are informants' perceptions about the benefits if they carry out electronic smoking prevention behavior. From the results of the interview analysis, 3 themes were obtained in the perception of these benefits. Theme 1 is about perceived physical well-being, theme 2 is about cognitive, psychological and economic abilities. Theme 1 is formed from sub-themes, namely comfortable body condition and hope for health. Theme 2 is obtained from the sub-themes thinking ability, stability of emotional regulation and economic profit.

Four out of 10 informants said that they perceived they had a healthy body condition. This healthy/fit body condition consists of breathing that is more regular, easier, less short of breath and helps them when they have to do physical activities such as exercising. *"I feel better breathing, I don't get tired easily when I run..."* (E, 14 years old)

The informants also said that the perceived benefits of implementing electronic smoking prevention behavior were good health in the future including longer life expectancy, preventing disease and maintaining good health. One of the informants said: *"..can prevent lung cancer, can make the lungs healthier..."* (R, 17 years old). Another informant said *"..live longer..."* (Y, 16 years old)

The next perceived benefit is in the form of the psychological well-being of adolescents. This psychological well-being is in the form of not being addicted to electronic cigarettes, being more focused on doing things, being in a good mood and not experiencing confusion. As the informant said *"..become more focused because you don't have to think about what to replace (flavor or type of electronic cigarette), your mood will be better and you won't be confused..."* (I, 17 years old)

Informants also said that by implementing electronic smoking prevention behavior, they could save more of the money they had for other purposes or in other words save more. This was conveyed by the informant “.. by not smoking electronically, your wallet will become thicker (more economical)” (O, 15 years old).

The results of category, subtheme and theme from analysis of perceived benefit are shown in table III and to clarify the thematic analysis process is shown in Fig. 4.

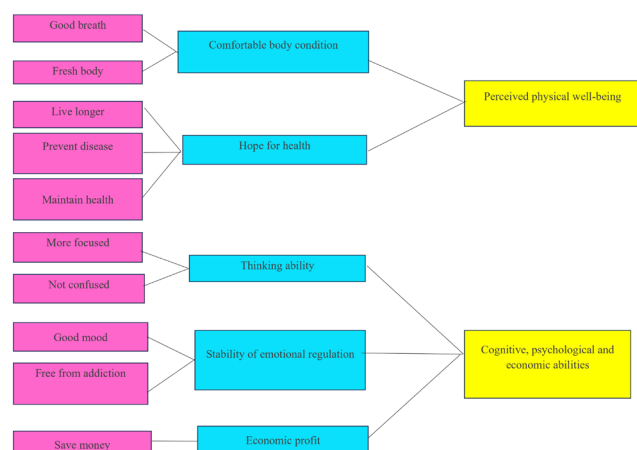


Fig 4: Analysis tree of perceived benefit

Table III. Category, subtheme and theme from analysis of perceived benefit

Quotation	Category	Sub theme	Theme
O, 15 years old "I ride a bicycle, my breath is better..."	Good breath	Comfortable body condition	Perceived physical well-being
A, 17 years old ".. breathe a sigh of relief"			
E, 14 years old "..I feel better breathing..." "..it's not easy to get tired if you run..."			
I, 17 years old "..the body is fresher to..."	Fresh body		
Y, 15 years old "...life is longer..."	Live longer	Hope for health	
R, 17 years old "..can prevent lung cancer, can make the lungs healthier"	Prevent disease		
M, 17 years old "..take care of your own health..."	Maintain health		

Continue

Table III. Category, subtheme and theme from analysis of perceived benefit (cont)

Quotation	Category	Sub theme	Theme
I, 17 years old "..more focused because I don't think about what to replace..."	More focused	Thinking ability	Cognitive, psychological and economic abilities
I, 17 years old "..don't be confused..."	Not confused		
I, 17 years old "..mood also goes up..."	Good mood	Stability of emotional regulation	
A, 17 years old "not addicted"	Free from addiction		
Oh, 15 years old "..her wallet is thick..."	Save money	Economic profit	

DISCUSSION

The Health Belief Model is able to construct or predict perceived risk and knowledge of disease [33]. In this study, perceived risk was found that adolescents consider the risks that arise in electronic smoking behavior. It means, adolescents are able to consider emerging health risks and hazard impact assessment. This is certainly a result that needs to be supported as an effort to increase adolescent participation as part of efforts to prevent electronic smoking. The majority of electronic cigarette smokers use electronic cigarettes as a substitute for conventional cigarettes. This is because many respondents have a low perceived risk of the dangers of electronic cigarettes. Smokers have the view that electronic cigarettes are safer to use and can be a substitute for conventional cigarettes. From this phenomenon, there is a need for health campaigns or promotions so that people have the correct perceived risk regarding the dangers of electronic cigarettes [34]. There is a difference in perceived risk between conventional cigarette smokers and electronic cigarette smokers. Electronic cigarette smokers have a low perceived risk than conventional cigarette smokers. This means that electronic smokers view electronic cigarettes as safe and a substitute for conventional cigarettes. Meanwhile, studies on non-smokers show a high level of perceived risk or have the perception that electronic cigarettes are still dangerous [35]. The existence of a

high perceived risk regarding the dangers of smoking will increase individual action to prevent smoking [36]. Other research found that in adolescents who have the desire to quit electronic smoking, it was found that the role of perceived risk is one of the factors that can influence the choice not to return to electronic smoking. The more adolescents have a greater perceived risk, the lower the level of addiction to electronic cigarettes [37].

