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Animated Video Versus Storytelling in School-Based Reproductive Health Education: A Quasi-Experimental Study of Adolescent Knowledge in Serdang Bedagai, Indonesia

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Abstract

Adolescent reproductive health knowledge supports safe decisions during puberty, yet school-based education in many Indonesian communities is limited by embarrassment and a shortage of engaging media. This quasi-experimental study compared the effects of animated video and storytelling education on reproductive health knowledge among eighth-grade students at a public junior high school in Serdang Bedagai, North Sumatra, Indonesia. Eighty-two students were enrolled through total sampling and assigned to an animated video group (n = 41) or a storytelling group (n = 41). Knowledge was measured with a 20-item questionnaire before and after the intervention and analyzed with paired and independent-samples t tests. Both interventions significantly improved knowledge ($p < .001$). At posttest, the animated video group scored higher than the storytelling group, $t(80) = 5.74$, $p < .001$. Animated video is a promising medium for school-based reproductive health education.

Keywords: Adolescent Reproductive Health, Animated Video, Storytelling, Health Education, Knowledge

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INTRODUCTION

Adolescence is a transitional period in which children move toward adulthood through rapid biological, psychological, and social change (Parnawi, 2021). Sexual maturation is accompanied by identity formation, growing autonomy, and wider peer influence, and these changes do not always progress in balance. Without adequate guidance, adolescents may struggle to interpret what is happening to their bodies and may make decisions that put their health at risk (Hapsari, 2019). Adolescents number roughly 1.2 billion worldwide, close to 18% of the global population, which makes them a strategic target group for public health programs (Parnawi, 2021). Reproductive health problems among Indonesian adolescents remain a serious concern. National statistics for 2023 indicated that 18.87% of adolescents aged 16 to 18 years were already married and that 2.32% had married before the age of 16, a pattern associated with early pregnancy and reproductive health complications (Kristiono et al., 2025). The same source reported that only 32.4% of adolescents had received sufficient information about reproductive health. Poor personal hygiene is also common. Ministry of Health survey data indicate that millions of adolescent girls experience genital itching linked to inadequate hygiene, particularly around menstruation (Kementerian Kesehatan Republik Indonesia, 2023). In North Sumatra, a 2025 screening found that 36% of female students had reproductive health problems such as irregular menstrual cycles, severe abdominal pain, vaginal discharge, or genital itching, and in Serdang Bedagai Regency 27% of adolescent girls reported problems related to menarche, dysmenorrhea, hygiene, or vaginal discharge (Dinas Kesehatan Provinsi Sumatera Utara, 2025). Embarrassment and taboo discourage open discussion, and structured reproductive health education is not consistently delivered in schools.

Knowledge is an important determinant of adolescent attitudes and behavior in this domain (Chotimah et al., 2022; Lestari, 2025). Health education is therefore a primary strategy for improving it, but its effectiveness depends heavily on how information is delivered. Lecture remains the most common approach in schools because it is systematic and can reach many students at once. However, it is a one-way didactic method whose impact depends on the communicator's skill and the learners' interest (Notoatmodjo, 2018). Adolescents who feel uncomfortable with sensitive topics may disengage from a purely verbal presentation, which has encouraged interest in media that are more attractive and participatory. Two such approaches are animated video and storytelling. Animated video combines moving images, narration, color, and sound, and it has been described as an effective learning material for school children (Zahroh et al., 2025). Its visual explanations can make abstract or sensitive content more concrete. Multimedia learning theory holds that people learn better from words and pictures together than from words alone (Mayer, 2009, as cited in Syafei, 2025), and video education has been associated with improved adolescent knowledge of reproductive health and menstrual hygiene (Andani et al., 2024; Deti, 2025). Storytelling, in contrast, places health messages inside a narrative that is familiar, emotionally engaging, and less likely to feel preachy (Mukhlis, 2023). It has been used to improve understanding of pre-menarche among students with visual impairment (Hakim et al., 2025) and of social concepts among junior high school students (Apriana et al., 2025).

