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Improving Adolescent HIV/AIDS Knowledge through Video-Based Health Education: A School-Based Study in Indonesia

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ABSTRACT

HIV/AIDS remains a significant global and national public health problem every year. Adolescents are a group highly vulnerable to HIV/AIDS transmission because of the transitional phase marked by high curiosity, which leads them to seek information from various sources that are not necessarily accurate. This study aimed to determine the effect of health education using video media about HIV/AIDS on adolescent knowledge at SMP Negeri 1 Godean. This study was a pre-experimental study with a one-group pretest-posttest design. The sample consisted of 128 respondents selected using a total sampling technique. The data collection instrument used was a questionnaire. The data collection tool used was a questionnaire. Following the health education session using video media, respondents' knowledge levels showed a marked increase, with 127 respondents (99.22%) in the good category and 1 respondent (0.78%) in the fair category. The results of the *Wilcoxon* statistical test showed a p-value of 0.00, Z = -9.822 for knowledge. A statistically significant increase in adolescent knowledge was found following health education using video media on HIV/AIDS at SMP Negeri 1 Godean, Yogyakarta. Respondents are expected to maintain this knowledge to avoid deviant behavior and increase concern for people living with HIV/AIDS (PLWHA).

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Introduction

Adolescence is an age group in the transitional phase from childhood to adulthood, characterized by curiosity and rapid behavioral development. This age group is vulnerable to health-related risk behaviors, including the risk of Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) transmission if they lack sufficient knowledge about the disease. Knowledge about HIV/AIDS is an important component in preventing transmission because it can help adolescents understand modes of transmission and prevention, and avoid misconceptions circulating in society [1].

HIV/AIDS remains a global and national public health problem. The 2024 WHO report recorded approximately 40.8 million people living with HIV worldwide, consisting of 1.4 million children aged 0-14 years and 39.4 million people over the age of 15. In 2024, an estimated 1.3 million people worldwide were newly infected with HIV, and approximately 630,000 people died from AIDS-related illnesses. The global target for 2025 is to reduce AIDS-related deaths to fewer than 250,000 [2].

In Indonesia, an estimated 540,000 people are living with HIV infection. In 2024, 63,707 HIV cases and 21,536 AIDS cases were reported. Transmission through sexual intercourse dominates, accounting for approximately 89% of all cases. In 2024, the number of new HIV cases in the Special Region of Yogyakarta reached 886 cases, with the highest distribution in Sleman Regency, at 214 cases [3].

The HIV incubation period, which generally lasts between 5 and 10 years, indicates that initial transmission often occurs during adolescence. Based on 2018 Riskesdas data, the proportion of HIV/AIDS knowledge in Yogyakarta Special Region shows that most of the population (60.7%) could only answer 0-7 questions correctly (low knowledge category), while only 0.6% fell into the high knowledge category [4].

To address this problem, efforts through health education are needed. Health promotion is a learning process aimed at changing individual or group behavior toward achieving optimal health. Audiovisual media such as video are considered effective for delivering health information in an engaging and easily understandable way [5]. Video media can present information, explain complex processes and concepts, teach skills, and regulate the perception of time [6]. This is consistent with research conducted by Asriani [7] showing that health education affects adolescents' knowledge levels, with knowledge increasing from 44.1% to 85.3% of respondents having good knowledge after the education session.

Although several studies have demonstrated the effectiveness of video media in improving adolescents' knowledge of HIV/AIDS [6], [8], a research gap remains to be filled. Most previous studies were conducted at the senior high school level or among late adolescents, whereas research at the junior high school level, specifically among middle adolescents aged 13-15

years in Sleman Regency, remains very limited, even though Sleman is the regency with the highest number of HIV/AIDS cases in the Special Region of Yogyakarta in 2024. A preliminary study at SMP Negeri 1 Godean confirmed that the school had never held a dedicated HIV/AIDS education session, so students' knowledge levels had not been scientifically measured. In addition, this study used an animated video created by the researcher and tailored to the context and characteristics of junior high school adolescents.