In perceived barrier, several adolescents felt that there were obstacles when carrying out electronic smoking prevention behavior, although informants on the one hand also stated that these obstacles were not very significant for them. The forms of obstacles that occur are more external in nature, for example from friends who make fun of them but are only limited to words and do not change adolescents' assessment of electronic smoking prevention behavior. Barriers can be experienced from the social environment. Adolescents who no longer want to smoke are sometimes invited or invited by their friends to smoke [20]. Perception of barriers according to the Health Belief Model theory is an assessment of barriers to behavior which can be influenced by several things, including social implications (social acceptance), past experiences or related to discomfort. The higher a person's perceived barriers to behavior, the lower the prevention behavior carried out, and vice versa. The more an individual feels that the behavior is not a big threat, the higher the level of prevention behavior carried out [12, 38]. This is what happened to the informants, that the informants felt that carrying out e-smoking prevention behavior relatively did not have many obstacles, so that adolescents could more easily carry out e-smoking prevention behavior. In Health Belief Model, predictions of individual behavior can be influenced by individual perceptions of possible barriers to recommended behavior. This can be caused by discomfort, visual confrontation, or resource availability. In relation to e-cigarette prevention behavior, adolescents consider the barriers faced in such behavior, such as group reactions [12].

From the findings of perceived benefit, adolescent informants stated that by preventing electronic smoking, they predicted they would get benefits in the future. This is what causes adolescent informants to carry out preventive behavior. These findings are supported by other research which states that perceived benefits are a variable that can also indicate factors that increase disease prevention behavior. Perceived benefit is also a factor that influences disease prevention behavior [39]. Exploring the perceived benefit felt by adolescents from not smoking provides a new picture that adolescents understand they can be free from the risk of disease and discomfort resulting from smoking behavior [20]. Individuals who quit or avoid smoking tend to report life satisfaction and reduced stress [40]. Health Belief Model explains that individuals will assess the benefits and mitigate health threats and evaluate their decisions.

In addition, individuals will consider the effectiveness of the action options to reduce possible risks. Adolescents who engage in smoking prevention behaviors tend to consider the benefits they feel if they engage in the behavior [12]. The more an individual understands the benefits he will get from preventing smoking, the higher the preventive behavior he will carry out, and vice versa [36].

Implication for prevention behavior

Perceived risk has a large role in the construct of risk behavior prevention. Perceived risk is also related to perception of benefits which are jointly used in preventing smoking behavior [41]. Perceived risk contributes to encouraging smokers who want to stop smoking without being given certain treatment. This is because perceived risk will increase motivation and increase self-esteem [17]. Perceived risk encourages individuals to think about and consider the health risks obtained from behavior. Understanding the risks will reduce the perception of obstacles. In this way, it is effective enough to be used in health promotion [42]. Understanding the use of perceived risk can be used for smoking prevention or smoking cessation campaigns, including electronic cigarettes.

Perceived barriers are related to perceived risk in its role in preventing smoking behavior [41]. Perceived barriers can indicate the problems that individuals are facing in their efforts to prevent or stop smoking. Anxiety and feeling unable to prevent or quit are one of the obstacles that arise in preventing smoking. Apart from that, low self-efficacy and doubt are perceived obstacles that are often encountered by individuals in preventing or quitting smoking, including electronic smoking [19, 43]. By knowing individual perceived barrier to efforts to prevent smoking, interventions can be carried out more specifically regarding perceived barrier.

The perceived benefit of preventing or stop smoking, both conventional and electronic cigarettes, can be felt by smokers regardless of age. This benefit is not only felt by people who stop smoking, but also the surrounding environment, including non-smokers [44]. Perceived benefit is closely related to motivation and perceived risk. Individuals who have a high perceived benefit will tend to be more motivated to quit or not smoke [41]. This perceived benefit of smoking prevention and cessation can be added as an important point for smoking prevention programs [45]. The existence of information regarding the perceived benefits can be used as a basis for developing health campaigns to prevent smoking, including preventing electronic smoking.

Limitation

This study has several limitations. First, the constructs studied in the Health Belief Model in this study are still limited to perceived risk, perceived barrier and perceived benefit so that exploration is needed in other

dimensions such as perceived susceptibility, perceived severity, as a dimension that is studied separately, cues to action and self-efficacy. Second, the exploration of informants in this study is limited to adolescents who do not smoke and has not explored further the perceptions of adolescents who smoke.

CONCLUSION

This study explores the Health Belief Model construct in its study of perceived risk, perceived barrier and perceived benefit in electronic smoking prevention behavior in adolescents. In the context of perceived risk, adolescent know the risks they will experience if they do not carry out preventive behavior. Apart from that, they also have perceived barrier to prevent them, including from within themselves and the external environment. In construct of perceived benefit, adolescents have experiences that can increase their perceived benefit of carrying out electronic smoking prevention behaviors, namely perceived physical well-being and cognitive, psychological and economic abilities. Based on the results of this study, it is necessary to examine more broadly the constructs in the Health Belief Model to improve understanding of the constructs that can be used to improve health behaviors, especially e-smoking prevention in adolescents.

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