



# The Effect of Health Education Using Flash Card Media on Adolescent Reproductive Health Behavior

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## Abstract

Adolescent problems related to reproductive health are generally caused by a lack of knowledge about sexual and reproductive health, which negatively impacts their reproductive health condition. Currently, many adolescents face issues such as contracting Sexually Transmitted Infections, HIV (Human Immunodeficiency Virus), AIDS (Acquired Immune Deficiency Syndrome), as well as unplanned pregnancies. Therefore, education tailored to the characteristics of adolescents is essential, one of which can be done through flash cards as a medium for health education. This study aims to determine how using flash card media affects adolescent behavior in maintaining reproductive health. The study uses a quantitative approach with a quasi-experimental method and a non-equivalent control group design. The sampling technique used cluster sampling, with 40 respondents consisting of 20 individuals in the intervention group and 20 in the control group, all from State Junior High School 1 Rambipuji. Data were analyzed using univariate and bivariate analysis. Statistical analysis using the Wilcoxon Test showed a significant difference between the pre-test and post-test scores in both the intervention and control groups, with a p-value of 0.000 ( $< 0.05$ ). In addition, the Mann-Whitney Test also showed a p-value of 0.000 ( $< 0.05$ ), indicating a significant effect of flash card usage on changes in reproductive health behavior among adolescents. These findings suggest that routine use of flash cards, for example, once a week for a month, is efficacious in improving adolescent behavior in maintaining their reproductive health.

**Keywords:** Flash card, Heath behavior, Health education, Reproductive

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## 1. BACKGROUND

The World Health Organization (WHO) states that reproductive health is a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity, but also encompasses

all aspects related to the reproductive system, its functions, and processes throughout the stages of human life (Ayu, 2019). A common phenomenon among adolescents is their attraction to the opposite sex, which often leads to sexual

behaviors such as touching, holding hands, kissing, having sexual fantasies, petting, and oral sex. (Muntaza et al., 2023). The factors underlying adolescent issues related to reproductive health often stem from a lack of knowledge about sexual and reproductive health, which results in poor reproductive health among teenagers. Currently, some cases indicate that adolescents are vulnerable to contracting Sexually Transmitted Infections (STIs), HIV (Human Immunodeficiency Virus), AIDS (Acquired Immune Deficiency Syndrome), as well as experiencing unplanned pregnancies (Nasution & Manik, 2020).

Adolescents in Indonesia begin dating as early as the age of 12. As many as 92% are involved in holding hands, 82% in kissing, and 63% in physical contact (Muntaza et al., 2023). In 2017, the number of reported HIV infection cases in Indonesia reached 48,300, with East Java Province recording the highest number at 8,204 cases. Reproductive health issues among Indonesian adolescents include 83% of HIV cases and 62% of AIDS cases (Ayubbana et al., 2022). According to data from BPSKJ (Central Bureau of Statistics of Jember Regency), the adolescent population aged 15–19 years is approximately 180,241 individuals (BPSKJ,

2024). Based on a preliminary study conducted on November 11, 2024, through interviews with 10 adolescents at State Junior High School 1 Rambipuji, the interview results revealed that 74% of students began dating at the age of 12. Among them, 30% engaged in holding hands, 16% in hugging, and 10% in kissing. Furthermore, 70% admitted to watching adult films, 10% experienced pregnancy outside of marriage, and 43% smoked. The students' behavior regarding reproductive health was found to be poor, as dating relationships were generally perceived as normal and acceptable.