Based on the identified gap, this study offers novelty in several respects. It is the first study to specifically measure the effect of video-based health education on HIV/AIDS knowledge among students at SMP Negeri 1 Godean, a school located in Sleman Regency, the area with the highest HIV/AIDS burden in the Special Region of Yogyakarta, so that its findings can serve as a basis for developing adolescent reproductive health intervention programs at the junior high school level in the region. The educational video used was developed by the researcher, with animation-based content tailored to the characteristics of the target audience of adolescents aged 13-15 years, with an optimal duration of 4 minutes, distinguishing it from previous studies that generally used non-customized video or media. Research by Parker et al. [9] showed that student learning engagement declines when instructional video duration exceeds six minutes. Therefore, educational videos lasting 3-6 minutes are considered most effective for maintaining junior high school students' attention and improving their understanding in health education, including on HIV/AIDS. This study also integrates the role of midwives as adolescent reproductive health educators in accordance with Regulation of the Minister of Health (PERMENKES) No. 28 of 2017, contributing to the development of a midwifery-based health education model in educational institutions that has not been widely explored in the Indonesian midwifery literature.

Based on a preliminary study of 10 eighth-grade students at SMP Negeri 1 Godean, 9 students (90%) knew HIV/AIDS only as a sexually transmitted disease, without a comprehensive understanding of its modes of transmission and prevention. In addition, based on an interview with the school's vice principal, it was found that no dedicated lesson on HIV/AIDS had been taught during the 2024/2025 academic year. This study aimed to determine the effect of health education using video media about HIV/AIDS on the knowledge of eighth-grade adolescents at SMP Negeri 1 Godean.

Methods

This study was a quantitative study using a pre-experimental design with a *one-group pretest-posttest* design, a research design involving a single group of respondents measured before and after the intervention. This design was used to assess the changes that occurred after the treatment was administered. This design was selected based on ethical considerations, namely that all eighth-grade students were entitled to receive the same

exposure to health information about HIV/AIDS, so that the intervention was not delayed for a subset of respondents as is typical in designs with a control group, in addition to considerations of time constraints and the research permit granted by the school. The population in this study consisted of all eighth-grade students at SMP Negeri 1 Godean, totaling 128 individuals. The sampling technique used was total sampling, so that the entire population meeting the inclusion criteria was included as respondents. The inclusion criteria were: (1) eighth-grade students present at the time of the study, (2) aged 13-15 years, and (3) willing to be respondents. The exclusion criterion was students who were uncooperative during questionnaire completion. The final sample size was 128 respondents.

The independent variable in this study was health education using video media on HIV/AIDS, while the dependent variable was adolescents' knowledge of HIV/AIDS. The intervention consisted of screening an educational video about HIV/AIDS produced by the researcher. The development process of the educational video went through several stages. The first stage involved preparing a storyboard and script based on a literature review of HIV/AIDS, covering its definition, modes of transmission, signs and symptoms, prevention, and treatment, referring to the Tie Dier concept (*Tune in, Identify, Explain, Demonstrate, Initiate, Evaluate, Reinforce*). The next stage involved producing the animated video and *dubbing* the Indonesian-language narration tailored to the language style of adolescents aged 13-15 years. Before being used in the study, the educational video first underwent content validation (*content validity*) by expert judgement consisting of lecturers or experts in adolescent reproductive health and lecturers or experts in health education media. The video duration was set at 4 minutes based on the recommendation of Parker et al. [9] that instructional video duration should range from 3-6 minutes to keep junior high school students' engagement and attention optimal.



Fig 1. Display of the Animated HIV/AIDS Educational Video Used in the Health Education Session

The data collection instrument used was a questionnaire adapted from Dareno's (2018) study at Universitas 'Aisyiyah Yogyakarta. The reliability of the instrument in this study was tested using Cronbach's Alpha formula with the assistance of SPSS software version 16.0. The

questionnaire was declared reliable by comparing the r-table value with the calculated r value. The reliability test results for the 21 valid questionnaire items showed a calculated r value of 0.970, indicating that the instrument has a high level of internal consistency and is therefore suitable for measuring respondents' knowledge in the context of this study.

