



Comparison of the Effectiveness of Education Media: Video Animation and E-Booklet on Prevention of Unwanted Pregnancy of the Knowledge and Attitudes of Teenage Girls

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Abstract. Adolescence occurs with several major changes. Formation of patterns of behavior such as sexual activity that substantially. One of the impacts arising from sexual behavior is pregnancy in adolescents. Adolescent pregnancy is very closely related to unwanted pregnancies. One way that can be done to increase the knowledge and attitudes of adolescents regarding the prevention of adverse events is to provide adolescent reproductive and sexual health education. Purpose: to compare the effectiveness of educational media, animated videos and e-booklets on knowledge and attitudes of young women. Methods: quantitative with a quasi-experimental research design with a pretest-posttest group design. The research location was at SMK 64 Jakarta and SMA 62 Jakarta from. Using a sample with simple random sampling and obtained 44 respondents in each group of animated videos and e-booklets. Results: showed that there was a mean difference in the results of the knowledge of animated videos and e-booklets, namely 48,51 in the video group and 32.49 in the e-booklet group. The results of the attitude of the animated video and e-booklet were 43.43 in the video group and 37.58 in the e-booklet group. Conclusion: both animated videos and e-booklets proved effective in increasing adolescents' knowledge and attitudes about preventing unwanted pregnancies ($p=0.000$). When both media are compared, the most effective one is video animation.

Keywords: Teenage Girls, Knowledge, Attitude, Unwanted Pregnancy, Videos Animation, E-Booklets

1 Introduction

According to the World Health Organization (WHO), teenagers are people aged 10-19 years. The definition of a teenager according to the Regulation of the Minister of Health of the Republic of Indonesia Number 25 of 2014 is an individual aged 10–18 years[1]. The proportion of Indonesian teenagers in 2020 in the population pyramid is quite large, namely 25.87%. In 2020, the percentage of teenagers in Jakarta is 15.15%. The number of teenagers aged 10–19 years in DKI Jakarta in 2021 will reach 1,648,112 people with 805,702 young women and 842,410 young men[2].

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During adolescence, several major changes occur, one of which is significant is the development of sexuality, so that it will influence interactions with the surrounding environment and behavior[3]. Adolescents often engage in risky sexual activities which make them vulnerable to sexual and reproductive health problems[4, 5]. Sexual behavior can be influenced by many physiological factors, in addition to cultural and social pressures that can change rapidly[6]. Social changes that occur due to technological developments are social media which also has an effect on changes in sexual behavior in teenagers. Syam's research results in 2022 show an increase in risky sexual behavior in teenagers who are active on social media. Teenagers get pornographic content from social media, even to fulfill sexual stimulation, they make naked video calls[7].

One of the impacts of sexual behavior in teenagers is teenage pregnancy which is closely related to unwanted pregnancies. These cases often end in unsafe abortion attempts[8]. Youth Risk Behavior Survey conducted by the CDC (Centers for Disease Control and Prevention) in 2021 found that 30% of the world's teenagers had had sexual relations, while 21% were still sexually active[9]. This causes 21% of pregnancies among teenagers aged 15-19 years, half of which are unwanted pregnancies. Fifty-five percent of unintended pregnancies end in unsafe abortion[10].

In 2021, the BKKBN revealed that the rate of unwanted pregnancies (KTD) in Indonesia was 17.5% and based on the 2017 Indonesian Demographic and Health Survey (SDKI), the abortion rate in Indonesia reached 228 per 100 thousand live births. DKI Jakarta Province has recorded pregnancy data for teenagers under the age of 20 at 29.13% in 2019 and in 2020, namely 29.32%, so this figure has increased from the previous year. It is known that of the total adolescent population (aged 14-19 years) there are 19.6% of untimely pregnancy cases and around 20% of abortion cases in Indonesia are carried out by teenagers[11, 12].

Early sexual activity in adolescents is associated with increased morbidity and mortality. Encouraging appropriate attitudes towards adolescent sexual behavior related to unintended pregnancy is fundamental to achieving positive health outcomes throughout life and is essential to achieving the Sustainable Development Goals (SDGs) related to maternal and newborn health[6], [10].

Promoting healthy sexual behavior can help reduce these risks, and further negative impacts, such as sexually transmitted infections. One way that can be done to promote healthy sexual behavior is by providing reproductive and sexual health education to teenagers. Efforts to increase knowledge in teenagers require an interesting and effective learning media[6].

Several research results show that audio-visual media is more effective in health education. Research conducted by Nopyanti (2023), related to providing intervention in the form of educational videos about healthy sexual behavior. The results showed significant differences in teenagers' knowledge and attitudes about reproductive health[13]. The results of other research also show the effectiveness of audiovisual media in increasing knowledge and changing attitudes in adolescents[14],[15].

