

The Effect of Audiovisual Media-Based Health Education on Adolescents' Knowledge in Preventing Vape Use at SMPN 6 Surabaya

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ABSTRACT Teenagers are susceptible to smoking habits, including the trend of using vape which is attractive because of its various flavors and designs. However, vape is at risk of causing lung disease, heart disease, brain development disorders, and nicotine addiction. The purpose of this study was to increase adolescent knowledge about preventing vape use through health education with *audiovisual media*. This study is a *quasi-experimental study with one group pretest-posttest design*, the research population was adolescents at SMPN 6 Surabaya. The research sample was 186 adolescents with *random sampling technique*. Data collection used a questionnaire on the level of knowledge, attitudes, and actions while data analysis used the *Wilcoxon test*. The results showed a significant increase in adolescent knowledge about preventing vape use after being given health education. Education with *audiovisual media* has been shown to be effective in increasing adolescent awareness of the dangers of vape use. These findings indicate that audiovisual media can be an effective tool for school-based health education to prevent vape use among adolescents. This should be the main focus of health workers who of course need to be assisted by schools and families in providing education related to the dangers of *vape use* for adolescents. Likewise, adolescents are expected to become individuals who are more aware of the importance of maintaining health and are able to make decisions.

KEYWORDS Health Education, *Audiovisual Media*, Knowledge Level, Prevention of *Vape Use*, Adolescents

I. INTRODUCTION

Teenagers are in many negative things that affect health, one of which is smoking. The habit of smoking is like a culture or *trend* in Indonesia, No only person old, teenager And children Also have smoking behavior and habits. It has been quite a long time since a *trend* in Indonesia has been the use of electronic cigarettes or often called *vapes*. *Vapes* are often considered safer than conventional cigarettes because they do not produce smoke from burning tobacco. This view has tempted many teenagers to try it, without fully understanding the health risks involved. Electronic cigarettes or *vapes* often time interesting for teenager Because various flavor Which interesting And the design that *stylish*. Use cigarette electric on teenager can cause lung, heart, immune system diseases, impaired brain development, impaired lung function, and increase their risk of nicotine addiction. With the increasing number of teenagers using *vape* and its potential health threats, serious attention is needed from various parties, including families, schools, and health agencies. A deep understanding of the health hazards of *vape use* is an important first step in efforts to prevent and protect the younger generation.

Over the past five years, e-cigarette use by adolescents in Indonesia has increased rapidly and surpassed regular cigarettes, with the number of users estimated to reach 2 million people. Around 20–25% of adolescents have tried e-cigarettes, which are often marketed as a safer alternative or

smoking cessation tool (Polosa & Farsalinos, 2023). According to data from the 2024 Indonesian Health Survey (SKI), the smoking trend among adolescents aged 10-18 years has indeed decreased, from 9.1 percent in 2018 to 7.4 percent in 2023. However, the Ministry of Health noted that there was an increase in the use of e-cigarettes, which was previously 0.06 percent according to the 2018 Basic Health Research (Riskesdas), to 0.13 percent according to the 2023 SKI. Meanwhile, according to data from *the Global Adult Tobacco Survey*, the increase in the trend of vape smoking is very significant, up to 10 times, from 0.3 percent to 3.0 percent, across all age ranges (CNA, 2024). Exposure to e-cigarette smoke can trigger inflammatory responses and have negative effects on the respiratory system. In addition, e-cigarette consumption is also associated with an increased risk of high blood pressure and impaired brain growth in adolescents. Dependence and various other risky behaviors, such as consumption of tobacco products and drugs, are also negative impacts of e-cigarette use (Susanto et al., 2023). A systematic review by (Benowitz et al., 2020) confirmed that e-cigarette use, especially those containing nicotine, can increase sympathetic nervous system activity, as indicated by increased HRV, heart rate, and blood pressure. These effects are largely due to nicotine, although other components in e-cigarette aerosol may also play a role (Garcia et al., 2020) Another study by El-Mahdy et al. (2020) showed that exposure chronic

against cigarette aerosols electric can cause dysfunction endothelium vascular through activation of NADPH oxidase and uncoupling of eNOS, which contribute to improvement stress oxidative and risk cardiovascular (El-Mahdy et al., 2020) everyone knows about the dangers caused by cigarettes, but this has never decreased and almost every time you can find many people smoking, even smoking is very normal for teenagers. One effective strategy to prevent and stop the use of tobacco products by teenagers, including e-cigarettes, is to provide education (Susanto et al., 2023).

