



The Effects of Health Education on HIV through Audio Visual Media on HIV Prevention Behavior among Adolescents in a High School in Tangerang

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Abstract

Adolescents are a group at risk of HIV exposure. At this age, adolescents have a high curiosity, so if it is not followed by an attitude that cares about HIV prevention efforts, then the attitude will lead adolescents to behave at risk of HIV, such as premarital sex and injecting drug use. One preventive method that can be taken is to provide education through audio-visual media. This media can help improve learning outcomes and motivation. This study aims to analyze the impact of health education about HIV through audio-visual media on HIV prevention behavior among adolescents in a high school in Tangerang Regency. The study method was quantitative with a quasi-experimental design using one group pre-post design. Instrument of the study was Sexual Behavioral Abstinence and Avoidance of High-Risk Situation Questionnaire (SBAHAQ). Respondents were selected using purposive sampling. The respondents watched audio-visual media (6:50 minutes) about HIV prevention. The pre-test was conducted before the intervention and the post-test was conducted 21 days after the intervention. The total number of respondents was 59 and age ranged between 15 and 18 years. The average score of HIV prevention behavior increased from 11.03 to 13.27 after the intervention with p value 0,001. Health education delivered through audio-visual media about HIV prevention can improve prevention behavior among adolescents in a high school in Tangerang Regency. Audio-visual media can be used in school learning, to make it easier for adolescents to understand HIV prevention behavior and an audio-visual media can be used to increase adolescent behavior in prevention HIV.

Keywords: Adolescents, Audio Visual Media, HIV, Preventive Behavior.

INTRODUCTION

Human Immunodeficiency Virus (HIV) is one of the infections that occurs in the population worldwide (WHO, 2023). By the end of 2023, an estimated 39 million people will be living with HIV, of which 37.5 million will be people aged 15 years and above and 1.5 million will be aged 0-14 years (WHO, 2023). The highest age group of AIDS patients in Indonesia is 30-39 years old (Kementerian Kesehatan RI, 2022). This means that the age group was infected with the HIV virus at least 5-10 years ago or infected in adolescence. This indicates that the group was infected with HIV during adolescence (SIHA Kemenkes, 2022). The number of adolescents aged between 15 to 19 years in Indonesia is a group that is vulnerable to HIV infection as many as 741 adolescents and in the group of 5-14 years found 173 cases of HIV / AIDS (IDAI, 2022). According to a report from the Banten AIDS Commission (KPA) in 2021, there were around 3,384 HIV/AIDS cases. Tangerang Regency is the highest area with the number of cases reaching 673 (KPA Banten, 2021).

The cause of high HIV incidence among adolescents is often attributed to a lack of knowledge about HIV prevention behaviors. Adolescents do not have appropriate and relevant information about HIV and this group also shows great interest in various things (Anggi Sri Mulyani Rukmana & Ieva Baniasih Akbar, 2022). In addition to high curiosity, teenagers also have the nature of wanting to try new things (Sutanta, Hasbi, & Rismawati, 2023). The nature of adolescents who want to try new things will make a gap towards risky behavior towards the HIV virus, including premarital sex, injecting drug use, and others that can pose a risk of exposure to the HIV virus (Rofiah, Yunicha Viridula, & Nikmah, 2024). When the adolescents do not have adequate knowledge and attitudes about HIV prevention, it could lead them to behave at risk of HIV (R. E. Dewi, Caesar, & Mubaroq, 2022).

One of the prevention efforts that can be done is by conducting health education to provide information and knowledge to adolescents. Alternative health education that can be done is through media, media that effectively increase knowledge in adolescents is through audio visual media. Audio visual media is a medium that conveys and broadcasts interesting information, this can be used for socialization in the health sector, by prioritizing an attractive appearance (Jatmika, Septian, & Maulana, 2019). Audio-visual media in carrying out its role, it involves the imagination of adolescents so that this media has been proven to increase student knowledge. The utilization of this media is highly recommended to increase the spirit of learning. Audio visual media can trigger greater curiosity (Arafah, Afrianty Gobel, & Abbas, 2020).