Research by Shinta and Pambudi (2021) on the influence of e-booklet media on knowledge of obesity prevention in adolescents, it was found that e-booklet media was effective in increasing adolescent knowledge.[16]Research on Health Education using

e-booklet media conducted by Lusiana et al was effective in overcoming parents' attitudes in dealing with adolescent reproductive health problems[17].

Based on the explanation above, it can be seen that audio-visual media and e-booklets are both effective in increasing knowledge and changing attitudes, so researchers want to compare the media that are most effective in increasing the knowledge and attitudes of young women about preventing unwanted pregnancies among young women in SMA 62 and SMK. 64 Jakarta. Therefore, researchers created innovative audiovisual health education media in the form of animation and created e-booklets about preventing unwanted pregnancies.

2 Method

This type of research is a quantitative method with a quasi-experimental research design with a pretest-posttest control group design. The aim of this research is to identify and measure the knowledge and attitudes of young women regarding preventing unwanted teenage pregnancies at SMK Negeri 64 Jakarta and SMA Negeri 62 Jakarta. The independent variable is health education media, namely animated videos and e-booklets, and the dependent variables are knowledge and attitudes. The animated videos and e-booklets used as intervention media were made by the researchers themselves.

The population in this study were 10th grade female students consisting of 129 students from SMK Negeri 64 Jakarta and 345 students from SMA Negeri 62 in the 2023/2024 academic year. The sampling technique used was simple random sampling technique consisting of 40 grade 10 female students from SMK Negeri 64 Jakarta and 40 grade 10 female students from SMA Negeri 62 Jakarta. The total sample size in this study was 80 respondents.

Data collection in this research was carried out by filling out a questionnaire that was given via the Google Form link. Respondents were given informed consent and filled out a consent form to participate in this research voluntarily.

This research has obtained ethical feasibility from the Health Research Ethics Committee of Respati Indonesia University with number 174/SK.KEPK/UNR/III/2023. Data analysis was carried out using non-parametric tests with the Wilcoxon signed rank test and the Mann Whitney test using the IBM SPSS Statistics 23 application.

3 Results

The results of the descriptive analysis of the respondent's character data are presented as follows (Table 1). The Table 1 shows the majority of respondents aged 13 to 16 years as much as 90% in the animation video group and 87.5% in the e-booklet group. The most of the respondents got sources of information from non-health workers that was 72% in the animation group and 80% in the e-booklet group. The results of bivariate analysis in this research are presented on Table 2.

Table 1. Distribution Characteristics of Age and Information Sources for Teenage Girl

No	Characteristics	Video Animation		E-booklet	
		N	%	N	%
1.	Age group	36	90	35	87.5
	13-16 year	4	10	5	12.5
	17-19 year	40	100	40	100
2.	Total				
	Resources				
	Health Worker	8	38	11	20
	Non-Health Worker	32	72	29	80
	Total	40	100	40	100

Table 2. The Relationship of Knowledge and Attitudes with Age and Information Sources

No	Characteristics	Knowledge Attitude	
		p-value	p-value
1	Age	0.211	0.617
2	Information Sources	0.004	0.618

Table 2 shows that there is a relationship between the source of information and knowledge (0.004) of teenagers about preventing unwanted pregnancy

Table 3. Difference Mean Value of Knowledge and Attitude Before and After Intervention

No	Variable	Video Animation			E-booklet		
		N	Mean	p-value	N	Mean	p-value
1.	Knowledge						
	Pre test	40	81.63	.000	40	80.13	.000
	Post test		90.25			88.88	
2.	Attitude						
	Pre test	40	82.37	.000	40	86.00	.000
	Post test		93.25			92.50	

The results of the analysis show differences in knowledge scores ($p=0.00$) and attitudes ($p=0.00$) pre-test and post-test on animated videos and e-booklets (Table 3). It can be seen that the average value of post test knowledge with animated video media is higher than with e-booklet media. The average post test attitude score with animated video media is higher than with e-booklets. Changes in attitude can be seen from the increase in the average value which is much higher using animated video media (10.88) than e-booklets (6.5).

Table 4. Comparative analysis of the effectiveness of Knowledge and Attitudes on animated videos and E-booklets

No	Media	Knowledge			Attitude		
		N	Mean Rank	<i>p-value</i>	N	Mean Rank	<i>p-value</i>
1	Video Animation	40	48.51	.001	40	43.43	.217
2	E-booklet	40	32.49		40	37.58	

Table 4 shows that animated videos are more effective than e-booklets ($p=0.001$). This can be seen from the mean knowledge rank after being given intervention with animated videos which is greater (48.51) than e-booklets (32.49). Statistically there is no difference in attitudes towards animated videos and e-booklets ($p=0.217$). However, clinically, animated videos are more effective in changing behavior with the difference in mean rank value, namely 43.43, while e-booklets are only 37.58.

