

THE EFFECTIVENESS OF HEALTH EDUCATION THROUGH E-FILES MULTIMEDIA AND FACE-TO-FACE CLASSROOM LEARNING ON ADOLESCENTS' REPRODUCTIVE HEALTH KNOWLEDGE AMONG SEVENTH-GRADE STUDENTS AT SMPN 1 KRAMATWATU, SERANG, BANTEN

Ika Apriyanti^{1*}, Nuria Fitri Adista¹.

¹Aisyyah Health Polytechnic of Banten

*Corresponding author: ika@polisa.ac.id

ABSTRACT

Background : Adolescence is a transitional period between childhood and adulthood. During this time, many changes occur in adolescents, including physical changes, puberty, and behavior. Globally, health issues among adolescents are primarily driven by risky behaviors such as unhealthy dating, smoking, alcohol consumption, and drug use, which have become major concerns worldwide. This research aims to prove the influence of Health Education through Multimedia E-Files and Face-to-Face Learning in the Classroom on Adolescent Reproductive Health Knowledge.

Methods: The research design is a Quasi-Experimental Design with a pretest-posttest control group design. The sample consists of seventh-grade students from SMP Negeri 1 Kramatwatu, with 45 respondents in the control group and 45 respondents in the experimental group, using probability sampling with proportional random sampling method. Data analysis was conducted using Wilcoxon and Mann-Whitney tests.

Results: Indicate an effect of reproductive health education through E-File Multimedia media on adolescents' reproductive health knowledge. The average N-Gain Score in the control group was 31.33, while in the experimental group, it was 59.34.

Conclusion : Future research is expected to implement different interventions regarding the TRIAD KRR in adolescents and enhance the effectiveness of other media or expand this research with different variables to provide the latest innovations in health education.

Keywords: Adolescent Knowledge about Reproductive Health, E-File Multimedia, Face-to-Face

BACKGROUND

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The achievement of the 2030 Sustainable Development Goals (SDGs) emphasizes the importance of access to sexual and reproductive health services, including education and integration into health programs. The World Health Organization (WHO) supports the strengthening of adolescent health programs in various countries, while Indonesia has implemented the *Generasi Berencana* (GenRe) program through the Youth Information and Counseling Center (PIK-R), the Student Group Concerned with AIDS and Drugs (KSPAN), and Adolescent Integrated Health Posts (*Posyandu Remaja*) since 2010. However, implementation in the field still faces challenges related to limited facilities and infrastructure, as well as low levels of adolescent awareness and participation.

Various adolescent reproductive health problems in Indonesia remain prevalent, including reproductive organ disorders, pathological vaginal discharge, HIV/AIDS, and early marriage. Data show that the prevalence of early marriage increased from 18.3% in 2018 to 19.3% in 2020, which has implications for increased risks of high-risk pregnancies, childbirth complications, and maternal and infant mortality. Contributing factors include low levels of education, socioeconomic conditions, cultural influences, and premarital sexual behavior.

Promotive and preventive efforts are therefore urgently needed, one of which is through reproductive health education. Previous studies indicate that the use of multimedia and educational videos is more effective in improving adolescents' knowledge and attitudes toward reproductive health compared to conventional or simple methods. From an Islamic perspective, seeking knowledge is considered an act of worship, and health promotion is viewed as part of *amar ma'ruf nahi munkar* (enjoining good and preventing evil), as guided by the Qur'an (QS. At-Taubah:71 and QS. An-Nahl:125).

A preliminary study conducted at SMPN 1 Kramatwatu in 2024 revealed that although the KSPAN program is active, risky adolescent behaviors such as unhealthy dating practices, smoking, and alcohol consumption are still found. One of the main obstacles identified was the monotonous delivery of material using lecture-based methods, indicating the need for more interactive and engaging educational approaches.

Health education is a crucial strategy for improving adolescents' knowledge. Conventional face-to-face methods that have been widely used are often perceived as monotonous and less engaging, leading students to have limited understanding and to consider the material unimportant. Therefore, innovative learning media that are more interactive and easily accessible are required, one of which is E-File multimedia. This medium integrates visual and audio elements, making information delivery more effective and allowing students to access learning materials at any time.

OBJECTIVE

Based on these conditions, this study was conducted to analyze the effectiveness of health education delivered through E-File multimedia compared to conventional face-to-face classroom methods on adolescent reproductive health knowledge among seventh-grade students at SMPN 1 Kramatwatu, Serang, Banten.

METHODS

This study was conducted using a quantitative approach. The research design employed was a quasi-experimental design with a pretest–posttest control group design. The study population consisted of all seventh-grade students at SMP Negeri 1 Kramatwatu, totaling 180 students. A sample of 90 respondents was selected and divided into two groups: a control group and an experimental group. Each group consisted of 45 respondents, and no participants dropped out during the study.