Sufficient knowledge can encourage adolescents to behave healthily. Understanding the dangers of smoking is expected to prevent adolescents from starting to smoke and help smokers stop the habit. However, existing education still focuses more on conventional cigarettes, not e-cigarettes. One effective method for conveying health information is through audiovisual media, such as videos. Videos are able to present information in an interesting, clear, and easy-to-understand way because they combine images and sound, so that educational messages can be conveyed more meaningfully to adolescents. The novelty of this study lies in the integration of *audiovisual-based health education methods* that are specifically designed according to the characteristics of adolescents, so that they are more effective in increasing their knowledge and awareness of the dangers of using e-cigarettes. This study is one of the first in Surabaya to evaluate the effect of *audiovisual interventions* on changes in knowledge of vaping prevention among adolescents and provides a strong basis for the development of promotive-preventive programs in schools.

Previous research on the use of *audiovisual media* as a preventive intervention for vaping in adolescents is still limited, especially in the context of education in the school environment. This limitation indicates a gap in knowledge regarding the effectiveness of audiovisual methods in increasing adolescent awareness of the dangers of vaping, so further research is needed to fill this gap, so based on the description above, this study is interested in utilizing audiovisual media to increase adolescent knowledge in preventing *vaping use* at SMPN 6 Surabaya".

II. RESEARCH METHODS

Study This use quasi-experimental design with approach *one group pretest-posttest*, which aims For evaluate change knowledge and attitude teenager to prevention vape use after given education health. Election sample done by random sampling of 186 teenagers at SMPN 6 Surabaya, so that give equal opportunity for every member population For selected. Instrument data collection in the form of questionnaire that measures level knowledge and attitudes, as well as sheet observation perception in action related vape use before and after interventions that have been validity and reliability tests were conducted with mark *Cornbach's Alpha* 0.744 for questionnaire knowledge and 0.626 For questionnaire

attitudes. Samples were taken from the research population that met the following inclusion and exclusion criteria:

A. Inclusion Criteria

General characteristics of subjects from a target population that is accessible and will be studied, the inclusion criteria in this study are: 1) Willing to be respondents, namely adolescents aged 12-15 years who are registered as students at SMPN 6 Surabaya. 2) Willing to follow the entire series of interventions.

B. Exclusion Criteria

Exclusion criteria are eliminating or removing subjects who meet the inclusion criteria from the study for various reasons, in this study the exclusion criteria include: 1) Adolescents with a history of cognitive disorders 2) Adolescents who do not participate in the study until the end.

The intervention was only carried out in 1 meeting for 40 minutes, using *audiovisual media* showing a 4-minute educational video with an interactive animation format, covering the topic of the dangers of vape use. In addition, the video also displays testimonials from former vape users. Furthermore, the statistical test used was the Wilcoxon test with a significance level (α) set at 0.05, which is appropriate for analyzing differences in *pretest* and *posttest scores* on paired data with non-normal distribution. This *pretest* and *posttest design* was chosen because it can directly assess changes that occur after the intervention is given.

III. RESULTS

A. RESEARCH LOCATION GENERAL DESCRIPTION

The study was conducted at SMPN 6 Surabaya on January 10, 2025. SMPN 6 Surabaya is one of the favorite junior high schools in Surabaya City. This school is located at Jl. Jawa No.24, Gubeng, Kec. Gubeng, Surabaya. SMPN 6 Surabaya is better known as Spensix, it is located in the center of Surabaya where students are surrounded by various public facilities, including shopping centers, kiosks, and malls that sell various kinds of goods that are currently trending. Its strategic location makes it easy for students to access these trends either directly or through intermediaries.

However, unfortunately, education on the use of vape has not been carried out by schools. The lack of socialization regarding the impacts and risks of vape use among students can lead to a lack of understanding of the dangers posed by students. Therefore, it is important for schools to provide proper education so that students can understand the consequences of vape use and are able to make wiser decisions regarding their health.