4 Discussion

This research was conducted on 80 students, animated video interventions were given to high school students and e-booklets to vocational school students. The results of the initial knowledge score (pre-test) were less homogeneous, because information regarding preventing unwanted pregnancies was obtained from different sources. The research results show that there is a relationship between knowledge and the sources of information obtained by young women ($p=0.004$). This is supported by Khurana & Bleakley's research that information sourced from health workers is associated with greater accuracy of knowledge[18].

Knowledge scores about preventing unwanted pregnancy increased significantly with both interventions, namely animated videos ($p=0.000$) and e-booklets ($p=0.000$). It can be understood that the transmission of information is more likely to result in increased knowledge if carried out with the correct health promotion media.[19]Both media contain the same information, so that the increase in knowledge among young women looks significant after being given information about the definition of pregnancy, unwanted pregnancy, influencing factors, causes, impacts that will arise and ways to avoid promiscuity among teenagers, and tips for becoming a healthy and intelligent teenager. Both media have advantages and disadvantages. Animated video media and e-booklets are both media that are efficient, practical, can provide the same presentation, and are easy to access, so they can be opened and read repeatedly, and can reduce verbal errors in traditional manual health education[20].

However, there was a significant difference ($p=0.001$) in knowledge scores after the intervention in the group that used animated video media with e-booklets, namely that animated videos were more effective than e-booklets in increasing adolescent girls' knowledge about preventing unwanted pregnancies. The results of this research are supported by various studies which state that animated videos are more effective in increasing knowledge[21], [22]. One of them is Wang's research in 2022 which said that animation videos are superior to recorded videos in mitigating postoperative anxi-

ety[20]. This is because animated videos are an effective health education medium because they include the integration of images, narratives and entertainment-education in which health messages are embedded[23].

Knowledge can be influenced by providing video media because it can reflect more effective absorption of information using the senses of sight and hearing and can increase knowledge compared to just using the sense of sight. Animated videos are a very interesting educational medium, presenting audio signals and combining them with images that imitate movements that are displayed dynamically in a short time and as if seeing the living movement of an object[24]. In contrast to e-booklets, this media requires concentration and focus of the eyes when reading, this may make young women bored more quickly, so that sometimes they do not read the information provided completely.

The results of this study showed that there was a positive change in attitude after being given intervention using animated video media ($p=0.000$) and e-booklet ($p=0.000$). We already know that these two media can increase the knowledge of young women, thereby having an impact on changes in attitudes towards preventing unwanted pregnancies. A person's knowledge can underlie attitudes so that they can last longer than those that are not based on knowledge, so it is necessary to increase knowledge in the hope that attitudes can improve. Health education about preventing unwanted pregnancies is very important to be given to young women because correct knowledge and information is the basis for forming positive health beliefs and attitudes and subsequently has an impact on appropriate health behavior [20].

The results of this study are supported by Gebretatyos et.al (2020) who said that the health education provided can bring about changes in the average attitude score immediately after the intervention ($p=0.0001$), up to 3 months of follow-up ($p<0.0001$). .0001) higher than before the intervention[25].

The results of the statistical test showed no difference between the animated video and the e-booklet in changing the attitude of adolescent girls towards unwanted pregnancy, but clinically the animated video was more effective for changing attitudes in adolescent girls. This can be seen from table 3, namely that the increase in the average attitude score before the intervention and after the intervention was much higher using animated video media (10.88) than e-booklets (6.5), then the difference in the mean rank value namely 43.43 for animated videos while e-booklets are only 37.58 (table 4).

This research is supported by Tarigan et.al (2020) Smartphone-based animations are more effective than comics and booklets in increasing knowledge ($p=0.001$) and attitudes ($p=0.001$) of young women regarding the first 1000 days of life.[26] Providing information using media that attracts respondents, such as videos, can change respondents' attitudes for the better, because it is easier to understand with examples that can be seen or heard[27].

With advances in multimedia technology, fashionHealth education is constantly changing. Animated videos allow for a vivid representation of health education content, systematically instructing adolescent girls on things they should avoid to prevent unwanted pregnancies. With the help of animated videos, young women can improve their understanding of health-related content through sounds and images, which meet the learning needs of different ages and educational levels[20].

The media has a big influence in forming a person's judgment and individual beliefs. Media that provide positive messages are able to provide new views for respondents and form attitudes towards the education provided.

5 Conclusion

Video media and booklet media which act as health promotion media both have an influence in increasing the knowledge of young women at SMK 64 Jakarta and SMA 62 Jakarta about preventing unwanted pregnancies which is marked by a change in the level of knowledge of young women after being given animated video educational media and booklet media. After comparing the two media, animated videos are more effective in increasing the knowledge and attitudes of young women. Recent advances in mobile technology can facilitate the dissemination of accessible and engaging health education on a large scale, thereby increasing the potential impact of video-based health education. This can help health workers in educating young women. It is hoped that further research with a larger sample will assess the effectiveness of animated video media in changing behavior in adolescent girls to prevent unwanted pregnancies.

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