

The Effect of Audiovisual-Based Sex Education on the Knowledge and Attitudes of Elementary School Students in the Prevention of Sexual Violence

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ABSTRACT

Sexual violence against children in Indonesia shows a concerning upward trend, with the number of victims reaching 9,588 in 2022. West Sumatra is recorded as one of the provinces with the highest number of victims, and Koto Tangah District has the highest incidence of child sexual violence in Padang City. Early sex education is one of the prevention strategies that can be implemented among elementary school-age groups. This study aims to determine the effect of audiovisual-based sex education on the knowledge and attitudes of elementary school students in the prevention of sexual violence.

This study employed a quasi-experimental design with a pretest-posttest with control group approach. The sample consisted of 96 fifth-grade elementary school students in Balai Gadang Village, Koto Tangah District, Padang City, divided into an intervention group (n=48) and a control group (n=48), selected using purposive sampling technique. The intervention consisted of the screening of two sex education videos produced by UNICEF in collaboration with the Ministry of Women's Empowerment and Child Protection (KemenPPPA) as part of the GN-AKSA campaign. Knowledge and attitudes were measured using a questionnaire adopted

from Neherta, which had been modified and tested for validity and reliability. Data were analyzed using the Wilcoxon Signed-Rank test for within-group changes and the Mann-Whitney test for between-group differences. The results showed a significant improvement in knowledge in the intervention group ($p < 0.001$) but not in the control group ($p = 0.102$). Similarly, regarding attitudes, a significant improvement was observed in the intervention group ($p < 0.001$) but not in the control group ($p = 0.642$). The Mann-Whitney test revealed significant differences in knowledge gain scores ($p < 0.001$) and attitude gain scores ($p < 0.001$) between the two groups. Audiovisual-based sex education was proven effective in improving the knowledge and attitudes of elementary school students regarding sexual violence prevention. Audiovisual media is recommended as a health education method that can be integrated into school health programs.

Keywords: sex education, audiovisual, knowledge, attitudes, sexual violence, elementary school students

INTRODUCTION

Sexual violence against children is a serious problem that resembles an iceberg phenomenon — the number of cases that

actually occur is far greater than those that are reported and followed up. The World Health Organization (WHO) estimates that 1 in 5 women and 1 in 7 men worldwide experience sexual violence during childhood.^[1] The results of the National Survey on Children's and Adolescents' Life Experiences (SNPHAR) indicate an increase in the prevalence of sexual violence within the previous 12 months. In 2021, approximately 1 in 100 male children and 3 in 100 female children experienced sexual violence. This figure increased in 2024 to approximately 4 in 100 male children and 5 in 100 female children experiencing sexual violence. Administrative data trends from the Online Information System for the Protection of Women and Children (Simfoni PPA) also show a consistent year-on-year increase in the number of cases, namely 8,703 cases in 2021, rising to 9,588 cases in 2022, 10,932 cases in 2023, and 11,770 cases in 2024.^[2, 3, 4, 5, 6]

West Sumatra recorded a concerning development, rising from 14th place among provinces with the highest number of sexual violence victims in 2020 with 187 cases, jumping to 5th place in 2021 with 472 victims, and despite declining to 361 victims in 2022, the province still ranked 8th nationally.^[4, 5, 6] At the city level, data from P2TP2A Padang City indicate that child sexual violence cases fluctuated but remained high, with 23 cases in 2019, 20 cases in 2020, and rising again to 22 cases in both 2021 and 2022. Koto Tangah District was recorded as the area with the highest incidence of child sexual violence in Padang City in 2022, with 13 cases. Data from the Padang City Police (POLRESTA) further revealed two cases of sexual violence in Balai Gadang Village in April 2023, occurring in the Air Dingin and Sungai Bangek areas.

A preliminary study conducted through interviews with the principals of SDN 30 Air Dingin and SDN 21 Sungai Bangek revealed that no education on sexual violence prevention had ever been implemented in either school. The lower-

middle socioeconomic background of the students further reinforces the urgency of preventive intervention in this setting.