The general objective of this study is to analyze the effect of health education by utilizing audiovisual media on adolescent knowledge in preventing *vape use*. Then for specific objectives, namely identifying adolescent knowledge before being given health education; identifying adolescent knowledge after being given health education; analyzing the effect of adolescent knowledge in preventing *vape use* before and after being given health education with audiovisual media.

B. CHARACTERISTICS OF TEENS

Table 1

Frequency Distribution of Teenagers at SMPN 6 Surabaya in January 2025

No	Age	Amount	Percentage
1.	12 years old	26	14%
2.	13 years old	149	80.1%
3.	14 years	11	5.9%
Total		186	100%
No.	Gender	Amount	Presentation
1.	Man	83	44.6%
2.	Woman	103	55.4%
Total		186	100%

Based on table 1 is obtained results that , the age of the teenagers, namely almost all of the teenagers, amounting to 149 (80.1%) were 13 years old, a small portion of the teenagers, amounting to 26 (14%) were 12 years old and a small portion of the teenagers, amounting to 11 (5.9%) were 14 years old. Then The gender of the adolescents is that more than half of the adolescents, 103 (55.4%) are female and almost half of the adolescents, 83 (44.6%) are male.

C. LEVEL OF KNOWLEDGE OF TEENS

Table 2

Frequency Distribution of Adolescents Based on Level of Knowledge in Preventing Vape Use at SMPN 6 Surabaya in January 2025

Level of Knowledge	Pretest		Posttest	
	Amount	Percentage	Amount	Percentage
Good	29	15.6%	175	94.1%
Enough	146	78.5%	11	5.9%
Not enough	11	5.9%	0	0%
Total	186	100%	186	100%

Based on table 2 , the results of the study on the level of knowledge (*pretest*) of adolescents are that almost all of the adolescents, 146 (78.5%) have sufficient knowledge, a small number of 29 adolescents (15.6%) have a good level of knowledge and a small number of 11 adolescents (5.9%) have a low level of knowledge in preventing *vape use*. With a mean of 63.60 and a standard deviation of 11.458.

The level of knowledge (*posttest*) of adolescents is that almost all of the adolescents, 175 (94.1%) have good knowledge in preventing *vape use* and a small portion of the adolescents, 11 (5.9%) have sufficient knowledge in preventing *vape use*. With a mean of 93.33 and standard deviation 8.984.

D. TEENAGERS ATTITUDE

Table 3

Frequency Distribution of Adolescents Based on Attitudes in Preventing Vape Use at SMPN 6 Surabaya in January 2025

Attitude	Pretest		Posttest	
	Amount	Percentage	Amount	Percentage
Very positive	74	39.8%	158	84.9%
Positive	67	36.0%	22	11.8%

Attitude	Pretest		Posttest	
	Amount	Percentage	Amount	Percentage
Neutral	33	17.7%	6	3.2%
Negative	8	4.3%	0	0%
Very negative	4	2.2%	0	0%
Total	186	100%	186	100%

Based on table 3 , the results of the study on adolescent attitudes (*pretest*) are that almost half of the adolescents, 74 (39.8%) have a very positive attitude in preventing *vape use* , almost half of the adolescents, 67 (36.0%) have a positive attitude, a small portion of the adolescents, 33 (17.7%) have a neutral attitude, a small portion of the adolescents, 8 (4.3%) have a negative attitude and a small portion of the adolescents, 4 (2.2%) have a very negative attitude in preventing *vape use*. With a mean of 60.74 and a standard deviation of 11,624.

The results of the study of attitudes (*posttest*) of adolescents are that almost all adolescents, 158 (84.9%) have a very positive attitude in preventing *vape use* , a small portion of adolescents, 22 (11.8%) have a positive attitude and a small portion of adolescents, 6 (3.2%) have a neutral attitude in preventing *vape use* . With a mean of 83.82 and standard deviation 12.190.