The research consent procedure was carried out in stages. The researcher first explained the purpose, procedures, benefits, potential risks, data confidentiality, and respondents' right to refuse or withdraw without any consequence to the school. Given that all respondents were minors, parental/guardian consent (*parental consent*) was obtained collectively through the school. Research approval (*informed consent*) was obtained through a written consent form from the Guidance and Counseling (BK) teacher as the official representative of the school. In addition, the researcher also explained the study and requested verbal assent from students before completing the pretest questionnaire.

Data analysis used univariate analysis for frequency distribution and bivariate analysis using the *Wilcoxon Signed Rank Test* with a significance level of $\alpha = 0.05$, as the data were ordinal and not normally distributed. Data processing was performed using SPSS software. This study obtained ethical clearance from the Health Research Ethics Committee of Universitas 'Aisyiyah Yogyakarta No. 5237/KEP-UNISA/II/2026.

Results

A. Univariate Analysis

The study was conducted on 23 February 2026 at SMP Negeri 1 Godean. SMP Negeri 1 Godean is an A-accredited public junior high school established in 1968, located on Jl. Jae Sumantoro, Sidoluhur, Godean District, Sleman Regency, Special Region of Yogyakarta.

Table 1. Respondent Characteristics by Age and Sex

Characteristic	Frequency (n)	Percentage (%)
Age		
• 13 years	29	22.66
• 14 years	90	70.31
• 15 years	9	7.03
Sex		
• Male	51	39.84
• Female	77	60.16
Total	128	100

Based on Table 1, of the 128 respondents, the majority were aged 14 years, comprising 90 respondents (70.31%), followed by 29 respondents aged 13 years (22.66%) and 9 respondents aged 15 years (7.03%). By sex, there were 77 female respondents (60.16%) and 51 male respondents (39.84%).

Table 2. Frequency of Adolescent Knowledge about HIV/AIDS Before and After Health Education

Variable	Frequency (n)	Percentage (%)	Knowledge Category
Pre-test Knowledge			
• Good (76-100)	39	30.47	Good
• Fair (56-75)	77	60.16	Fair
• Poor (<56)	12	9.38	Poor
Post-test Knowledge			
• Good (76-100)	127	99,22	Good
• Fair (56-75)	1	0,78	Fair
• Poor (<56)	0	0	Poor
Total	128	100	-

Based on Table 2, the pretest results show that most respondents were in the fair knowledge category, with 77 respondents (60.16%), followed by the good category with 39 respondents (30.47%), and the poor category with 12 respondents (9.38%). After receiving health education using video media (posttest), 127 respondents (99.22%) were in the good knowledge category, and only 1 respondent (0.78%) remained in the fair category, with none in the poor category.

The data further show that of the 127 respondents in the good category at posttest, 125 respondents' scores had increased from pretest to reach the good category, while 2 respondents' scores had slightly decreased but remained within the good category range at both measurement points. Meanwhile, the 1 respondent in the fair category at posttest was a respondent whose score had increased (from 62% to 71%) but had not yet exceeded the threshold for the good category (≥76%).

B. Bivariate Analysis

Table 3 presents the results of the Wilcoxon statistical test to determine the effect of health education using video media about HIV/AIDS on adolescents' knowledge. If the Asym.sig(2-tailed) value is <0.05, then Ho is rejected, and Hα is accepted, meaning there is an effect of health education using video media on HIV/AIDS on adolescents' knowledge at SMP Negeri 1 Godean

Table 3. Difference in Knowledge Before and After Health Education Using Video Media on HIV/AIDS