The characteristics observed included age, gender, dating status, sources of information, and whether respondents had ever experienced, witnessed, or heard about sexual behaviors related to adolescent reproductive health. The sampling technique used was probability sampling with a proportional random sampling method. The study was conducted from March to April 2024. Data collection was carried out in two phases: the first phase for the control group and the second phase for the experimental group. Pretest and posttest questionnaires were administered using Google Forms. The control group received reproductive health education through conventional face-to-face methods, while the experimental group received reproductive health education with video-based E-File multimedia interventions. Data analysis was performed using the Wilcoxon test and the Mann–Whitney test.

This study obtained ethical approval from the Research Ethics Committee of Universitas Yatsi Madani with approval number: 535/LPPM-UYM/III/2024.

RESULTS

The Effect of Reproductive Health Education through E-File Multimedia on Adolescents’ Reproductive Health Knowledge at SMPN 1 Kramatwatu

Before conducting data analysis, a normality test was performed using the Shapiro–Wilk test. This test was applied because the knowledge variable was numerical data measured on a ratio scale. The results of the normality test are presented in Table 6 as follows:

Table 1 . Results of the Data Normality Test

Knowledge	<i>Statistic</i>	df	Sig. Pretest
Kontrol	.170	45	.000
Posttest Kontrol	.153	45	.000
Pretest Eksperimen	.185	45	.000
Posttest Eksperimen	.154	45	.002

The results of the normality test using the Shapiro–Wilk test showed that all tested data had p-values $< \alpha$ (0.05), indicating that the data were not normally distributed. Therefore, non-parametric statistical tests were applied in this study. The Wilcoxon test was used for paired data to examine differences in the mean pretest and posttest scores within the control and experimental groups, while the Mann–Whitney test was used for unpaired data to compare the pretest and posttest scores between the control and experimental groups.

1. Differences in Adolescents’ Reproductive Health Knowledge Before and After Receiving Reproductive Health Education Through Face-to-Face Methods

Table 2 Differences in Adolescents’ Reproductive Health Knowledge Before and After Receiving Face-to-Face Reproductive Health Education

	Time	N	Mean	Mean Difference	P Value
Knowledge	Before	45	78,76	6,57	0,000
	After	45	85,33		

Based on the table above, in the control group there was an increase in the average knowledge score before and after reproductive health education was delivered through conventional media, amounting to 6.57. The bivariate analysis using the Wilcoxon test showed a p-value < α (0.05), indicating that H_0 was rejected. This result signifies that there is a difference in adolescents' reproductive health knowledge before and after being given reproductive health education through face-to-face media.

2. Differences in adolescents' reproductive health knowledge before and after being given reproductive health education through E-File Multimedia media

Table 3 Differences in adolescents' reproductive health knowledge before and after being given reproductive health education through E-File Multimedia media

	Time	N	Mean	Mean Difference	P Value
Knowledge	Before	45	78,84	13,25	0,000
	After	45	92,09		

Based on the table above, the experimental group showed an increase in the average knowledge score before and after receiving reproductive health education through E-File Multimedia media, amounting to 13.25. The results of the bivariate analysis using the Wilcoxon test obtained a p-value < α (0.05), which means that H_0 was rejected. This indicates that there is a difference in adolescents' reproductive health knowledge before and after being given reproductive health education through E-File Multimedia media.

3. Effect of reproductive health education through E-File Multimedia media on adolescents' reproductive health knowledge

In testing this hypothesis, the researcher used the Mann–Whitney test to determine the effect of reproductive health education through E-File Multimedia media on adolescents' reproductive health knowledge. The Mann–Whitney test was used to examine whether there was a significant difference in the mean posttest scores between the control group that used conventional media and the experimental group that used E-File Multimedia media.

Table 4 The Effect of Reproductive Health Education Through E-File Multimedia on Adolescents' Reproductive Health Knowledge

Knowledge	Group	N	Mean Rank	Sig
Pretest	Kontrol	45	45,64	0,957
	Eksperimen	45	45,36	
PostTest	Kontrol	45	34.83	0,000
	Eksperimen	45	56.17	

Based on the results of the bivariate analysis of the pretest scores between the control group and the experimental group using the Mann–Whitney test, the Asymp. Sig. (2-tailed) value was 0.957, which is greater than 0.05. The mean rank of the control group was 45.64, while the mean rank of the experimental group was 34.83. Therefore, there was no significant difference or effect on knowledge prior to the provision of reproductive health education between the control and experimental groups.

The statistical analysis of the posttest scores between the control group and the experimental group using the Mann–Whitney test showed an Asymp. Sig. (2-tailed) value of 0.000. Since the p-value was less than α (0.05), it can be concluded that H_a was accepted and H_0 was rejected. The mean rank of the control group was 34.83, whereas the mean rank of the experimental group was 56.17. These results indicate that reproductive health education delivered through E-File multimedia had a significant effect on adolescents' reproductive health knowledge.