Improving knowledge is not an end in itself, but it is the first step in the chain from information to attitude and practice. A student who cannot name the signs of puberty, does not know how often to change a sanitary pad, or is unaware of the risks of adolescent pregnancy cannot be expected to act protectively, however motivated she or he may be. Measuring knowledge change after a brief intervention is therefore a reasonable and practical first test of whether a method deserves wider adoption. Both approaches therefore have empirical and theoretical support, yet few studies have compared them directly within the same school setting for reproductive health knowledge among junior high school students. This comparison matters for schools and health workers who must choose among methods with limited time and resources. A preliminary survey at the study school found that six of ten students interviewed had poor reproductive health knowledge, and only two could explain reproductive health and menstrual hygiene well. The present study therefore tested three hypotheses: animated video education improves reproductive health knowledge (H1), storytelling education improves reproductive health knowledge (H2), and posttest knowledge differs between the two methods (H3).

Review of Literature

Table 1. Previous Studies on Video-Based and Storytelling Education in Adolescent and School Health

Author (Year)	Setting and Focus	Method and Medium	Main Findings	Difference From the Present Study
Kristin (2024)	UPTD SMP Negeri 5 Tobadak; knowledge of sexual violence	Education using animated video combined with storytelling	Knowledge increased significantly after the intervention	Topic was sexual violence, and the two media were combined rather than compared
Hakim et al. (2025)	Students with visual impairment; understanding of pre-menarche	Storytelling; phased design (baseline, intervention, second baseline)	Mean understanding rose from 45.18% (baseline 1) to 76.66% (intervention) and 90.36% (baseline 2)	Special-needs population and single-subject design; storytelling only, no comparison with video
Liza (2021)	SDN Junrejo 01 Batu; genital personal hygiene	Storytelling; Wilcoxon signed-rank test	Good behavior rose to 70.6% after the intervention	Outcome was behavior in elementary school

Author (Year)	Setting and Focus	Method and Medium	Main Findings	Difference From the Present Study
	behavior among female students		(before: 64.7% poor, 35.3% adequate); p < .001	students; no video comparison
Riana (2023)	SMKN 2 Kota Jambi; reproductive health knowledge	Animated video and booklet on personal hygiene	Significant pretest-posttest difference (p < .001)	Vocational high school sample; booklet rather than storytelling as the other medium
Bella and Setia (2024)	SMPN Satu Atap 1 Banama Tingang; menstrual hygiene knowledge among female students	Animated video versus leaflet; Wilcoxon and Mann-Whitney tests	Significant gain (p < .001; mean 88.54); video differed from leaflet (p = .002)	Focused on menstrual hygiene in girls; leaflet as the comparison medium
Castera (2021)	SMP N 14 Kota Bengkulu; knowledge of puberty among female students	Educational video; pretest-posttest	Mean score rose from 5.51 to 8.14 (gain of 3.41; p < .001)	Puberty topic only; single medium without a second intervention group
Hanan (2024)	Adolescents; reproductive health knowledge	Booklet versus lecture	Both improved (p = .001); no difference between methods (p = .457)	Booklet and lecture rather than animated video and storytelling
Amalia (2023)	Posbindu Pikbo, Desa Blondo; knowledge and attitudes about reproductive health	Online lecture with and without modification, with a control group; Mann-Whitney test	Knowledge differed between intervention and control (p = .011), as did attitudes (p < .001)	Online lecture medium and an out-of-school community setting

RESEARCH METHODS

Design

This study used a quasi-experimental pretest-posttest two-group design. One group received education through animated video (O1, X1, O2) and the other received education through storytelling (O1, X2, O2), where O1 and O2 denote the pretest and posttest and X1 and X2 denote the two interventions. Each group was analyzed against its own baseline, and the groups were then compared at posttest.

Setting and Participants

The study was conducted at SMP Negeri 1 Dolok Masihul, a public junior high school with A accreditation that has operated since 1976, located in Martebing, Dolok Masihul Subdistrict, Serdang Bedagai Regency, North Sumatra, Indonesia. Data collection took place within a study period running from September 2025 to May 2026. The population comprised all eighth-grade students at the school (N = 82). Total sampling was applied, so every student in the population was included, and 41 students were allocated to each group. Participation was voluntary, and students who agreed signed an informed consent form. The consent materials stated that data would be used for research purposes only and that identities would remain confidential.

Interventions

The animated video group watched an educational video on reproductive health lasting about 15 minutes. The researcher played the video to the end, followed by a brief question-and-answer session of about 5 minutes. The storytelling group received an educational lecture delivered in a storytelling format by the researcher, lasting about 10 to 15 minutes. Students listened, took notes on important points, and engaged in interactive dialogue, followed by a question-and-answer session of about 5 minutes. Both interventions addressed reproductive health topics covered by the questionnaire, including puberty, hygiene of the reproductive organs, menstruation, adolescent pregnancy, sexually transmitted infections, and adolescents' rights and responsible attitudes. To protect implementation quality, trained enumerators assisted with data collection and completed an observation checklist to confirm that both

groups received the intervention according to the procedure. Timing, session length, and the learning environment were kept equivalent across groups, dropouts were to be recorded, and pretest and posttest questionnaires were checked for completeness.