Ranks				
		N	*Mean Rank*	*Sum of Ranks*
Post-Pre Knowledge	*Negative Ranks*	2[a]	2.50	5.00
	Positive Ranks	126[b]	65.48	8251.00
	Ties	0[c]		
	Total	128		

a. Post Test < Pre Test
b. Post Test > Pre Test
c. Post Test = Pre Test

Based on Table 3, it can be seen that:

a. Negative ranks, or the difference between pretest and posttest knowledge scores, show that 2 respondents experienced a decrease in knowledge level, where the posttest score was lower than the pretest score, with a mean rank of 2.50 and a sum of ranks of 5.00.
b. Positive ranks, or the difference between pretest and posttest knowledge scores, show that 126 respondents experienced an increase in knowledge level, where the posttest score was higher than the pretest score, with a mean rank of 65.48 and a sum of ranks of 8521.00.
c. Ties indicate that no respondents showed no change in knowledge level between pretest and posttest, i.e., their knowledge scores before and after the intervention remained the same.

The figure of 126 in the positive ranks refers to the number of respondents whose scores increased compared to the pretest, regardless of the final category reached at posttest, and thus differs from the figure of 127 in the good posttest category (Table 2), which refers to the number of respondents with an absolute posttest score ≥76. In detail, of the 126 respondents with positive ranks, 125 respondents' scores increased to reach the good category at posttest, while the remaining 1 respondent's score increased but only reached the fair category, as it had not yet exceeded the threshold for the good category. Meanwhile, the 2 respondents with negative ranks (posttest score lower than pretest score) still contributed to the figure of 127 in the good posttest category, because although their scores decreased, they remained within the good category range.

Based on these results, it can be concluded that most respondents experienced an increase in knowledge after receiving health education using video media, as indicated by the number of positive ranks being greater than the number of negative ranks. This indicates that health education using video media about HIV/AIDS is effective in improving the knowledge of eighth-grade adolescents at SMP Negeri 1 Godean.

Table 4. Effect of Health Education Using Video Media about HIV/AIDS on Adolescent Knowledge

***Test* Statistics[a]**	
	Post Test-Pre Test
Z	-9.822[b]
Asymp.Sig.(2-Tailed)	.000

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks

Based on Table 4, the Asymp.Sig. (2-Tailed) value is 0.000, which is smaller than the *p-value* of 0.05. In addition, the resulting Z value of −9.822 indicates a very strong effect size. The negative sign of the Z value is based on *negative ranks*, while the absolute value |Z| = 9.822 far exceeds the critical value of ±1.96 at α = 0.05, further strengthening the statistical evidence of an intervention effect. Thus, the alternative hypothesis (Hα) is accepted, and the null hypothesis (Ho) is rejected, meaning that health education using video media about HIV/AIDS has an effect on adolescents' knowledge at SMP Negeri 1 Godean.

Discussion

A. Respondent Characteristics

Based on the study results, the largest respondent age group was 14 years, with 90 respondents (70.31%), while the smallest was 15 years, with 9 respondents (7.03%). In this study, the age difference among respondents did not have a specific effect on the results, since ages 13-15 fall within the same category, namely middle adolescence. Respondents aged 13-15 years, classified as middle adolescents, are often referred to as being in a transitional period due to gradual physical, social, and psychological changes [10].

During the middle adolescent phase, individuals tend to experience unstable emotional changes, marked by anxiety about sexual attractiveness and the emergence of deep interest in the opposite sex, often accompanied by feelings of awkwardness. According to Purnomo et al. [11], the strong influence of peer environments encourages adolescents to try new things and take risks, even though the consequences are not yet fully understood.

This psychological condition is supported by the findings of Novembriyani & Darmita [12], which show a high likelihood of deviant sexual behavior among adolescents, including physical contact activities such as hugging up to acts leading to sexual arousal and sexual intercourse. On the other hand, age characteristics play an important role in determining the direction of behavioral development through cognitive maturation mechanisms. As age increases, an individual's ability to absorb, process, and analyze information also increases significantly. This change has a positive impact on broadening perspectives and forming a more mature mindset. With this increased knowledge capacity, adolescents are expected to develop wiser attitudes in decision-making, thereby reducing the risk of deviant behavior in their social interactions.