Tabel 5 Uji N-Gain Score

	Group	Mean	Min	Max	Asymp.Sig (2-tailed)
N-Gain Score	Kontrol	31,33	-25.00	80,00	0,001
	Eksperimen	59,34	0,00	100,00	

The N-Gain Score test aims to determine the magnitude of the effect of reproductive health education through E-File Multimedia media on adolescents' knowledge of Adolescent Reproductive Health (KRR), which includes sexuality, HIV/AIDS, and drug abuse (NAPZA), after it was established that there was a significant difference between the mean posttest scores of the control group and the experimental group using the Mann–Whitney test. Based on the results of the N-Gain Score test analyzed using the Mann–Whitney test, a p-value of 0.001 was obtained. Since $p < \alpha$ (0.05), it can be stated that H_a is accepted and H_0 is rejected. This indicates that reproductive health education through E-File Multimedia media has an effect on adolescents' reproductive health knowledge. The mean N-Gain Score in the control group was 31.33, while in the experimental group it was 59.34.

DISCUSSION

Adolescents' reproductive health knowledge before the provision of reproductive health education in the control and experimental groups

Based on the results of the study, it was found that adolescents' knowledge in the control group before being given face-to-face reproductive health education had a mean score of 78.76. The lowest score was 52 and the highest score was 88, with a standard deviation of 8.30. In the experimental group, before being given reproductive health education using E-File Multimedia media, the mean knowledge score was 78.84. The lowest score was 64 and the highest score was 88, with a standard deviation of 7.26.

Observations prior to the pretest showed that adolescents were less interested in the importance of reproductive health and were less active in participating in activities related to adolescent reproductive health. This was evident from the small number of students interested in joining extracurricular activities such as the Student Group Concerned with AIDS and Drugs

(KSPAN) and the Youth Information and Counseling Center (PIK-R). Based on the characteristics of respondents at SMP N 1 Kramatwatu, in the control group, 33 respondents (73.3%) had previously received information on reproductive health, while 12 respondents (26.7%) had never received such information. In the experimental group, 30 respondents (66.7%) had previously received information on KRR, while 15 respondents (33.3%) had never received information on KRR.

In the control group, 17 respondents (37.8%) obtained information from health professionals, 23 respondents (51.1%) from non-health professionals, and 5 respondents (11.1%) had never received information. In the experimental group, 15 respondents (33.3%) had obtained information on adolescent reproductive health from health professionals, 24 respondents (53.2%) from non-health professionals, and 6 respondents (13.3%) had never received information on adolescent reproductive health.

Although respondents had previously received health education, some still lacked understanding and knowledge of reproductive health, particularly adolescent reproductive health. This is reflected in the pretest results, with an average score of 78.76 in the control group and 78.84 in the experimental group. Several factors influencing the pretest results include the limited implementation of reproductive health education activities, including adolescent reproductive health, at SMP N 1 Kramatwatu.

This finding is supported by explanations from the extracurricular supervising teacher, who stated that extracurricular activities were conducted using discussion and lecture methods with PowerPoint media. The material presented tended to be monotonous and was only targeted at students who were interested in joining the KSPAN extracurricular activity. The lack of student interest in participating in health education activities resulted in the material not being fully understood (Tafonao, 2018).

Efforts that can be made to improve adolescents' health knowledge include providing health education. In this study, the researcher provided health education using E-File Multimedia media in the experimental group. The researcher collaborated with the extracurricular supervising teacher in delivering health education to the control group. The methods used were lectures and discussions using PowerPoint media as developed by the school.

Adolescents' reproductive health knowledge after the provision of reproductive health education in the control and experimental groups

Based on the results of the study, adolescents' knowledge in the control group after receiving face-to-face reproductive health education had a mean score of 85.33. The lowest score was 56 and the highest score was 96, with a standard deviation of 8.00. In the experimental group, after receiving reproductive health education using E-File Multimedia media, the mean knowledge score was 92.09. The lowest score was 76 and the highest score was 100, with a standard deviation of 6.52.

These data indicate an increase in adolescents' knowledge after receiving reproductive health education through both E-File Multimedia media and face-to-face methods. During the health education process in the control group, many adolescents paid less attention to the explanation of the material, resulting in the material not being well understood. In this study, reproductive health education in the control group was conducted by the extracurricular

supervising teacher using discussion and lecture methods with PowerPoint media. One of the weaknesses of the face-to-face method is that the material presented on PowerPoint tends to be extensive.

CONCLUSION

The results of this study indicate that reproductive health education through E-File Multimedia media has an effect on adolescents' reproductive health knowledge at SMP N 1 Kramatwatu. The effectiveness of reproductive health education using E-File Multimedia media was 59.34%, indicating that this method is moderately effective in improving adolescents' knowledge of reproductive health at SMP N 1 Kramatwatu.

Recommendations include improving students' knowledge of adolescent health through extracurricular activities such as the Student Group Concerned with AIDS and Drugs (KSPAN) and the Youth Information and Counseling Center (PIK-R). In implementing health education, extracurricular supervising teachers are expected to provide effective health education by adopting an approach that is engaging for adolescents. Health education can utilize attractive media, such as the E-File Multimedia media used in this study, to increase adolescents' interest and knowledge.

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