E. TEENAGERS' PERCEPTION IN PERCEIVING

Table 4

Frequency Distribution of Teenagers Based on Perception in Presep i In Prevention Use Vape at SMPN 6 Surabaya January 2025

Perception In Action	Pretest		Posttest	
	Amount	Percentage	Amount	Percentage
Enough	69	37.1%	124	66.7%
Low	117	62.9%	62	33.3%
Total	186	100%	186	100%

Based on table 4 , the results of the study on adolescent perceptions in acting are that almost half of the adolescents, 69 (37.1%) have sufficient perceptions in acting using *vape* and most adolescents, 117 (62.9%) have low perceptions in acting using *vape*. With a mean of 51.13 and a standard deviation of 13,206.

The results of the study on adolescent perceptions are that most adolescents, 124 (66.7%) have sufficient perceptions in acting using *vape* and almost half of the adolescents, 62 (33.3%) have low perceptions in acting using *vape*. With a mean of 70.81 and standard deviation 9.858.

F. ANALYSIS OF THE INFLUENCE OF ADOLESCENTS' KNOWLEDGE IN PREVENTING VAPE USE BEFORE AND AFTER HEALTH EDUCATION WITH AUDIOVISUAL MEDIA

Table 5

Wilcoxon Signed-Rank Test						
		N	Mean Rank	Sum of Ranks	Z	Asymp. Sig. (2-tailed)
Knowledge	Posttest – Negative	0	.00	.00	-11,892	0.000
	Pretest Ranks					
	Positive	185	93.00	17205.00		
	Ranks					
	Ties	1				
	Total	186				
Attitude	Posttest – Negative	0	.00	.00	-11,824	0.000
	Pretest Ranks					
	Positive	185	93.00	17205.00		
	Ranks					
	Ties	1				
	Total	186				
Perception in Action	Posttest – Negative	7	36.57	.00	-10,360	0.000
	Pretest Ranks					
	Positive	146	78.94	17205.00		
	Ranks					
	Ties	33				
	Total	186				

Based on table 5 from the results of the *Wilcoxon signed-rank test* on the level of adolescent knowledge, *positive ranks* were obtained as many as 185 adolescents, so it can be said that the level of knowledge has increased from the *pretest* to *posttest* value, ties or the same value between the *pretest* and *posttest* values as many as 1 adolescent and there was no decrease in the level of knowledge of adolescents. The results of the *Wilcoxon signed-rank test* on the measurement of attitude scores obtained *positive ranks* as many as 185 adolescents, so it can be said that adolescent attitudes have increased from the *pretest* to *posttest* value, ties or the same value between the *pretest* and *posttest* values as many as 1 adolescent and there was no decrease in adolescent attitudes in preventing *vape* use . The results of the *Wilcoxon signed-rank test* on the measurement of perception scores in acting obtained *positive ranks* as many as 146 adolescents, so it can be said that adolescent perceptions in acting have increased from the *pretest* to *posttest* value , ties or the same value between the *pretest* and *posttest* values as many as 33 adolescents and *negative ranks* 7 adolescents experienced a decrease in perception in acting using *vape*.

Based on the results of the calculation, the *mean increase* in knowledge and attitude was 93.00, the *mean increase* in action was 78.94, while the *mean decrease* in action was 36.57. The Z value obtained was a knowledge result of -11.892, an attitude result of -11.824 and a perception in acting of -10.360 with a p value (*Asymp. Sig 2 tailed*) of 0.000 <0.05 which is less than the critical limit of the study, so the decision

of the hypothesis is to accept H1 or which means there is a significant difference between the *pretest* and *posttest* levels of knowledge, attitudes and perceptions of adolescents in acting , then the hypothesis that states "there is an influence of health education by utilizing audiovisual media on adolescent knowledge in preventing *vape* use at SMPN 6 Surabaya" is accepted.