A study conducted on eleventh grade students in Tangerang Regency Public High School regarding adolescents' knowledge about HIV in 2022 found that many students still do not understand about HIV so they do not know how to prevent the disease or virus (Alfidah, Nuryani, & Cicirosnita, 2024). Research in Malang on adolescents, showed that there was an increase in knowledge of HIV prevention behavior after being given an audio-visual media intervention (Sabhita, Winarni, & Djuwadi, 2022). A study conducted in Jakarta among junior high school students indicated that using of interesting media played an important aspect to make students interested and easily understand topics related to HIV/AIDS (Ismail, Syafdeyiyani, & Yona, 2023).

Audio-visual media is more interesting and superior to books in school learning because of its ability to combine elements of sound, image and movement that can stimulate students' various senses at once, thus making the learning process more dynamic and interesting. In addition, audio-visual media is able to present material interactively and visualize concepts that are difficult to understand with text alone, making it easier for students to understand and remember information better. With the use of this media, students can be more easily involved in learning, increase the attractiveness of the material being taught, and accelerate the process of deeper and more comprehensive understanding (Khasanah, 2022).

Audio-visual media can more quickly change a person's behavior due to its unique ability to combine visual and audio elements that work simultaneously, creating a more immersive and comprehensible experience. Images and sounds combined with emotion can effectively capture the audience's attention, reinforce the message, and trigger a deep emotional response, which in turn improves memory and influences the way a person thinks or acts. In addition, these media often present information in a narrative manner, which allows the audience to relate the message to their personal or social experiences, thus accelerating the process of desired behavioral change (Wahyuni, 2024). This study aims to determine the effects of health education on HIV through audio visual media on HIV prevention behavior in adolescents in a high School in Tangerang.

METHODS

Research Design

The study design was a pre-experimental design with pretest and posttest in one group. The study was conducted in a public high school in Tangerang from October to November 2024. The respondents were 10th and 11th grade students.

Samples

The method applied in this study was purposive sampling. The sample was drawn by selecting a balanced representation of each grade level. The population in this study was 421 students who attended a Public High School in Tangerang grades X and XI. The calculation of the respondent sample was carried out using the Issac and Michael formula.

$$S = \frac{NPQ}{d^2 (N-1) + \pi^2 PQ}$$

$$S = \frac{2,706 \times 421 \times 0,5 \times 0,5}{(0,1)^2 (421-1) + 2,706 \times 0,5 \times 0,5}$$

$$S = \frac{284,806}{(0,01)(420) + 0,6765}$$

$$S = \frac{284,806}{4,8765}$$

$$S = 58,4 \sim 59$$

Description:

S : Sample size

π^2 : Chi square which depends on the error rate and degrees of freedom. For a 10% error, the Chi square value = 2.706

d : Difference between sample mean and population mean (0.1)

N : Population size

P : Probability of being correct (0.5)

Q : Probability of being incorrect (0.5)

Base on the formula, the total sample size was 59 respondents. The following are the sample selection criteria.

1. Inclusion Criteria

- Students in grades X and XI who were still registered as active students
- Students who had access to the internet
- Students who had a smart phone
- Students who had an email address

2. Exclusion Criteria

- Students who were diagnosed HIV positive

Place and Time of Research

The location of this study was in a high school in Tangerang district. This study took place over a period of 4 months, namely preparation from August to September, data collection in October, and data processing in November 2024.

Data Collection Tools

The way researchers collect data was by selecting respondents based on inclusion and exclusion criteria. A pre-test on HIV prevention behavior using the g-form link was conducted before the intervention. The respondents accessed the g-form (<https://bit.ly/PretestKuesionerPerilakuPencegahanHIV>). Researchers provided interventions in the form of audio-visual media and respondents watched and listened to videos through YouTube link (https://youtu.be/IUEIRv_izxo). If the respondents had any questions, they could put their question on the YouTube platform. The best question received a prize on the second meeting during post-test.

The researchers made a time contract with the respondent's school after 21 days for the post test, giving gifts and giving souvenirs to the respondents. A posttest on HIV prevention behavior was conducted after a 21-day audio-visual media intervention using the g-form link. Link g-form that can be accessed: <https://bit.ly/PosttestKuesionerPerilakuPencegahanHIV>. The researchers reminded respondents through WhatsApp groups every 3 days to watch HIV prevention behavior videos. The total duration of respondents watching videos in 21 days was 7x. Two respondents received a gift for the best questions on the YouTube. Data were analyzed using a software.