Based on the univariate analysis in Table 1, the respondent characteristics by sex show 51 male respondents (39.84%) and 77 female respondents (60.16%). A study conducted by Ismawati et al. [13] showed that sex was a distinguishing factor in HIV/AIDS knowledge levels (p=0.001; OR=22.203), with lower achievement among the male group. This is attributed to barriers rooted in masculine culture and a lack of relevant educational materials for males in

the school environment. In contrast, female adolescents showed greater openness toward reproductive health issues.

This finding is consistent with the study by Mandiwa et al. [14], which noted that although women have a high vulnerability risk with a prevalence of 4.9%, this group often shows a greater capacity to absorb information through education and media. The analysis showed that education was the strongest factor for women, with educated women having more comprehensive knowledge. In addition, regular exposure to media was shown to significantly improve their health literacy, with an AOR value of 1.27. This confirms that through access to appropriate education and information, female adolescents are better able to absorb knowledge compared to the male group, who are often hindered by cultural factors and a lower priority placed on reproductive health issues

These characteristics strongly support the reception of health information delivered through video or *audiovisual* media, which presents information in an engaging and easily understandable way suited to the characteristics of middle adolescents, so that health education messages, including those about HIV/AIDS, can be received and understood more effectively.

B. Adolescents' Knowledge of HIV/AIDS Before Health Education Using Video Media

Based on the univariate analysis in Table 3, the level of adolescents' knowledge about HIV/AIDS before health education using video media showed that the majority of respondents were in the fair category, at 60.16% (77 respondents), followed by the good category at 30.47% (39 respondents), and the poor category at 9.38% (12 respondents). This baseline condition reflects that although adolescents already had basic information about HIV/AIDS, their understanding was not yet comprehensive and still required more optimal reinforcement.

This phenomenon can be analyzed using Benjamin Bloom's Cognitive Domain Theory, which states that knowledge is the result of the process of "knowing," following an individual's sensory perception of a given object. At the *pretest* stage, most students at SMP Negeri 1 Godean had only reached the C1 (*remembering)* level, namely simply recalling terms, and C2 (*understanding),* namely grasping the general definition of HIV/AIDS, but had not yet been able to reach the C3 *(application)* or C4 *(analysis)* stages related to specific prevention methods [15].

The predominance of the fair category in this study is also linked to respondents' internal factors, namely their ability to absorb complex health information. Adolescents' suboptimal baseline knowledge is often influenced by limited access to engaging and interactive sources of information, so that the information received is not fully retained in the long term. This is consistent with research by Yuandari & Rahman [16] stating that the use of less varied educational media causes adolescents' knowledge levels to tend toward the moderate category, as the information received is not comprehensive.

In addition, the presence of 12 respondents (9.38%) in the poor category indicates that misconceptions or misunderstandings still exist among adolescents. Such misconceptions may arise from information delivery methods that are less effective and less engaging. A study by Fitriani et al. [17] showed that the choice of learning media greatly influences concept comprehension, and the use of visual-based media such as video can help reduce misconceptions compared to conventional text-based methods.

The audiovisual approach helps respondents reach not only the *remembering* and *understanding* levels, but also encourages them to reach higher cognitive levels, namely *applying*, *analyzing*, and even *evaluating*. Through the presentation of material in visual form accompanied by communicative narration, respondents find it easier to understand the information conveyed. In addition, they are also able to identify important information, relate it to their own experiences or circumstances, and assess the benefits and risks of health-related behaviors, particularly regarding HIV/AIDS. Thus, the use of audiovisual media can facilitate a deeper and more meaningful learning process in enhancing adolescents' cognitive aspects [18].

C. Adolescents' Knowledge of HIV/AIDS After Health Education Using Video Media

The study results show that after health education using video media and the *posttest* of knowledge about HIV/AIDS, it was found that nearly all respondents were in the good knowledge category, namely 127 respondents (99.22%), while 1 respondent (0.78%) was in the fair category, and no respondents were in the poor category (0.00%). These results indicate an increase in respondents' knowledge following health education using video media about HIV/AIDS.