Adolescence is a long-awaited and enjoyable phase, where individuals feel freer to do things they could not do before. At this stage, adolescents often think that they can manage their own lives. However, adolescence is also considered a vulnerable period due to physical and psychological changes, which can have both good and bad impacts. Therefore, this period is an important stage in human development (Freska, 2022) . Research by (Asmawati et al., 2022) in the *CICES journal* highlights that social media has given rise to negative behavior towards adolescent lifestyles, making adolescents appear more individualistic, which immediately triggers a lack of awareness of the desired environment. Improper use of social media can damage relationships between individuals and groups. According to initial observations, many adolescents use gadgets and are active as social media users, some of whom want to see their luxurious lifestyles on social media. Social media seems to be a basic need in the daily lives of adolescents. Most adolescents tend to upload photos that show wasteful (hedonistic) and arrogant behavior, which can damage adolescent social relationships (Asmawati et al., 2022) . So teenagers have less knowledge about the dangers of e-cigarettes. Health Education is a planned effort that aims to improve the knowledge, attitudes, and behavior of individuals and community groups in maintaining and improving their health. Through the delivery of relevant information and skills development, Health Education helps individuals make the right decisions about health, adopt a healthy lifestyle, and prevent various diseases in order to improve the quality of life (Rosidi et al., 2025) . By providing health education using audiovisual media, teenagers will easily understand the dangers of e-cigarettes, because teenagers' high curiosity and enthusiasm for information that is not yet known will make it easier for teenagers to understand and will try to find out and respond positively to the health education provided.

IV.DISCUSSION

A. CHARACTERISTICS OF TEENS

Based on the research that has been conducted, in accordance with the criteria that have been obtained, the researcher took a sample of 8th grade students with a total of 186 students. Based on the age characteristics in this study, it was found that almost all adolescents (80.1%) were 13 years old, very few students were 12 years old (14%) and very few others (5.9%) were 14 years old with almost half (44.6%) being male and most (55.4%) being female.

According to research conducted by Rini et al (2020), it is stated that the stages of adolescence are divided into three phases, namely early adolescence starting from the age of 10-13 years, middle adolescence starting from the age of 14-16

years, and late adolescence starting from the age of 17-19 years (Rini et al., 2020). Adolescence is a long-awaited and enjoyable phase, where individuals feel freer to do things that they could not do before. At this stage, adolescents often think that they can manage their own lives. However, adolescence is also considered a vulnerable period due to physical and psychological changes, which can have both good and bad impacts. Therefore, this period is an important stage in human development (Freska, 2022). Research by (Asmawati et al., 2022) in the *CICES journal* highlights that social media has given rise to negative behavior towards adolescent lifestyles, making adolescents appear more individualistic, thus immediately triggering a lack of awareness of the desired environment. Improper use of social media can damage relationships between individuals and groups. According to initial observations, many teenagers use gadgets and are active as social media users, some of whom want to see their luxurious lifestyle on social media. Social media seems to be a basic need in the daily lives of teenagers. Most teenagers tend to upload photos that show wasteful (hedonistic) and arrogant behavior, which can damage teenagers' social relationships (Asmawati et al., 2022).

Based on the results of interviews and observations, the characteristics of adolescents in this study are marked by significant physical, emotional, and social changes. Adolescents said they are currently looking for their fingers. They also said they are more explorative and have a high curiosity and want to always look *up to date* with current *trends*. Therefore, guidance from family, school, and the environment is very necessary so that adolescents can develop well and make positive decisions for their future.

B. ADOLESCENTS' KNOWLEDGE IN PREVENTING VAPE USE BEFORE PROVIDING HEALTH EDUCATION WITH AUDIOVISUAL MEDIA

The results of the research that has been conducted, adolescent knowledge before (*pretest*) given education, namely showing the results that almost all (78.5%) adolescents have a sufficient level of knowledge, very few (15.6%) adolescents have good knowledge, and very few others (5.9%) have insufficient knowledge. The attitude before being given the intervention showed the results that most (75.8%) adolescents had very positive and positive attitudes, very few (17.7%) adolescents had neutral attitudes and very few others (6.5%) adolescents still had negative and very negative attitudes related to *vape*. While the perception of adolescents in acting before being given the intervention showed the results that more than most (62.9%) adolescents had sufficient perceptions in preventing *vape use* and almost half (37.1%) of other adolescents had low perceptions of prevention.

The knowledge found in this study is in line with research conducted by Pratiwi (2023) which found that more than half of adolescents have insufficient knowledge about the dangers of e-cigarettes. A person's level of knowledge can be influenced by many factors including education, socio-

cultural, economic, environmental, experience, age, information/mass media. Lack of knowledge regarding the dangers of e-cigarettes occurs due to a lack of health information and education (Pratiwi, 2023). Health Education is a planned effort aimed at increasing the knowledge, attitudes, and behavior of individuals and community groups in maintaining and improving their health. Through the delivery of relevant information and skills development, Health Education helps individuals make the right decisions regarding health, adopt a healthy lifestyle, and prevent various diseases in order to improve the quality of life (Rosidi et al., 2025). The education factor plays an important role in knowledge and perception of something. Education has the authority to influence a person's lifestyle, determine goals, and achieve those goals. The higher the education, the higher the knowledge a person will have (Antikasari et al., 2023).