Instrument

Knowledge was measured with a structured questionnaire of 20 true-false items covering basic concepts of reproductive health, puberty, hygiene of the reproductive organs, menstruation, adolescent pregnancy, sexually transmitted infections, and responsible attitudes. Total scores were expressed on a 100-point scale, and knowledge was categorized as good, adequate, or poor. The questionnaire was pilot tested with 47 students at SMP Negeri 2 Dolok Masihul. Item validity was assessed with Pearson product-moment correlations between each item and the total score, and all 20 items were significant at the .05 level. Reliability was assessed with Cronbach's alpha, which was .921 for the 20 items and exceeded the critical value of .288 (Arifin, 2012), indicating that the instrument was reliable.

Procedure

After consent was obtained, students completed the pretest. They then received the intervention assigned to their group and, immediately afterward, completed the knowledge questionnaire again as the posttest, which took about 10 minutes. Enumerators collected the completed forms. Secondary data on student enrollment were obtained from the school register.

Data Analysis

Data were processed in five steps: collecting, coding, entering, processing, and cleaning, and were analyzed with SPSS. Descriptive statistics (frequencies, percentages, means, and standard deviations) summarized participant characteristics and knowledge scores. Normality was tested with the Shapiro-Wilk test, and homogeneity of variance with Levene's test. Because the assumptions were met, pretest-posttest changes within each group were tested with paired-samples t tests, and posttest differences between groups were tested with an independent-samples t test (a Mann-Whitney test was planned in case of non-normal data). The significance level was set at .05. Standardized mean differences (Cohen's d) were additionally calculated from the reported means and standard deviations for this article, using the average of the two standard deviations involved in each comparison.

RESEARCH RESULTS AND DISCUSSION

Participant Characteristics

Table 1 shows the characteristics of the 41 students in each study group, labeled Class A and Class B in the original data set. Most students were 13 years old (55 of 82, 67.1%) and the remainder were 14 years old. Girls made up the majority in both groups (60 of 82, 73.2%). The groups were comparable at baseline: mean pretest scores were 55.24 in the animated video group and 55.00 in the storytelling group, and the pretest category distributions were identical, as shown below. Because boys were also included, the findings should be read as reflecting general adolescent reproductive health knowledge rather than menstrual health alone.

Table 2. Characteristics of Participants by Study Group

Characteristic	Class A, n (%)	Class B, n (%)
Age		
13 years	27 (65.9)	28 (68.3)
14 years	14 (34.1)	13 (31.7)

Characteristic	Class A, n (%)	Class B, n (%)
Sex		
Female	28 (68.3)	32 (78.0)
Male	13 (31.7)	9 (22.0)
Total	41 (100.0)	41 (100.0)

Note. N = 82.

Item-Level Knowledge After Education

Table 2 presents selected items with the highest and lowest proportions of correct posttest answers among all 82 students. On average, students answered 79.0% of items correctly. Understanding was almost universal for the definition of reproductive health, adolescence as a transition period, the physical signs of puberty in boys and girls, and the appropriate time to begin education. Weak areas remained, however. Only 8.5% of students correctly defined puberty and only 28.0% identified the emotional changes that accompany it. Practical and preventive knowledge was also uneven: about half of students knew how often sanitary pads should be changed (52.4%) or identified a measure for preventing reproductive health problems (50.0%), and only 63.4% understood why pregnancy in adolescence is risky.

Table 3. Selected Items With the Highest and Lowest Correct Posttest Responses (N = 82)

Item	Topic	Correct, n	Correct, %
3	Adolescence as a transition period	82	100.0
1	Definition of reproductive health	81	98.8
5	Signs of puberty in boys	81	98.8
6	Signs of puberty in girls	81	98.8
16	Timing of reproductive health education	81	98.8
11	Risks of adolescent pregnancy	52	63.4
10	Frequency of changing sanitary pads	43	52.4
19	Preventing reproductive health problems	41	50.0
7	Emotional changes during puberty	23	28.0
4	Definition of puberty	7	8.5

Note. Items were selected from the full 20-item questionnaire

This pattern suggests that the visible, concrete aspects of puberty are easy for students to grasp, whereas conceptual definitions, psychological changes, and the specifics of hygiene practice are harder to retain. Such uneven results show that students absorb general messages readily but need repeated, targeted instruction on specifics. Future modules should therefore allocate more time to emotional development during puberty, correct hygiene routines, and preventive behavior, because these are the areas in which knowledge is directly linked to everyday health decisions.