Based on the bivariate analysis in Table 3, it was found that there were 126 positive data points *(positive ranks)* and 2 negative data points *(negative ranks),* meaning that nearly all respondents experienced an increase in knowledge following the intervention, with a mean of 65.48. These results indicate the success of the video-based health education conducted in this study. This success is inseparable from the thorough preparation of HIV/AIDS material, the use of language easily understood by respondents, respondents' interest and motivation, and the use of good-quality media. As a result, respondents' good-category knowledge is expected to encourage positive attitudes and behavior. Meanwhile, the small number of respondents (2 people) who experienced a decrease in knowledge score may have been influenced by various factors. This is consistent with the phenomenon described in the study by Mandiwa et al. [14] in which individual knowledge strongly depends on one's ability to effectively absorb the information received. This decrease may be caused by a lack of concentration during the intervention, individual differences in comprehension, and environmental factors that could not be fully controlled by the researcher.

According to Siola et al. [19] knowledge is the result of a systematic effort to understand something, encompassing cognitive and psychomotor aspects gained through education and experience. One method of acquiring knowledge is through video media, which optimizes respondents' visual and auditory functions in absorbing information. This absorption process allows knowledge to be well retained, which subsequently influences actual behavior. This is consistent with the statement by Kusnadi [20] that cognitive aspects are very important in determining a person's pattern of behavior, given that knowledge is a fundamental element that shapes attitudes and self-confidence.

The findings of this study align with the study conducted by Sary et al. [21], which noted that before health education using video media on HIV/AIDS was provided, 96 respondents (85.7%) had low knowledge levels and only 16 respondents had good knowledge. However, after the education session, all 112 respondents (100%) achieved the good knowledge category. These results demonstrate that the use of video media in HIV/AIDS education has a significant effectiveness in improving adolescents' knowledge.

The use of video as an educational medium offers advantages through the presentation of material that is engaging, concise, and suited to adolescents' characteristics. The achievement of a knowledge level of 99.22% in the good category at *posttest* demonstrates that video media is a highly effective educational tool for the adolescent age group; *audio-visual* media successfully facilitated respondents in absorbing health information, particularly about HIV/AIDS, more optimally.

D. Effect of Health Education Using Video Media about HIV/AIDS on Adolescent Knowledge

The results of the analysis test, shown in Table 3, using the *Wilcoxon* statistical test, were used to determine knowledge before and after health education using video media about HIV/AIDS. Based on these results, a significant difference in adolescent knowledge was found between values before and after the education session, with a *mean negative value* of 2.50 and a *positive* value of 65.48, an increase of 62.98, and a knowledge Z value of -9.822, with a significance value (*p)*=0.000 (*p value* <0.05).

The Z value in the *Wilcoxon Signed Rank Test* is a test statistic that describes the magnitude and direction of change occurring between two measurement conditions. The Z value of −9.822 obtained in this study indicates a very strong effect size. The negative sign of this Z value does not indicate a decrease in knowledge, but rather results from the fact that the statistical calculation is based on *negative ranks* (where the *posttest* score is lower than the *pretest*), as indicated by the *note about negative ranks* in the SPSS output in Table 4. Statistically, the critical Z value at a significance level of α = 0.05 (two-tailed test) is ±1.96. With |Z| = 9.822 far exceeding this critical value, this indicates that the increase in knowledge occurring after the

intervention is highly statistically significant. This very large Z value reflects the consistency of the score increase among nearly all respondents, where 126 of 128 respondents showed *positive ranks*, resulting in a very large difference in ranks between *pretest* and *posttest*. The larger the absolute Z value, the stronger the statistical evidence supporting an effect of the intervention on the measured variable. This indicates that health education using video media has an impact on improving adolescents' knowledge about HIV/AIDS.

Based on the results obtained, it can be concluded that there is an effect of health education using video media about HIV/AIDS on adolescents' knowledge at SMP Negeri 1 Godean; a $p < 0.05$ value indicates that health education using video media can improve adolescents' knowledge. The increase in adolescents' knowledge about HIV/AIDS before and after the education session is consistent with the study conducted by Wahyuni [22] that a $p= 0.000$ indicated an effect of health promotion about HIV/AIDS through *audio-visual* in improving students' knowledge about HIV/AIDS.