The attitude before the intervention in this study, in line with the research conducted by Nurfajriah & Aristi (2024), most of them had a positive attitude about smoking behavior. In line with the research of Utari et al (2020) which stated that adolescents who have positive attitudes are greater than adolescents who have negative attitudes. Most adolescents said they agree that smoking can increase their self-confidence. According to research conducted by (Petrus & Alfita, 2022) found that there was a significant negative relationship between self-confidence and smoking behavior in students of SMAN 5 Medan. The correlation coefficient obtained was $r = -0.384$ with $p = 0.000$, indicating that the lower the self-confidence, the higher the tendency to smoke. In line with research that has been conducted by found that smoking behavior in 16-year-old male adolescents in Malang City affects psychosocial development, including self-confidence. Adolescents who smoke tend to have lower self-confidence compared to non-smokers (Revica et al., 2023).

The perception of adolescents in acting before being given education, in line with research conducted by (Timur & Nurhadiyanto, 2024) found that the use of e-cigarettes or vapes among adolescents and active smokers includes several important aspects, including from the perspective of the differential association theory stated by Edwin Sutherland. These adolescents are very influenced by their social environment in using or offering a vape product. The frequency and duration of interacting with people around them who use e-cigarettes raises curiosity and eventually they try to use the e-cigarette. This strengthens the concept of differential association theory based on their social interactions in their norms and social influences (Jamil, Roesardhyati, Marrotul, et al., 2024). In line with research conducted by Jamil et al (2024) in my statement it is easy to get *vape* because it is currently popular with many people, most of them strongly agree because of this. According to Azahrha (2023) adolescents use vapes to show that they are following the times and are not left behind, or what is commonly called "kudet". The use of vape has become part of a lifestyle that is considered modern by teenagers (Azahrha, 2023).

Based on the results of interviews and observations in this study, it was found that almost all teenagers had not received information or education regarding the dangers of *vaping*, information obtained through mass media or *online media* was not the dangers of e-cigarettes but rather new variations of e-cigarettes and new flavors of e-cigarette liquids, which instead of making respondents afraid to smoke e-cigarettes, actually made respondents interested in smoking e-cigarettes. In addition, most teenagers said they agreed that smoking could increase their self-confidence, so they were very interested in using *vapes* to maintain their self-esteem so as not to be outdated. The support of their families and the environment around them made it easy for them to access various models and flavors of *vapes* which resulted in teenagers being indifferent to the dangers of *vaping*. This is the main focus of health workers who of course need to be assisted by schools and families in providing education regarding the dangers of *vaping* for teenagers.

C. ADOLESCENTS' KNOWLEDGE IN PREVENTING VAPE USE AFTER BEING PROVIDED EDUCATION WITH AUDIOVISUAL MEDIA

The results of the study that have been found, adolescent knowledge after being given education, namely showing the results that almost all (94.1%) adolescents have a good level of knowledge, and only a few (5.9%) have sufficient knowledge, and none (0%) have insufficient knowledge. The attitude after being given intervention in this study showed the results that almost all (96.7%) adolescents had very positive and positive attitudes, a small portion (3.2%) of adolescents had neutral attitudes, and none (0%) of adolescents had negative or very negative attitudes. While the actions after being given intervention showed the results that most (66.7%) of adolescents had sufficient perceptions in acting in preventing *vape use* and almost half (33.3%) of adolescents still had low perceptions.