Adolescence is marked by various physical, psychological, and social changes that can influence sexual behavior (Santrock, 2017). Adolescents have unique characteristics, such as a strong sense of curiosity, interest in challenges, a desire to try new things, a tendency to socialize with peers, a search for self-identity, and a high susceptibility to environmental influences. In addition, they often act without thoroughly considering the consequences of their actions. This period is also marked by growth, changes, various opportunities, and reproductive health risks (Pratiwi, 2021). Many adolescents have become sexually active, although in some cases, this occurs not by their own choice (Kustin,

2023). The lack of knowledge among adolescents about reproductive health tends to increase the risk of sexual behavior, especially when influenced by peer pressure. This can lead to various reproductive health issues, such as premarital sexual behavior, substance abuse, the spread of HIV/AIDS, and unwanted pregnancies (Sirupa et al., 2019).

The improvement of adolescent behavior requires an appropriate educational approach. Health education on sexual and reproductive health for adolescents aims to provide accurate information about health to individuals and communities. After participating in this education, individuals and communities are expected to have a proper understanding of health (Kustin, Dermawan, et al., 2023). Adolescents who have a limited understanding of premarital sexual behavior are at high risk of being influenced by unhealthy attitudes. Attitudes themselves are responses to something, which can be positive or negative. Negative behaviors will form negative attitudes, making sex education crucial for adolescents to prevent premarital sex (Susanti & Fatimah, 2024). One of the resources that contains a wealth of information related to health and can be used to help improve health is the media.

Learning media plays an important role in determining the success of the learning process. Appropriate media can help students better understand the material being taught. There are many types of media, one of which is the use of media in education (Muntaza et al., 2023).

Flash cards are learning media in the form of picture cards with a size of 8.5 x 5.5 cm. The images on these cards can be created manually, using photographs, or using existing images pasted onto the flash card. One of the advantages of flash cards as a learning medium is their practicality, attractiveness, and ease of recall, which has been proven to improve students' abilities. The educator's role greatly influences the effectiveness of using flash cards in delivering educational material and providing immediate feedback to students. In addition, educational cards, whether in the form of images or text, are also effective as language stimulation media for adolescents to improve their behavior (Kelrey et al., 2021). Based on the abovementioned issues, the researcher is interested in studying the effect of flash card media on adolescent reproductive health behavior.

## 2. METHODS

This study uses a quantitative approach with a quasi-experimental design involving two groups: the intervention and control groups. Each group receives different treatments, with the intervention group being given flash card media while the control group receives leaflets. The population in this study consists of 226 students, and the sampling technique used is cluster random sampling. A total of 40 students were selected as the sample, divided into 20 students in the intervention group and 20 students in the control group. In the intervention group, the flash card media covers knowledge, attitudes, and actions. The flash cards are used in the form of a game involving two groups. The flash cards used serve as learning aids containing visual information and brief texts on topics related to reproductive health, such as reproductive organ anatomy, menstruation, pregnancy, childbirth, sexually transmitted diseases, and more. These flash cards are designed to help adolescents understand reproductive health concepts visually and interactively. Each group consists of ten people standing in a row, facing away from each other. The game is played by giving questions, and the group that answers correctly earns points. If the group cannot answer, other group

members will replace them to try to answer. The group with the most points will win the game and receive a prize as a form of reward. The duration of the game is 60 minutes per stage. Meanwhile, the control group, consisting of 20 respondents, is given reproductive health education using leaflets according to the standard operating procedure (SOP), which is only given in one stage.

The measurement tool used in this study is a questionnaire sheet adapted from the Counseling Questionnaire on Adolescent Reproductive Health Skills. The questionnaire used in this study was adapted from a previous researcher whose instrument had already undergone validity and reliability testing. The validity test results showed a significance value of 0.01 and a positive Pearson Correlation, while the reliability test yielded a Cronbach's Alpha value of 0.85 (Kustin, Yuhbaba, et al., 2023). The data collection process begins with obtaining permission from the relevant authorities at the research site. Afterward, the selected respondents are provided with an explanation about the study and given an informed consent form as a sign of their agreement to participate in the research. Then, the procedure for completing the questionnaire is explained to the respondents before they begin filling

it out until completion. This study has received ethical approval from the University of dr. Soebandhi, with ethical approval number No.595/KEPK/UDS/I/2025, Following ethical guidelines, since the respondents are under the age of 18, the informed consent form was completed by the respondents' parents or legal guardians. This informed consent includes approval for the research and any medical

procedures that will be conducted on the underage respondents.