Knowledge is a critically important domain in shaping a person's behavior. Children with low knowledge of sexual violence are more vulnerable to becoming victims and more easily manipulated by perpetrators. Low levels of knowledge also directly affect children's attitudes in responding to situations that carry a risk of sexual violence, given that knowledge is one of the key factors in shaping attitudes.^[7, 8, 9] Sex education for children aims to equip them with accurate information about the body, reproduction, and sexuality, while simultaneously fostering positive values and self-protection skills against the risk of sexual violence.^[10]

Based on Piaget's theory of cognitive development, children aged 11 years have entered the formal operational stage and are capable of understanding and applying sex education material in their daily lives. In line with this, Kohlberg's theory of moral development explains that elementary school-age children are in transition from the pre-conventional to the conventional stage; therefore, learning about sexual violence prevention values must be adapted to this stage of moral development so that the attitudes formed are more meaningful.^[11, 12, 13]

Audiovisual media, particularly animated videos, are considered an effective learning medium for improving children's knowledge and attitudes. Videos present a combination of moving images and sound that creates a more meaningful learning experience, provides stronger stimulation than reading text, and is capable of capturing attention and preventing boredom, making the material easier to understand and retain.^[14, 15] A study by Pawestri et al.^[16] demonstrated that improvements in knowledge and attitudes among adolescents who used video media were greater than those who used leaflets. Research by Margaretta and Kristyaningsih^[17] also showed that sex education delivered through

animated videos was effective in improving knowledge and shaping sexual violence prevention behavior among school-age children. Studies by Amalia et al.^[18] and Ninawati and Handayani^[19] further confirmed that sex education has a significant effect on both the incidence of sexual violence and behavioral responses to it among children.

Based on the foregoing, this study aims to determine the effect of audiovisual-based sex education on the knowledge and attitudes of elementary school students regarding sexual violence prevention in Balai Gadang Village, Koto Tengah District, Padang City.

MATERIALS & METHODS

This study is quantitative research using a quasi-experimental design with a pretest-posttest with control group approach. The study was conducted at SDN 30 Air Dingin and SDN 21 Sungai Bangek, Balai Gadang Village, Koto Tengah District, Padang City, from April to July 2025, encompassing the stages of instrument preparation, intervention implementation, and data collection and processing.

The study population consisted of all fifth-grade students of SDN 30 Air Dingin and SDN 21 Sungai Bangek, totaling 174 students. Based on sample size calculations, a minimum of 43 participants per group was required. With an additional 10% to anticipate potential dropout, the total sample used was 48 participants for the intervention group and 48 for the control group (total $n=96$). Samples were selected using purposive sampling technique. Inclusion criteria were: fifth-grade students willing to participate with parental consent through signed informed consent; students not in a state of illness; and students without cognitive impairment. The exclusion criterion was students who were absent during the study.

The intervention was delivered using two sex education videos produced by UNICEF in collaboration with the Ministry of Women's Empowerment and Child

Protection (KemenPPPA) as part of the National Movement Against Child Sexual Crime (GN-AKSA) campaign, titled "Si Geni" (duration: 1 minute 58 seconds) and "Si Aksa" (duration: 2 minutes), with a total duration of 3 minutes 58 seconds. The dependent variables were measured using knowledge and attitude questionnaires adopted from Neherta^[20], with modifications. The knowledge questionnaire consisted of 10 items assessed as correct or incorrect, and the attitude questionnaire consisted of 10 items assessed on a Likert scale. All items in both questionnaires were declared valid, with a Cronbach's Alpha of 0.822 for the knowledge questionnaire and 0.867 for the attitude questionnaire.