Process of Making Media Intervention

The audio-visual media used in this intervention was an animated video. The animated video was created from scratch using an editor application. The animated video was equipped with a voice over using the researcher's voice and there are Roleplay clips related to refusal techniques and communication if there was an invitation to risky behavior. This video had a duration of 6:50 minutes containing initial knowledge about HIV which includes the definition of HIV, methods of transmission, signs of HIV symptoms, phases of HIV, entering into the core of the media which contains HIV prevention steps there is known as ABCDE (Abstinence, Be Faithful, Condom, don't do Drugs, and Education) and good communication techniques in rejecting invitations from friends to risky behavior. Audio-visual media was uploaded through the YouTube platform which was re-distributed through the class WhatsApp group after research related to the pre-test.

Procedures

The respondents had a pretest -test regarding HIV prevention behavior before the intervention. After conducting the pre-test, respondents received information about HIV prevention behaviors using audio visual media. The intervention was carried out for 6:50 minutes through the presentation of audio-visual media through in focus in the classroom. Audio-visual media was uploaded via the YouTube platform which was re-distributed through the class WhatsApp group after research related to the pre-test (https://youtu.be/IUEIRv_izxo).

The video was carried out by playing it once in the classroom through the in focus provided by the school. After the intervention, the researcher invited respondents to ask questions through the YouTube platform. After the questions and answer session was over, the researcher closed the activity. The post-test was carried out with the aim that researchers could find out the consequences of the intervention treatment. After the post-test was carried out, the researcher closed the activity by giving prizes to the 2 best questioners and souvenir to all participants.

The Sexual Behavioral Abstinence and Avoidance of High-Risk Situation Questionnaire (SBAHAQ) was used to measure the level of HIV prevention behavior. This questionnaire consists of 14 statements, the scale used in this questionnaire was a Guttman scale and respondents will be asked to state their agreement or disagreement with the contents of the statement. If the statement was supportive, the answer agree (A) will be given a value of 1, while the answer disagree (D) will get a value of 0, and vice versa. The maximum or highest score that will be obtained was 14, while the lowest score was 0. The validity and re-test of this questionnaire was conducted on 30 students in high school in Tangerang. The results of the validity test on the questionnaire consisting of 14 statements resulted in each element in this statement being declared valid. This was evidenced by the calculated r value has a range of 0.395-0.681 which means that the value was more than the r table value of 0.361.

The data analysis performed was univariate analysis by analyzing the description of respondents' characteristics (age, gender, and class) and the Wilcoxon test was used to identify changes in HIV prevention behavior before and after the intervention. Researchers have obtained an ethics permit by the Universitas Pembangunan Nasional "Veteran" Jakarta with number 433/XI/2024/KEP.



RESULTS

Univariate Analysis

This study involved 59 respondents from classes X and XI. All respondents were involved until the end of the research activities and there was no drop out respondents.

Table 1. Respondent Characteristics (N: 59)

Characteristics	n	%
Age		
Early Adolescents	33	55.9
Late Adolescence	26	44.1
Gender		
Male	26	44.1
Female	33	55.9
Class		
X	29	49.2
XI	30	50.8

The characteristics of the respondents showed that the majority of respondents had an age range of 15-16 years (55.9%) which was included in the early adolescent category. The results of the frequency distribution of the gender of respondents, obtained the results of the majority of respondents were registered women as many as 33 people (55.9%). The participants involved in this study were from both grade X and XI, where there were 29 people from grade X (49.2%) and 30 people from grade XI (50.8%) (Tabel 1).