### 3. RESULTS

The following table presents the characteristics of respondents based on gender, age, ethnicity, and sources of information obtained at State Junior High School 1 Rambipuji.

Table 1. Respondent Characteristics

Characteristics	Frequency	Percentage
Gender		
Male	20	50%
Female	20	50%
<b>Total</b>	<b>40</b>	<b>100%</b>
Age		
13 years old	11	27.5%
14 years old	29	72.5%
<b>Total</b>	<b>40</b>	<b>100%</b>
Ethnicity		
Madurese	12	30%
Javanese	28	70%
<b>Total</b>	<b>40</b>	<b>100%</b>
Ever received Reproductive Health Information		
Yes	0	0%
No	40	100%
<b>Total</b>	<b>40</b>	<b>100%</b>

Based on Table 1, it can be seen that the majority of respondents, 50% (20), were male and 50% (20) were female. Most respondents, 27.5% (11), were 13 years old, while 72.5% (29) were 14. Regarding cultural background, 30% (12) of the

respondents were Madurese and 70% (28) were Javanese. Furthermore, based on sources of information previously received, 100% (40) of the respondents had never received any information regarding reproductive health.

**Table 2.** Wilcoxon Test Results of Pre-Test and Post-Test on Reproductive Health Behavior in the Intervention and Control Groups

Group		Pre-test		Post-test		P-value
		Frequency	Percentage	Frequency	Percentage	
Control	Bad	0	0%	0	0%	0.001
	Average	14	70%	6	30%	
	Good	6	30%	14	70%	
Intervention	Bad	0	0%	0	0%	0.000
	Average	12	60%	0	0%	
	Good	8	40%	20	100%	

Table 2 shows the results of the Wilcoxon Signed-Rank Test for pre-test and post-test reproductive health behavior assessments in both the intervention and control groups. The p-value for the control group was 0.001, which is less than 0.05 ( $p < 0.05$ ), indicating that the null hypothesis ( $H_0$ ) is rejected and the alternative

hypothesis ( $H_1$ ) is accepted. Similarly, the p-value for the intervention group was 0.000, also less than 0.05, leading to the rejection of  $H_0$  and acceptance of  $H_1$ . Therefore, it can be concluded that using flash card media before and after the intervention has a significant effect.

**Table 3.** Differences in Post-test Results

Group		Post-test	
		Frequency	Percentage
Control	Good	14	70%
Intervention	Good	20	100%

Table 3 shows the results of the two posttest scores, one for the group that received the intervention and one for the

group that did not receive the intervention, indicating a difference.

**Table 4: Mann-Whitney Post-Test Results for the Intervention and Control Groups**

Group	Category	Posttest		P-value
		Frequency	Percentage	
Control	Bad	0	0%	0.000
	Average	6	30%	
	Good	14	70%	
Intervention	Bad	0	0%	0.000
	Average	20	100%	
	Good	20	100%	

Table 4 shows the output of the "test statistics," where the P-value is  $0.000 < 0.05$ , indicating that  $H_a$  is accepted. This

suggests a difference in behavior between the intervention group, which was given flash card media, and the control group,



which did not receive flash card media. Therefore, it can be concluded that "there is an effect of using flash card media on adolescent reproductive health behavior."

#### 4. DISCUSSION

The results of the research show a difference in reproductive health behavior among adolescents between the intervention group and the control group, both before and after the educational intervention was given. Reproductive health behavior itself is influenced by the issue of adolescents' low knowledge of sexual and reproductive health, which results in poor reproductive health. The study's results showed that after the intervention using flash card media through games, the adolescents' reproductive health behavior improved to a "good" category (100%). In contrast, the control group also improved due to the leaflet media provided by the researcher, with a "good" category increase of 70%. The control group improved due to students having time to read and understand the leaflet's contents. The difference in the post-test results between the intervention and control groups was influenced by the health education provided through the flash card game, which helped improve adolescent behavior regarding knowledge, attitudes, and actions. These results

identify that flash card media can positively impact improving behavior in managing adolescent reproductive health.