The study was conducted in three stages. The first day was used for coordination with the school and distribution of informed consent forms to students to be signed by their parents or guardians. On the second day, a pretest was administered to both groups, with a completion time of approximately 30 minutes. On the third day, the intervention group received audiovisual-based sex education through two consecutive screenings of the videos "Si Geni" and "Si Aksa", with a 3-minute micro-spacing session consisting of light reflective questions between the two screenings. Immediately following the intervention, a posttest was administered to the intervention group, while the control group received the posttest on the same day without receiving any intervention. This study received ethical approval from the Ethics Committee of the Faculty of Medicine, Universitas Andalas, with reference number: 446/UN.16.2/KEP-FK/2025.

Statistical Analysis

For frequency distribution of variables, univariate analysis was conducted. Bivariate analysis was done using Wilcoxon signed rank test for within group comparison while the Mann-Whitney test was used for gain score comparison across groups. All analyses were conducted using SPSS 26.0

where the significance level was considered to be $p < 0.05$. Effectiveness of intervention was analyzed using N-Gain Score where the classification of scores is: <40 (very ineffective), $40 - 55$ (ineffective), $56 - 75$ (moderate), >76 (very effective).

RESULT

The study was conducted on 96 individuals who were equally divided into two groups consisting of 48 participants each. From Table 1, it is evident that the gender composition in both the groups is similar, where there were 28 male students (58.3%) and 20 female students (41.7%) in each group, with p -value of 1.000.

Table 1. Frequency Distribution of Respondent Characteristics

Respondent Characteristics		Intervention Group		Control Group		p
		f	%	f	%	
Sex	Male	28	58.3	28	58.3	1.000
	Female	20	41.7	20	41.7	

Based on Table 2, the majority of household heads (HH) in the intervention group had completed senior high school as their highest level of education (50.0%) and worked as laborers (56.3%). The same pattern was observed in the control group.

Homogeneity tests on the highest level of education of HH ($p=0.341$) and occupation of HH ($p=0.793$) indicated that both groups were homogeneous in terms of both educational background and occupation.

Table 2. Frequency Distribution of Respondents' Household Head (HH) Characteristics

Respondent Characteristics		Intervention Group		Control Group		p
		f	%	f	%	
HH Last Education	Did Not Complete Elementary School	2	4.2	2	4.2	0.341
	Elementary School	3	6.3	7	14.6	
	Junior High School	5	10.4	10	20.8	
	Senior High School	24	50.0	19	39.6	
	University/College	14	29.2	10	20.8	
HH Occupation	Laborer	27	56.3	27	56.3	0.793
	Private Employee/State-Owned Enterprise	7	14.6	8	16.7	
	Self-Employed	8	16.7	6	12.5	
	Civil Servant	5	10.4	7	14.6	
	Retired	1	2.1	-	-	

Table 3 shows the description of knowledge of respondents before and after the intervention. Pre-test results revealed that most of the respondents in the experimental group had good knowledge (54.2%). Post-

intervention, there was an increase in the number of respondents having good knowledge in the experimental group (87.5%), but there was no change in the control group (60.4%).

Table 3. Description of Knowledge about Sexual Violence Prevention Before and After Intervention

Time	Knowledge	Group			
		Intervention		Control	
		n	%	n	%
Pretest	Poor	6	12.5	9	18.8
	Moderate	16	33.3	10	20.8
	Good	26	54.2	29	60.4
Posttest	Poor	2	4.2	9	18.8
	Moderate	4	8.3	10	20.8

	Good	42	87.5	29	60.4
Total		48	100	48	100

Respondents' attitudes pre-intervention and post-intervention are illustrated by Table 4 below. The prevalence of positive attitudes within the intervention group rose from

93.8% to 95.8% whereas those within the control group only increased marginally from 85.4% to 87.5%.

Table 4. Description of Attitudes Regarding Sexual Violence Prevention Pre and Post-Intervention

Time	Attitude	Group			
		Intervention		Intervention	
		n	%	n	%
Pretest	Negative	3	6.3	7	14.6
	Positive	45	93.8	41	85.4
Posttest	Negative	2	4.2	6	12.5
	Positive	46	95.8	42	87.5
Total		48	100	48	100

From Table 5, it is evident that the median knowledge score of the intervention group rose from 8 to 9 after the intervention

($p < 0.001$) while that of the control group remained unchanged ($p = 0.102$).