Table 2. HIV Prevention Behaviors Before and After the Intervention

No	Statements	Pretest		Posttest		Changes n (%)
		A n (%)	D n (%)	A n (%)	D n (%)	
1	I can abstain from sexual intercourse before marriage	53 (89,8)	6 (10,2)	59 (100)	0 (0)	6 (10,2)
2	I can avoid any risky behavior even if it is easy to do	45 (76,3)	14 (23,7)	57 (96,6)	2 (3,4)	12 (20,3)
3	I can easily avoid any situation that puts me in high-risk behavior	41 (69,5)	18 (30,5)	51 (86,4)	8 (13,6)	10 (16,9)
4	I am able to say "no" to harmful advice given by my friends or others	46 (78,0)	13 (22,0)	56 (94,9)	3 (5,1)	10 (16,9)
5	I decided not to engage in any sexual behavior before marriage	49 (83,1)	10 (16,9)	59 (100)	0 (0)	10 (16,9)
6	I decided to say NO to any future suggestions that might lead me to contract HIV/AIDS, whether given by my friends or other people	45 (76,3)	14 (23,7)	59 (100)	0 (0)	14 (23,7)
7	I resolve to avoid dangerous situations in the future	47 (79,7)	12 (20,3)	55 (93,2)	4 (6,8)	8 (13,5)
8	I will refuse a friend's invitation to do risky actions even if the conditions are favorable	46 (78,0)	13 (22,0)	59 (100)	0 (0)	13 (22,0)
9	Abstinence from sex prevents me from contracting HIV/AIDS and other venereal diseases	47 (79,7)	12 (20,3)	59 (100)	0 (0)	12 (20,3)
10	Abstaining from sex before marriage saves me from God's punishment	48 (81,4)	11 (18,6)	54 (91,5)	5 (8,5)	6 (10,1)
11	Abstaining from sex before marriage gives me a good reputation in the community as a virtuous and religiously aware person	40 (67,8)	19 (32,2)	53 (89,8)	6 (10,2)	13 (22,0)
12	Rejecting harmful advice boosts my confidence	52 (88,1)	7 (11,9)	56 (94,9)	3 (5,1)	4 (6,8)
13	Rejecting harmful advice gives me peace of mind and success in my education	46 (78,0)	13 (22,0)	58 (98,3)	1 (1,7)	12 (20,3)
14	Staying away from dangerous situations/promiscuity gives me a better chance of getting married in the future	46 (78,0)	13 (22,0)	48 (81,4)	11 (18,6)	2 (3,4)

Based on table 2, it can be seen that the statement with the lowest range of changes in HIV prevention behavior questionnaire answers was number 12 with a change score of only 4 (6.8%). Statement number 12 “Rejecting harmful advice increased my self-confidence”. The next statement that also had the lowest range of changes in HIV prevention behavior questionnaire answers was number 14 with a change score of only 2 (3.4%). The statement read “Being away from dangerous situations / promiscuity gives me a better chance of getting married in the future” This was because the two statements had been filled in more agree answers by respondents, so the pretest and posttest results have little change.

There were 6 statements that experienced an increase of more than 20%. These statements are found in numbers 2, 6, 8, 9, 11, and 13. Statement number 2 with a percentage of 20.3% “I can avoid any risky behavior even though the behavior is easy to do”. Statement number 6 with a percentage increase of 23.7% “I decided to say NO to future suggestions that might lead me to contract HIV/AIDS, whether given by my friends or other people”. The next statement with a total change of 22% increase was number 8, statement number 8 “I will reject a friend's invitation to take risky actions even though the conditions are favorable”.

The next statement with an increase of 20.3% was number 9, the statement “Abstinence from sex prevents me from contracting HIV/AIDS and other venereal diseases”. The next statement was number 11 with an increase of 22%, statement number 11 “Abstinence from sex before marriage makes me get a good reputation in society as a virtuous and religiously aware person”. The last statement with a total percentage increase of 20.3% was in number 13, statement number 13 “Rejecting harmful advice gives me peace of mind and success in my education”.

Bivariate Analysis

Bivariate analysis was used so that researchers see changes in HIV prevention behavior before and after the intervention in the form of audio-visual media.

Table 3. Effects of Health Education on HIV through Audio Visual Media on HIV Prevention Behavior

Variable	Mean ($\pm$ sd)	SD	Min-Max	P Value
Preventive Behavior				
Pre Test	11,03	1,273	9-14	0,001
Post Test	13,27	0,925	11-14	

Based on table 3, the average value of HIV prevention behavior obtained by respondents when conducting the pre-test was 11.03, which increased to 13.27 after the intervention. The average value increased by 2.25. The lowest score obtained by respondents was 9 and the highest score was 11.

The test results using Wilcoxon on the pre and posttest prevention behavior variables obtained a p value of 0.001 (<0.05). The results of the analysis showed that there were significant changes in HIV prevention behavior before and after the intervention through audio-visual media.

DISCUSSION

This study aims to determine the effects of health education about HIV through audio-visual media on HIV prevention behavior. There were 59 student respondents from class X and XI involved in this study. This study indicated that there was a significant effect of health education on HIV using audiovisual media on improving HIV prevention behavior. The results of this study were in line with research that was done in Makassar, Malang, and Batam that there was a significant effect on HIV prevention behaviors after the intervention using audio-visual media (Nuramalia, 2022; Sabhita et al., 2022; Rosa Damayanti et al., 2024; Haseza et al., 2024).