The general concept used to diagnose behavior comes from Lawrence Green. Green states that behavior is influenced by three main factors: predisposing factors, which include knowledge, attitudes, beliefs, values, and so on; enabling factors, which are reflected in the development of technology and information, as well as the availability of health facilities or resources; and reinforcing factors, which are reflected in the attitudes and behaviors of health workers or peers, who act as reference groups in society (Notoatmodjo, 2018). Based on the theory above, knowledge and the influence of information received, such as health facilities or resources, can strengthen the occurrence of behavior. Health education using flash card media can positively influence adolescent behavior, leading to behavioral changes that improve adolescent health behavior (Kelrey & Kusbaryanto, 2021).

Based on the research results show that the majority of respondents in the post-test of the intervention group had a "good" behavior category, with 100% of respondents, and no respondents were in the "poor" (0%) or "fair" (0%) behavior categories. Meanwhile, in the control group, 70% of respondents showed good

behavior, 30% were in the fair behavior category, and no respondents were in the poor behavior category (0%). (Kristiani & Nur Pratiwi, 2023) Sexual health education is one of the practical efforts to reduce and prevent deviations in sexual behavior, especially in preventing various adverse consequences, such as unintended pregnancies, the transmission of sexually transmitted infections, depression, and feelings of guilt. In addition, sexual education can also be utilized by educators in each school as a means of conveying information about adolescent reproductive health. As a result, adolescents will have adequate knowledge and a positive attitude in facing issues related to premarital sex among them (Kustin & Handayani, 2024). This is also supported by research (Dungga & Ihsan, 2023). Reproductive health education is crucial, especially considering the advancements in technology that allow adolescents, particularly teenage girls, to access various information easily. However, this easy access also carries risks if the information received is inaccurate or inappropriate. A lack of understanding of reproductive health can lead to misguided social behaviors, one of which is the increase in cases of early marriage or young marriages. (Kustin & Handayani, 2024). Therefore, it is also important to provide education

about early marriage or young marriage to adolescents so they have a proper understanding of the risks and consequences involved. This highlights the positive impact of using flash card media to deliver educational information to improve adolescent reproductive health behavior.

Flash card media is an effective visual aid method in health education that enhances adolescents' knowledge and understanding of reproductive health (Kusrini & Febrina, 2024). Flashcards are an effective tool in teaching and learning because they make learning enjoyable, provide meaningful experiences, and help develop critical thinking and social skills (Murdiningsih et al., 2020). Flash card media, which consists of simple images and text, helps adolescents more easily absorb complex information, such as the risks of sexually transmitted infections, unintended pregnancies, and the importance of maintaining reproductive health. Flash card media stimulates concrete visualization, making the information presented easier to understand and remember, ultimately influencing adolescents' attitudes and behavior toward reproductive health (Kelrey et al., 2021). A better understanding of reproductive health through this media also helps reduce risky behaviors that are often found among adolescents. These findings are also



supported by previous research, which shows that both picture-based flash cards and text-based educational cards have proven effective as language stimulation media for preschool children in enhancing their knowledge. (Daniyati Kusuma & Nur Indriasari, 2023). Therefore, it is important to provide health education early to expand the knowledge and awareness of preschool-aged children. This indicates that flash card media can effectively deliver health education information to improve adolescent reproductive health behaviors, leading to better behaviors (Baska et al., 2020).