Table 5. Knowledge Differences Before and After Intervention in Each Group

Group	Before		After		p-value
	Median	Min-Max	Median	Min-Max	
Intervention	8	3-10	9	5-10	0.000
Control	8	1-10	8	1-10	0.102

Table 6 reveals that the median gain knowledge score for the intervention group was higher at 1.00 (range: 0-6) compared to that of the control group, which was 0.00

(range: 0-2). The output from the Mann-Whitney test was $p < 0.001$. For the N-Gain Score test, the output was 57%, which is moderately effective.

Table 6. Difference in Knowledge Change between the Intervention Group and the Control Group

Group	n	Median	Min-Max	Bivariate Test	p-value
Intervention	48	1.0	0-6	Mann Whitney	0.000
Control	48	0	0-2		

As per Table 7, there was an increase in attitude scores from 40 to 45 for the intervention group after the intervention

program ($p < 0.001$); however, no statistically significant difference was observed for the control group ($p = 0.642$).

Table 7. Difference in Attitudes Pre and Post Intervention within Groups

Group	Before		After		p-value
	Median	Min-Max	Median	Min-Max	
Intervention	40	20-50	45	23-50	0.000
Control	42	14-50	42	14-50	0.642

Table 8 shows that the median attitude gain score of the intervention group (4.00; range 0–22) was considerably higher than that of the control group (0.00; range –4 to 2). The

Mann-Whitney test result showed $p < 0.001$. The N-Gain Score test result indicated a value of 48% (ineffective).

Table 8. Differences in Attitude Change Between the Intervention Group and the Control Group

Group	n	Median	Min-Max	Bivariate Test	p-value
Intervention	48	4.0	0-22	Mann Whitney	0.000
Control	48	0	(-4)-2		

DISCUSSION

The homogeneity test showed that the sex distribution between the intervention and control groups was balanced ($p=1.000$). Data from the National Survey on Children's and Adolescents' Life Experiences (SNPHAR) indicate an increase in the prevalence of sexual violence within the previous 12 months among children aged 13–17 years, both in male children, from 1.41% in 2021 to 3.81% in 2024, and in female children, from 3.45% in 2021 to 4.50% in 2024.^[3, 21] This increase affirms that sexual violence prevention education needs to be provided to all children regardless of sex, given that vulnerability to sexual violence is not confined to a single gender group.

The household head characteristics of both groups were also homogeneous, both in terms of education ($p=0.341$) and occupation ($p=0.793$). The majority of household heads worked as laborers, reflecting a lower-middle socioeconomic status. This is relevant given that socioeconomic status is one of the risk factors for child sexual violence. Satar et al.^[21] reported that more than 80% of child sexual violence victims come from low socioeconomic backgrounds. Research by Fallo and Sumarni^[22] showed that children with household heads of low educational attainment are 4.1 times more likely to become victims of sexual abuse compared to children with household heads of high educational attainment. These findings further reinforce the urgency of intervention in this study population.

Knowledge Before and After Intervention

Prior to the intervention, the majority of respondents in both groups were already in the good knowledge category (54.2% intervention; 60.4% control). Nevertheless, there were still respondents with moderate and poor knowledge, indicating that

understanding of sexual violence prevention was not yet evenly distributed. Following the audiovisual-based sex education intervention, the proportion of respondents with good knowledge in the intervention group increased significantly from 54.2% to 87.5%, while no change occurred in the control group.