The use of audio-visual media could cause changes in individual behavior because audio-visual media had the power to present something that was difficult or complicated to express only with pictures or writing. Audio-visual media could be used to explain things that could not be seen physically, by visualizing the material that

was being explained can be illustrated (Nuramalia, 2022; Sabhita et al., 2022; Rosa Damayanti et al., 2024; Haseza et al., 2024).

Studies on the use of audio-visual media had differences in the evaluation timeframe, audio-visual media materials presented, and the duration of each media. The evaluation of this study was conducted after 21 days while other studies, namely 7, 14, 17 and 21 days after intervention. The audio-visual material not only explained HIV prevention behaviors but also good communication techniques in rejecting friends' invitations to risky behavior through role-playing. This material was not found in other studies. The audio-visual duration in this study was 6:50 minutes where other studies were conducted for 5:25 minutes, 5:43 minutes, 6:21 minutes, and 7:32 minutes (Nuramalia, 2022; Sabhita et al., 2022; Rosa Damayanti et al., 2024; Haseza et al., 2024). The effective length of an educational video generally depended on the audience and learning objectives, but in general, 6-10 minutes was ideal. Study from platforms like edX and Coursera showed that audience engagement drops off dramatically after 6 minutes, and was best optimized between 6 and 10 minutes (PPI, 2021).

Audiovisual media presented visual and audio elements simultaneously when conveying information (Ramadhani & Ramadani, 2020). The advantages of using audiovisual media was that it presented clearer illustrations and could improve memory because it was more interesting and easier to remember (Selia Janna & Yulistika Handayani, 2023). Audio-visual media could be considered effective as a health education intervention aimed at respondents, because the majority of adolescents liked learning that was not only visual or audio, but both (Hariyanti & Nahra, 2022). This was especially effective when one watched the audio-visual media on HIV repeatedly (Yanti, Heriansyah, & Riyan, 2022).

Changes in a person's behavior were not something that happens instantly, but took the time. It involved the process of internalizing values, understanding, and adjusting to pre-existing mindsets and habits. Each individual had a different speed in responding to new information or experiences, depending on their background, personal experience, and mental readiness (Amanda Putri et al., 2024). In addition, the surrounding environment also played an important role in influencing behavior change, whether through social support, peer group pressure, or community norms. A positive and supportive environment can accelerate the change process, while a less conducive environment can be an obstacle in realizing the desired new behavior (Rahmawati Kusumaningsih et al., 2024).

The challenge in this study was that researchers cannot measure how often and regularly respondent watch the audio-visual media that researchers provided. The researches reminded the respondent every day to watched the video but there was no data or information that the respondents watched the audio-visual media. Furthermore, there was only one audio visual media. This can cause the respondents felt bored because there was no variation of the audio-visual media. Adolescents tended to get bored quickly if they were constantly presented with the same shows repeatedly, as they needed variety and new stimulation to maintain interest and attention (Rasiani et al., 2022).

There were shortcomings in the use of audio-visual media. Information provided through audio visual media was unidirectional. Efforts to overcome this condition by providing feedback with questions and answers through the YouTube platform that had been provided through the WhatsApp group. The strength of this research was that the information provided by the speaker was flat. This media made it easier for the respondents to understand dan learn information provided. The media could be played continuously by the respondents according to their needs, gave an interesting impression on students, and this media could be an entertainment for students. This could minimize drowsiness and boredom.

The limitations of this study were that this study did not involve a control group. There was no comparison between the control group and the treated group and the lack of observation/supervision during the viewing of audio-visual media conducted by respondents, because researchers could only accompany and show videos fully and together during the first meeting of the study only. Furthermore, the media had not been tested validly.

CONCLUSION

The study was conducted on X and XI grade high school students with the age category of early adolescence. This study was conducted within 21 days after the intervention and indicated that there was a significant effect of HIV-related health education using audio-visual media to influence HIV prevention actions. The average score related to HIV prevention behavior among adolescents showed an increase after the intervention conducted using audio-visual media. Future research is expected to add a control group and evaluation time span. Future researches need to develop some additional audio-visual media in the hope that variations in presentation will keep respondents interested and not easily feel bored when receiving information.

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