Knowledge after being given education in this study, in line with research conducted by (Baco et al., 2025) which showed results after being given education about the dangers of e-cigarettes in adolescents, when *the post-test was conducted*, adolescents knew or already had a good level of educational knowledge about the dangers of e-cigarettes. According to (Notoatmodjo, 2020) health education, also known as education, is the application or implementation of education in the health sector. Operationally, health education includes all activities that aim to provide and improve knowledge, perspectives, and practices on how to maintain and improve the health of individuals, groups, or communities. Increasing knowledge is very important to prevent adolescents from using e-cigarettes, with sufficient knowledge about the dangers of e-cigarettes, the younger generation will not use or even avoid using e-cigarettes because they will know the meaning, content, and disadvantages of e-cigarettes (Rosidi et al., 2025) Adolescents can adapt quickly to new situations and ideas. Knowledge is what humans gain from using their five senses

to know or feel. Most human knowledge comes from sight and hearing, while a person's actions can be shaped by the domain of knowledge (Antikasari et al., 2023).

Attitude after being given education in this study, in line with research from Jannah (2022) after being given an intervention, adolescent attitudes showed that most of them had negative attitudes. Attitude describes the readiness to take action that leads to a behavior, because attitude is a closed response produced by a person to the stimulus they receive, which involves the opinion and emotional factors concerned to approve or disapprove of a behavior (Jannah et al., 2022) Attitude towards behavior is a positive or negative assessment in carrying out a behavior. Attitude towards behavior shows the degree to which a person has a good or bad assessment of a particular behavior. Attitude towards behavior, subjective norms, and perceived behavioral control will influence the formation of intentions, and these three things are influenced by background factors, one of which is attitude as one of the elements in personal factors (Jannah et al., 2022).

perceptions of acting after being given health education showed an increase in line with research conducted by (Amalia & Wulandari, 2020) which showed that almost all (93.1%) had good actions and very few (6.9%) of adolescents had poor actions. Action is an attitude that has not been manifested in action, to realize this action, attitude becomes a supporting factor that allows (Amalia & Wulandari, 2020). Adolescents who have family members who smoke will have twice the risk of becoming smokers. Adolescents tend to imitate those closest to them in the family, especially parents who are their role models, so that when parents smoke, children tend to imitate them even though their parents forbid their children from becoming smokers (Tosuba et al., 2024). Adolescents who have friends who use e-cigarettes or vapes tend to also use e-cigarettes or vapes. This condition is supported by several studies which explain that adolescents who have friends who use e-cigarettes or vapes tend to try e-cigarettes or vapes (Suaib et al., 2023). Another factor that influences teenagers to use e-cigarettes is the ease of buying e-cigarettes. Lawrence Green's theory explains that the enabling factor, namely the availability or unavailability of facilities, also supports someone in using something (Rismalasari et al., 2022).

Based on the results of interviews and observations, it was found that almost all adolescents experienced an increase in knowledge, attitudes, and actions after being given health education. Health education in the form of counseling has an influence in efforts to improve adolescent behavior to maintain and improve health, especially about the impact of *vaping*. Adolescents need to be given knowledge as early as possible about the dangers of smoking for health and instill the importance of healthy living behavior. Health education has a very important role in shaping adolescent behavior, especially in efforts to prevent *vaping*. With a good understanding of the negative impacts of *vaping* on health, adolescents can be more aware and motivated to avoid using it.

D. THE INFLUENCE OF ADOLESCENT BEHAVIOR IN PREVENTING VAPE USE BEFORE AND AFTER GIVEN EDUCATION WITH AUDIOVISUAL MEDIA

The results of the Wilcoxon signed-rank test that has been carried out on the level of adolescent knowledge showed that the level of knowledge increased from the pretest to the posttest value, the tie value or the same between the pretest and posttest values was 1 adolescent and there was no decrease in the level of adolescent knowledge. While in the measurement of attitude scores, it was found that adolescent attitudes increased from the pretest to the posttest value, the tie value or the same between the pretest and posttest values was 1 adolescent and there was no decrease in adolescent attitudes in preventing vape use. The results of the Wilcoxon signed-rank test on the measurement of perception scores in acting showed that adolescent actions increased from the pretest to the posttest value, the tie value or the same 40 between the pretest and posttest values was 33 adolescents and negative ranks 7 adolescents experienced a decrease in perception in preventing vape use. So it can be concluded that there is an influence of health education by utilizing audiovisual media on adolescent knowledge in preventing vape use at SMPN 6 Surabaya "which is accepted.