### **The Impact of Flash Card Media on Adolescent Reproductive Health Behavior**

Based on the statistical analysis, the p-value was 0.000, less than 0.05. Therefore, the null hypothesis ( $H_0$ ) is rejected, and the alternative hypothesis ( $H_1$ ) is accepted, indicating a significant difference in reproductive health behavior between the intervention group, which received flash card media, and the control group, which did not. Consequently, it can be concluded that the use of flash card media has a significant effect on adolescent reproductive health behavior. The study involved 40 respondents (students). In the

intervention group, 40% (8 students) exhibited good behavior in the pre-test, while 100% (20 students) showed improvement in the post-test. In contrast, the control group had 30% (6 students) with good behavior in the pre-test, and 70% (14 students) in the post-test.

This study aligns with Green's perspective that behavior is influenced by knowledge and attitudes; the higher an individual's level of knowledge, the better their attitudes and behaviors. In the context of adolescents, health-related behaviors, including sexual activity, are significantly influenced by technological developments, such as print and electronic media (Nasution & Manik, 2020). Teenagers can easily access things related to pornography from magazines, television, and the internet, while they tend to imitate or experiment with new things to satisfy their curiosity. This is also supported by research conducted (Muntaza et al., 2023). Sexual behavior is an action that arises as a response to sexual urges or desires (Alpiani & Kosim, 2021). The lack of understanding among teenagers about premarital sex can increase the risk of forming unhealthy attitudes and behaviors in themselves. This result aligns with Green's theory, which suggests that knowledge of reproductive health has a significant impact. The lower the knowledge about reproductive health,

the greater the risk of behaviors and attitudes that teenagers may exhibit (Yusuf & Hamdi, 2021).

The results from the pre-test and post-test of the intervention group, which received treatment in the form of a game using flash cards, and the control group, which only received a leaflet, showed significant differences. The flash card media impacted reproductive health behavior in teenagers, with the use of flash cards having a positive and significant effect in improving the respondents' knowledge, attitudes, and actions regarding their understanding and capabilities in reproductive health. Teenagers are part of a vulnerable group at risk of various reproductive health issues, such as the transmission of sexually transmitted infections, teenage pregnancies, and mental health issues related to sexual aspects. Therefore, it is crucial to have an effective educational program to help teenagers understand the importance of reproductive health and develop a positive attitude toward it (Yuniarti et al., 2024). Adolescents are at a developmental stage that is highly receptive to information and approval from their surrounding environment. The more often they are exposed to information about reproductive health behaviors, the greater their understanding and

application of healthy behaviors will be (Tucunan et al., 2022).

This study has limitations, as it was conducted on a small sample size and within a short period. The use of flash cards proved to be more effective compared to leaflets. This is because flash cards often promote more active interaction with the material, utilize stronger visuals, and allow for easy repetition of content. In contrast, leaflets tend to be more passive, typically containing only written information, making them less effective for learning that requires memorization or more profound understanding. For future research, studies could be conducted on a larger scale by providing training to teachers so that future activities can be implemented systematically and consistently in schools. Collaboration with the relevant education authorities could also help enhance adolescents' knowledge, attitudes, and actions regarding reproductive health issues. It can be concluded that health education using flash card media has a significant impact on reproductive health behavior in adolescents.

## 5. CONCLUSION

Before the intervention, most of the behavior was categorized as sufficient (70%), while after the intervention, all respondents were categorized as good

(100%). This shows the influence of flash card media on adolescent reproductive health behavior, as indicated by the statistical test result with a p-value < 0.000. Health education activities using flash card media can serve as an alternative intervention to increase motivation, provide information, and improve adolescents' behavior related to reproductive health in schools.

#### **AUTHOR CONTRIBUTIONS**

The author contributes all research activities. Conceptualization, data collection, analysis, writing and manuscript revisions: Ghonim Maulanal and Kustin.

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#### **CONFLICT OF INTEREST**

The authors declare that there are no conflicts of interest in this research.

#### **DATA AVAILABILITY STATEMENT**

The data are available from the corresponding author upon reasonable request.

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