The high proportion of respondents in the good category before the intervention is presumed to be related to character education content and self-protection awareness that has been integrated into thematic learning through the Pancasila Student Profile Strengthening Project (P5) within the Merdeka Curriculum, which, according to Putri et al.^[23], provides students with learning experiences to recognize and protect themselves from sexual abuse through cross-stakeholder project activities (schools, parents, health workers, and law enforcement officials). The significant improvement in knowledge following the audiovisual intervention in this study is also consistent with the findings of Billa and Solikhah^[24], who reported the effectiveness of the VISIKARKES media in improving early reproductive knowledge among elementary school-age children (mean pretest 66.77 to posttest 88.02; $p=0.001$). These findings align with studies by Solehati et al.^[25], Ferisca^[26], and Sari^[27], which also reported significant improvements in knowledge following video-based interventions.

The above improvement could also be explained using the sensory theory proposed by Notoatmodjo^[28], according to which humans obtain most of their knowledge through the senses of sight and hearing. In this way, audiovisual media optimizes the use of both sensory channels. It corresponds to the Dual Coding Theory in that the combination of verbal narration and concrete visualizations allows for information processing in parallel, thus

enhancing memory retention.^[29] Moreover, the cognitive theory of multimedia learning suggests that through synergy of text, sound, and images, meaningful mental representations are formed, thus improving the encoding and recall of information.^[30] The micro-spacing strategy used in this research, which included reflective questions between the two viewings of the video, was another factor contributing to the improvement of memory retention. As a result, retrieval practice, known to facilitate memory consolidation, is triggered.^[31] Moreover, viewing of the video provided an opportunity for its re-encoding, reinforcing previously obtained information.

Attitudes Before and After Intervention

Prior to the intervention, the majority of respondents in both groups already demonstrated positive attitudes toward sexual violence prevention (93.8% intervention; 85.4% control). The high proportion of positive attitudes from the outset is closely related to the already good baseline level of knowledge, consistent with the view of Wawan and Dewi^[32] that attitude formation is strongly influenced by knowledge. This is also in line with Notoatmodjo's^[7] theory, which states that knowledge is the first step a person takes in determining their attitude. Following the intervention, the proportion of positive attitudes in the intervention group increased to 95.8%, while the control group increased only marginally to 87.5%. The more meaningful change in the intervention group indicates that audiovisual media was effective in reinforcing and internalizing the values of sexual violence prevention. These results are consistent with Solehati et al.^[25] and Nuraini et al.^[33], who found improvements in positive attitudes following video-based education. A study by Chen and Ismail Kamal^[34] also demonstrated that interactive animation significantly improved children's knowledge and attitudes toward sex education compared to a control group using only conventional animation ($p < 0.01$), with the

intervention group showing improvements in the dimensions of gender roles, sexual physiology knowledge, and emotional understanding.

This change in attitudes can be explained through the Theory of Planned Behavior, which states that attitude toward a behavior is the primary determinant in the formation of intention and action.^[35] Exposure to audiovisual media provides a deeper and more emotional understanding, which reinforces positive attitudes toward sexual violence prevention. Social Learning Theory also explains that attitudes can be learned through observation and modeling, so that characters in the video who display sexual violence prevention behaviors directly encourage students to internalize those values.^[36]

Differences in Knowledge Change Between the Two Groups

Results from the Wilcoxon Signed-Rank test revealed a significant difference in knowledge level in the intervention group ($p < 0.001$) while there was no significant difference in the control group ($p = 0.102$). Further findings on gain scores supported this conclusion. The median gain score of 1.00 in the intervention group is an indication that half of the students gained at least one point, while the range 0–6 is an indication that some students gained up to six points. On the other hand, the median gain score of 0.00 in the control group shows that most of the students gained nothing in terms of knowledge, while the range of 0–2 is an indication that the gains made in this group were very few. This was confirmed by the Mann-Whitney test ($p < 0.001$).

These results are consistent with the study by Putri and Kurniasari^[37], which found a significant effect of sex education video screenings on the knowledge of fifth-grade elementary school students, as well as a study by Jha et al.^[38] in India, which demonstrated a significant improvement in knowledge scores in the experimental group compared to the control group following

instruction on sexual abuse using video. The N-Gain Score test result of 57% falls within the moderately effective category.