Knowledge Categories Before and After Education

Tables 3 and 4 show how students were distributed across knowledge categories. Before education, 92.7% of students in each group (38 of 41) had poor knowledge and only 7.3% (3 of 41) had adequate knowledge. No student had good knowledge. This baseline is consistent with the preliminary survey and with national reports of limited access to adequate information (Kristiono et al., 2025).

Table 4. Knowledge Category Before and After Education in the Animated Video Group

Knowledge category	Pretest, n (%)	Posttest, n (%)
Good	0 (0.0)	22 (53.7)
Adequate	3 (7.3)	19 (46.3)
Poor	38 (92.7)	0 (0.0)
Total	41 (100.0)	41 (100.0)

After animated video education, no student remained in the poor category, 53.7% reached good knowledge, and the remaining 46.3% reached adequate knowledge. The shift was complete in the sense that every student who began with poor knowledge moved at least one category upward.

Table 5. Knowledge Category Before and After Education in the Storytelling Group

Knowledge category	Pretest, n (%)	Posttest, n (%)
Good	0 (0.0)	3 (7.3)
Adequate	3 (7.3)	36 (87.8)
Poor	38 (92.7)	2 (4.9)
Total	41 (100.0)	41 (100.0)

Storytelling also produced a large upward shift. Most students moved into the adequate category (87.8%), but only 7.3% reached good knowledge and two students (4.9%) remained poor. The contrast between Tables 3 and 4 is informative. Both methods moved nearly all students out of the poor category, but animated video was far more likely to move students all the way to good knowledge. This is consistent with the view that audiovisual media help learners retain more of what they are shown, because information received through both sight and hearing is easier to remember (Notoatmodjo, 2018).

Assumption Testing

Table 5 shows that pretest and posttest scores in both groups did not deviate significantly from normality, as all Shapiro-Wilk p values exceeded .05. The two posttest distributions were closest to the threshold ($p = .092$ and $p = .057$), but still acceptable. Homogeneity of variance was also satisfied (Levene's test, $p = .652$). Parametric tests were therefore appropriate.

Table 6. Shapiro-Wilk Tests of Normality

Group and measurement	W	df	p
Animated video, pretest	.958	41	.143
Animated video, posttest	.952	41	.092
Storytelling, pretest	.962	41	.196
Storytelling, posttest	.946	41	.057

Change in Knowledge Within Each Group

Table 6 summarizes pretest and posttest scores. In the animated video group, mean knowledge rose from 55.24 (SD = 8.21) to 83.29 (SD = 7.13), a gain of 28.05 points. In the storytelling group, mean knowledge rose from 55.00 (SD = 8.14) to 74.63 (SD = 6.46), a gain of 19.63 points. Both improvements were statistically significant ($p < .001$) and very large in standardized terms. Hypotheses H1 and H2 were therefore both supported.

Table 7. Pretest and Posttest Knowledge Scores Within Each Group (n = 41 per Group)

Group	Pretest M (SD)	Posttest M (SD)	Mean gain	p	d
Animated video	55.24 (8.21)	83.29 (7.13)	28.05	< .001	3.65
Storytelling	55.00 (8.14)	74.63 (6.46)	19.63	< .001	2.67

Note. Significance was tested with paired-samples t tests. d = standardized mean difference calculated from the reported means and standard deviations

The gain in the animated video group agrees with earlier work showing that video-based health education improves adolescents' knowledge of reproductive health and menstrual hygiene (Andani et al., 2024; Deti, 2025), and with evidence that animated video improves knowledge in other health topics among school children (Putri, 2025). It is also in line with general findings on the effectiveness of video as a learning medium (Fayzah et al., 2025). Several mechanisms are plausible. Knowledge is largely the product of sensory perception, mainly through sight and hearing, and information received through both channels is easier to understand and remember (Notoatmodjo, 2018). Edgar Dale's cone of experience similarly places audiovisual media closer to concrete experience than purely verbal communication (Dale, as cited in Sari, 2019). According to multimedia learning theory, combining narration with images and animation lets learners build understanding through visual and auditory channels at the same time (Mayer, 2009, as cited in Syafei, 2025). For a topic that students find sensitive and abstract, animation can also show body changes and hygiene practices without requiring a presenter to discuss them in an embarrassing way, although this explanation was not tested directly in the present study.