This is in line with research conducted by (Tosuba et al., 2024) there is a difference between *the pretest* and *posttest* which means there is an increase after being given treatment, namely by watching educational videos about smoking behavior in adolescents. Providing health education using video media about smoking behavior is one of the right and accurate learning media in conveying messages or information and will greatly help respondents' understanding. With video media, respondents will better understand the material that researchers want to convey through a video (Tosuba et al., 2024). This study is also supported by the results of research (Suaib et al., 2023) which shows that there is an influence on adolescent knowledge about the dangers of smoking at SMPN 2 Rancaekek. According to (Rismalasari et al., 2022) along with the development of the times, electronic media is very possible as a medium for providing motivation, one of which is by using video. Video is an audiovisual media that can express objects and events as they really are. The use of audiovisuals to increase people's motivation to quit smoking, especially among adolescents, is more significant because it attracts someone's attention more, thus arousing someone's enthusiasm to get information and is also easier to accept (Rismalasari et al., 2022).

According to the researcher's opinion, this study resulted in more significant health education to the knowledge domain and had an influence on adolescent attitudes in preventing *vape use*. Knowledge is the main basis for behavioral change, health education aims to increase individual knowledge which will later affect adolescent behavior in behaving. Basically, this educational process provides systematic, relevant, and evidence-based

information to individuals or target groups. Knowledge is the earliest cognitive aspect and is most easily influenced by the educational process. In a theoretical framework, this is also in line with the *Health Belief Model theory* and the *Theory of Planned Behavior* which emphasizes that knowledge is an initial component that can influence attitudes and ultimately shape behavior. Therefore, this study shows that after the health education intervention, there was a significant increase in knowledge scores in adolescents.

Based on the results of the research that has been conducted, health education media using video media can influence smoking behavior in adolescents. Not only comes from within oneself but there are external factors that can influence smoking behavior, such as parents, community environment, peers, and facilities that contain cigarette advertisements so that someone can have a smoking habit due to these things. Therefore, one of the efforts that can reduce smoking behavior in adolescents is to provide health education about smoking behavior by utilizing audio-visual media, namely video media, so that respondents can reduce their smoking behavior, not increase it. Researchers hope that with more knowledge as nursing students, respondents can use video media as a means of effective health education and reduce their smoking behavior.

E. RESEARCH LIMITATIONS

This research has been carried out in accordance with scientific procedures, but there are still several limitations that need to be considered, including:

1. Many teenagers who attended the counseling did not focus during the audiovisual media screening, which could potentially affect their understanding of the material presented.
2. This study only measured short-term changes after the intervention, so it cannot evaluate the long-term effects of health education on vaping prevention behaviors in adolescents.
3. The sample size used may be less representative if these findings are to be generalized to other regions or different age groups.

V. CONCLUSION AND SUGGESTIONS

Based on the results of the research that has been conducted, the following conclusions were obtained:

1. Teenage knowledge before being given education with audiovisual media showed that almost all teenagers had sufficient knowledge in preventing *vape use*.
2. Adolescent knowledge after being given education using audiovisual media shows that almost all adolescents have good knowledge in preventing *vape use*.
3. There is a significant difference between adolescents' knowledge in preventing *vape use* before and after being given education using audiovisual media.

Based on the research results, the following suggestions were obtained:

1. For Further Researchers

Further research is expected to further explore the factors that can influence the level of knowledge of adolescents after being given health education. Further research to examine the long-term impact of this audiovisual intervention in changing adolescent behavior related to vape use, so that it can provide a more comprehensive picture of the effectiveness of the intervention over a longer period of time.

2. For Teenagers

It is expected that school teenagers after receiving health education will continue to improve and update their knowledge. Teenagers must also actively seek information from trusted sources and are expected to be able to apply this knowledge in their daily lives. Teenagers are expected to become individuals who are more basic in the importance of maintaining health and are able to make decisions.

3. For the Development of Science

It is expected that science can develop audiovisual media as an educational media that is very useful for adolescents in order to enrich the most effective, efficient, and appropriate educational strategies for adolescent characteristics. In addition, it is recommended that schools integrate audiovisual-based health education into the education curriculum, especially in adolescent development programs related to the prevention of smoking behavior and vape use. Continuous education with support from health workers, teachers, and parents can maximize the positive effects of this intervention.

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