Differences in Attitude Change Between the Two Groups

The Wilcoxon Signed-Rank test found a significant increase in the attitudes of the intervention group ($p < 0.001$) but there was no significant difference in the attitudes of the control group ($p = 0.642$). In addition, the gain score analysis showed an impressive difference, in which the median gain score of 4.00 among the intervention group means that half of the students had an increase in their attitude scores by at least four points, ranging from 0–22, with some students having their attitude improved by 22 points; whereas the median gain score of 0.00 in the control group shows that majority of the students had no change in their attitudes, ranging from –4 to 2, implying that not only did the majority of the students show no change in their attitude scores, but some even showed negative attitude scores. The Mann-Whitney test further validated a significant difference between the two groups ($p < 0.001$).

These findings are consistent with the study by Ulfah ^[39], which reported a greater increase in attitude scores in the treatment group compared to the control group (15.18 vs. 11.54) with $p < 0.001$, as well as the study by Nuraini et al. ^[33], which concluded that health education using animated video media was effective and had a significant effect on children's attitudes toward the prevention of sexual abuse. Isnaini et al. ^[40] also demonstrated that animated videos are capable of helping children distinguish between correct and incorrect behaviors through concrete examples, with 80% of children understanding moral values after watching educational animated videos. The N-Gain Score for attitudes of 48% falls within the ineffective category. This value is likely attributable to the high pretest scores of the respondents, which limited the room for improvement (ceiling effect), as well as the relatively small pretest-posttest

difference. Nevertheless, the statistical test results continued to show a significant difference between the two groups, demonstrating that the intervention still produced a meaningful impact on attitude change.

Limitations of the Study

This study has several limitations that should be noted. First, the initial distribution of knowledge and attitudes among respondents in the intervention group was already relatively high in the good and positive categories, which limited the measurable room for improvement (ceiling effect). Second, the relatively short duration of the intervention does not fully capture the long-term effects on knowledge retention and consistency of students' attitudes. Third, the use of purposive sampling from two elementary schools in a single village limits the generalizability of the findings. The specific social, cultural, and economic characteristics of Balai Gadang Village, Koto Tangah District, Padang City, may differ from those of elementary schools in other areas; therefore, the results of this study cannot be directly generalized to a broader population.

CONCLUSION

This study demonstrates that audiovisual-based sex education has a significant effect on improving the knowledge and attitudes of elementary school students regarding sexual violence prevention. A significant improvement in knowledge was observed in the intervention group following the audiovisual-based sex education ($p < 0.001$), while the control group showed no significant change ($p = 0.102$). Similarly, regarding attitudes, a significant improvement was found in the intervention group ($p < 0.001$), while the control group showed no significant change ($p = 0.642$). The differences in knowledge and attitude gain scores between the two groups were statistically significant ($p < 0.001$). Audiovisual-based sex education was moderately effective in improving students'

knowledge, with an N-Gain Score of 57%, while for attitudes an N-Gain Score of 48% was obtained.

Recommendations

Based on the findings of this study, audiovisual-based sex education is recommended as a health education method that can be integrated into school health programs, particularly in efforts to prevent sexual violence among elementary school-age children. Schools and health professionals are encouraged to utilize readily available and fair-use audiovisual media, such as videos produced by UNICEF in collaboration with KemenPPPA, as part of promotive and preventive activities within the school setting. Future research is advised to employ a randomized controlled trial (RCT) design with a broader and more representative sample, as well as to increase the duration and frequency of the intervention and include a follow-up measurement of at least one month after the intervention to assess the long-term effects on knowledge retention and consistency of students' attitudes. It is also recommended to consider groups with more diverse baseline knowledge and attitude characteristics to minimize the ceiling effect.

Declaration by Authors

Ethical Approval: Approved by the Ethics Committee of the Faculty of Medicine, Universitas Andalas, No. 446/UN.16.2/KEP-FK/2025

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