The gain in the storytelling group is consistent with research showing that narrative methods can raise understanding of sensitive health and social concepts (Apriana et al., 2025; Hakim et al., 2025). Stories connect new information to situations that students recognize from their own lives, which supports meaningful learning and encourages emotional engagement (Mukhlis, 2023). In this study, the interactive dialogue and note-taking built into the storytelling session probably also helped. Participatory approaches in general have been reported to improve adolescents' knowledge of menstrual hygiene, as in peer education programs (Nurhayati & Qothimah, 2023). The finding that both methods worked reinforces the point that reproductive health education delivered through an engaging, age-appropriate method can succeed even where information access is limited and the topic is considered taboo. The size of both gains is also worth noting. Starting from a mean near 55 points, a gain of 20 to 28 points moved most students from a level that the school would consider unsatisfactory to a level that is at least adequate. Given that each intervention lasted only about 15 to 20 minutes, including the question-and-answer session, the results indicate that even brief, well-designed sessions can meaningfully raise knowledge when students begin with very low baseline levels. An important caution applies to Table 6. Because each group was compared with its own baseline and the questionnaire was administered twice, part of the gain may reflect familiarity with the test items rather than learning alone. The large and consistent gains in both groups, and the clear differences in category shifts between them, nonetheless suggest that real learning occurred.

Comparison Between Groups

Table 7 compares posttest knowledge between the two groups. Students in the animated video group scored higher (M = 83.29, SD = 7.13) than students in the storytelling group (M = 74.76, SD = 6.32), a difference of about 8.5 points. The difference was statistically significant, $t(80) = 5.74$, $p < .001$, with a large standardized effect ($d = 1.27$). Hypothesis H3 was therefore supported: animated video produced higher posttest knowledge than storytelling.

Table 8. Independent-Samples t Test of Posttest Knowledge Between Groups

Group	n	M	SD	t(80)	p	d
Animated video	41	83.29	7.13	5.74	< .001	1.27
Storytelling	41	74.76	6.32			

Note. d = standardized mean difference calculated from the reported means and standard deviations

The size of the difference deserves comment. A gap of roughly 8.5 points on a 100-point scale corresponds to more than one standard deviation, and it was accompanied by a very different distribution across categories: 53.7% of students in the animated video group reached good knowledge, compared with 7.3% in the storytelling group, while no student in the video group remained in the poor category, compared with two students (4.9%) in the storytelling group. Because the two groups began from virtually identical baselines, the gap at posttest is unlikely to be an artifact of initial differences in knowledge, although the lack of randomization means that unmeasured differences between the two classes cannot be excluded. The advantage of animated video can be explained in several complementary ways. First, video allows learners to receive information through a visual and a verbal channel at once, whereas storytelling relies mainly on listening. Dual coding and multimedia learning perspectives both suggest that information processed through two channels forms stronger memory representations and reduces the cognitive load required to integrate new knowledge (Mayer, 2009, as cited in Syafei, 2025). In a storytelling session, students must build their own mental images from spoken words, and the quality of that process depends on their imagination and concentration. Second, the delivery of storytelling depends on the narrator, so quality can vary with the speaker's skill, intonation, and expressiveness, while a video delivers an identical message every time. Third, adolescents are generally attracted to visual, dynamic, and digital media, and an animation may sustain attention across a 15-minute session more easily than a verbal narrative of similar length. Evidence from elementary education points in the same direction, with animated video media associated with better learning outcomes and with more effective learning for school children (Zahroh et al., 2025). Fourth, early adolescents are moving toward abstract reasoning but still benefit from concrete representations, and reproductive health concepts such as hormonal change, hygiene routines, and disease transmission are easier to grasp when they are shown rather than only described.