This study is consistent with the study previously conducted by Sary et al. [21] that knowledge, with a *p-value* of 0.001, showed a significant difference before and after the education session. The education session aimed to improve adolescents' knowledge and encourage schools to integrate health promotion programs routinely into teaching and learning activities, so that if adolescents have good knowledge, various types of risky sexual behavior can be avoided.

This study's findings are also supported by the study by Eza et al. [23], which stated that video media had a greater effect on improving adolescents' knowledge about HIV/AIDS compared to *booklet* media. The *p-value* of 0.000 (<0.05) indicates that there is a significant difference between knowledge before and after the intervention.

This study was conducted using a video-based health education method that allowed respondents to absorb material through both audio and visual channels directly. Consistent with the findings of Solikhah et al. [24], the use of *audio-visual* instruments was shown to be highly effective in improving adolescents' understanding, as it combines visual and auditory aspects simultaneously. This combination not only makes it easier for respondents to receive and understand the message conveyed, but also improves retention and creates a more interactive and engaging learning atmosphere.

The use of video media in this study was shown to have an impact in the form of increased knowledge as a health education method, particularly in broadening understanding of HIV/AIDS. According to the literature, visual media can optimize information comprehension and help ensure that respondents' retention remains accurate over a longer period. This is supported by the fact that the human brain can process information in image form up to 60,000 times faster than plain text [25].

The implementation of this video-based health education effectively improved students' knowledge at SMP Negeri 1 Godean, serving as a strategic preventive step in breaking the chain of HIV/AIDS transmission from an early stage. This approach created a more interactive learning atmosphere, in which students were allowed to discuss and clarify material that was difficult to understand. Overall, this video media successfully served as an important tool in deepening adolescents' knowledge of crucial health issues, particularly HIV/AIDS.

Conclusion

The univariate analysis results show that before health education was provided, most respondents were in the fair knowledge category, at 60.16% (77 respondents), the good category at 30.47% (39 respondents), and the poor category at 9.38% (12 respondents). After the health education intervention using video media, a marked increase in knowledge occurred, with 127 respondents (99.22%) in the good knowledge category and only 1 respondent (0.78%) in the fair category, with none in the poor category. The results of the *Wilcoxon Signed Rank Test* showed a Z value of −9.822 with a *p-value* = 0.000 ($p < 0.05$), meaning that there was a statistically significant increase in knowledge among adolescents at SMP Negeri 1 Godean after health education using video media about HIV/AIDS. Given that this study used a pre-experimental design without a control group, the causal relationship between the intervention and the increase in knowledge cannot yet be established with certainty. These findings indicate that the audiovisual media, developed independently and tailored to the characteristics of adolescents aged 13-15 years, has the potential to improve adolescents' knowledge. This study contributes to the development of a midwifery-based health education model in educational institutions and can serve as a basis for developing routine adolescent reproductive health intervention programs at the junior high school level, particularly in areas with a high prevalence of HIV/AIDS.

Limitations and Recommendations

This study has several limitations, including: a pre-experimental one-group pretest-posttest design without a control group for comparison, so that the observed increase in knowledge cannot be confirmed to be purely due to the video intervention, but may also have been influenced by a testing effect arising from completing the same questionnaire at pretest and posttest, as well as by cognitive maturation or exposure to information from other sources during the study period. In addition, this study did not include a long-term measurement to assess knowledge retention. The researchers recommend that future studies use a control group, conduct follow-up measurements to assess the sustainability of the knowledge increase, and reach more schools so that the sample used is more diverse and the study results are more representative of a larger population. Schools are expected to make HIV/AIDS education a

routine program in collaboration with health workers. Adolescents are expected to retain and apply the knowledge gained to avoid risky behavior.

Conflict of Interest

The authors declare no conflict of interest in this study

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