The item-level results in Table 2 hint at one practical consequence of these mechanisms. Students performed best on content that is easily visualized, such as the physical signs of puberty, and worst on definitions and emotional changes, which are abstract. Although the item-level data were not analyzed by group, the greater advantage of video may lie in how well it conveys such content, and this should be examined in future work. The result should not be read as a verdict against storytelling. Storytelling still produced a significant and substantial gain (19.63 points), required no equipment, and encouraged dialogue. In schools without a projector, electricity, or digital resources, it remains a feasible alternative. The most promising option may be a combination in which an animated video delivers core information consistently and a facilitator then uses story-based discussion to personalize the message, address emotional aspects, and correct misunderstandings.

Interpreting the Findings in the School Context

The setting of this study makes the findings particularly relevant. Students in semi-rural subdistricts such as Dolok Masihul often have limited access to reliable reproductive health information outside school, and, as noted in the Introduction, embarrassment and taboo further restrict discussion at home and in class. In such a context, a medium that delivers accurate

content in a standardized and engaging way can partly compensate for uneven teacher confidence and the discomfort many educators feel when discussing reproductive topics. A video also gives students a neutral third party that speaks about the body and puberty, which may make it easier for them to ask questions afterward, as the short question-and-answer sessions in this study suggest. At the same time, a video cannot replace a trusted adult who can answer individual questions, so the role of teachers, school counselors, and health workers remains essential.

Practical Implications

For schools, the findings support the use of animated video as a core medium within reproductive health education, for example through the school health program (UKS) and counseling services. Because the video can be reused at no additional cost, it also offers an economical way to deliver consistent content across classes and cohorts. For health workers, particularly health promotion officers at community health centers, animated video can be used in school outreach to standardize messages. For education and health authorities, the results justify investment in locally appropriate animated materials and in training teachers and health workers to use them alongside interactive discussion.

Limitations

Several limitations should be considered. The study used a quasi-experimental design without randomization, and the groups were formed from intact classes in a single school, which limits causal inference and generalizability. The sample was small (N = 82). Only immediate posttest knowledge was measured, so retention over time and changes in attitudes or behavior remain unknown. The true-false format allows guessing, and the repeated administration of the questionnaire may have produced a testing effect. The two interventions also differed in mode of delivery and in the personal influence of the presenter, so differences between groups reflect the combined effect of medium and delivery rather than medium alone. Finally, the sample included both girls and boys, and the analyses did not examine whether effects differed by sex.

CONCLUSION

Both animated video and storytelling significantly improved reproductive health knowledge among eighth-grade students in Serdang Bedagai. Mean knowledge increased by 28.05 points in the animated video group and by 19.63 points in the storytelling group. At posttest, animated video produced significantly higher knowledge than storytelling, with a large standardized difference. Animated video also moved a much greater share of students into the good knowledge category. These findings suggest that animated video is the more effective of the two methods for short-term knowledge gain, while storytelling remains a useful, low-resource alternative. Schools and health workers are encouraged to adopt animated video as a main medium for reproductive health education and to pair it with facilitated discussion or story-based dialogue, with particular attention to the concepts students found hardest, namely the definition of puberty, emotional changes, correct hygiene practices, and the risks of adolescent pregnancy. Future research should use randomized or cluster-randomized designs, larger and more diverse samples, follow-up measurements to assess retention, and outcomes that include attitudes and behavior. Studies that test combined video and storytelling approaches, and that examine whether effects differ by sex, would further guide practice.

The novelty of this study lies in providing a direct quasi-experimental comparison of animated video and storytelling as two distinct educational communication approaches for

improving adolescent reproductive health knowledge within an Indonesian school-based context. Unlike previous studies that commonly evaluate reproductive health education media independently or focus primarily on the effectiveness of a single intervention, this study examines the comparative educational effects of audiovisual animation and narrative-based learning under the same study setting and outcome measurement framework. By demonstrating that both interventions significantly improve students' knowledge, while animated video produces significantly higher post-intervention scores than storytelling, this study provides empirical evidence of the differential effectiveness of visual-audiovisual and narrative pedagogical approaches in addressing sensitive reproductive health topics among adolescents. Its distinctive contribution is to extend the evidence base on school-based reproductive health education by identifying animated video as a potentially more effective communication medium for knowledge acquisition in contexts where embarrassment, limited classroom engagement, and sensitivity surrounding reproductive health may constrain conventional educational approaches. These findings offer practical implications for designing more engaging, contextually appropriate, and evidence-informed reproductive health education strategies in Indonesian schools, while recognizing that further studies involving diverse populations, longer follow-up periods, and behavioral outcomes are needed to establish the broader effectiveness and sustainability of these interventions.

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