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The Relationship Between Interactive Videos and Knowledge of Personal Boundaries as a Preventive Measure Against Sexual Harassment Among Pupils at SDN 11 Bukit Apit Puhun, Bukittinggi, in 2026

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ABSTRACT

Abstract: Child sexual abuse remains a public health problem with long-term physical and psychological consequences. Children's limited knowledge of private body areas increases their risk of sexual abuse, so educational media that suit children's developmental characteristics are needed. This study aimed to determine the association between interactive video and knowledge of private areas as an effort to prevent sexual abuse among pupils of SDN 11 Bukit Apit Puhun, Bukittinggi, in 2026. This quantitative study used a pre-experimental one group pretest-posttest design and was conducted in May–June 2026. A total of 49 fourth- and fifth-grade pupils were recruited through total sampling. The instrument was a 10-item multiple-choice knowledge questionnaire (r=0.540–0.783; Cronbach's Alpha=0.825). Data were analysed univariately and bivariately. The Shapiro-Wilk test showed that the data were normally distributed (p=0.069 and p=0.079); therefore, a Paired Sample T-Test was used. The mean knowledge score before the intervention was 5.32 (SD=1.19; min 4; max 7) and increased to 8.46 (SD=1.06; min 7; max 10) afterwards, a gain of 3.14 points. The Paired Sample T-Test yielded p=0.000 (p<0.05), indicating a significant association between the interactive video and the improvement of pupils' knowledge of private areas. It is concluded that interactive video is associated with improved knowledge of private areas and sexual abuse prevention. Schools are advised to integrate interactive video media into health education as a preventive measure.

Keywords: *interactive video; knowledge; private areas; sexual abuse; primary school pupils*

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Introduction

Sexual abuse is a form of sexual violence involving sexually inappropriate acts or behaviour, such as unwanted touching, that violates the boundaries of a child's bodily privacy and causes discomfort. Private body areas refer to an individual's understanding, particularly a child's, of certain body parts that are personal and must not be accessed, seen, or touched by others without consent. Law of the Republic of Indonesia Number 23 of 2002 on Child Protection defines a child as a person under 18 years of age, including an unborn child, and this age group is at risk of sexual abuse, particularly as they approach puberty (Utami et al., 2025).

Globally, the World Health Organization (2026) estimates that up to one billion children aged 2–17 years experience physical, sexual, or emotional violence each year, and that approximately 120 million girls have experienced sexual abuse before the age of 20. A review in Asia reported a high prevalence of child sexual abuse, namely 11.3% among girls and 4.1% among boys, with most cases going unreported because of the stigma borne by victims and their families (Solehati et al., 2021).

In Indonesia, data from the Online Information System for the Protection of Women and Children (SIMFONI-PPA) recorded 15,396 cases of abuse against children throughout 2025, an increase from 14,335 cases in the previous year, including 2,024 cases among children aged 0–5 years and 4,655 cases among children aged 6–12 years (Ministry of Women's Empowerment and Child Protection of the Republic of Indonesia, 2026). Sexual violence in West Sumatra Province has been categorised as an emergency, with approximately 700 cases in 2025. Bukittinggi City ranked fourth in the province with 53 cases spread across three sub-districts (Statistics Indonesia of West Sumatra Province, 2023).

Sexual abuse of children is influenced by children's limited knowledge of private areas and personal boundaries, which leaves them unable to recognise or refuse inappropriate acts and makes them likely to remain silent and not report what they have experienced. Education on private areas, safe and unsafe touch, and how to report incidents is therefore important from primary school age onwards (Nathasya, 2024).

Delivering such education requires appropriate media so that understanding and information retention improve. Interactive video enables pupils to participate actively through questions, quizzes, and simulations, thereby increasing engagement with and comprehension of the material (Siregar et al., 2025). This is consistent with Edgar Dale's Cone of Experience, which states that learning involving direct experience and active participation, such as through interactive audiovisual media, improves learners' retention and understanding (Syamsidar et al., 2018).

Previous studies have developed various educational media for preventing sexual violence against children. Nathasya (2024) showed that educational dolls were significantly associated with improved knowledge among children ($p=0.003$). Hajri et al. (2025) reported that animated video media improved children's knowledge by combining visual and audio elements ($p<0.05$), while Nusantara (2026) demonstrated that pop-up books effectively helped children understand which body parts should be protected.

Nevertheless, these media remain largely one-directional and do not optimally involve active pupil participation. Earlier studies have also not specifically examined the use of interactive video to improve knowledge of private areas among fourth- and fifth-grade primary school pupils, particularly in Bukittinggi City. The novelty of this study lies in the use of an interactive video designed specifically for the characteristics of primary school children through an interactive and participatory approach. SDN 11 Bukit Apit Puhun was selected because the school had never received any education on the prevention of sexual violence and abuse, either from related agencies or from the school itself.

This study aimed to determine the association between the provision of interactive video on private areas and the improvement of knowledge among fourth- and fifth-grade pupils as an effort to prevent sexual abuse at SDN 11 Bukit Apit Puhun, Bukittinggi City, in 2026. Specifically, the study identified respondent characteristics, the mean and level of pupils' knowledge before and after the intervention, the magnitude of the improvement, and the association between the two variables.

Methods

Study Design

This quantitative study applied a pre-experimental design with a one group pretest-posttest arrangement. The design was chosen because it directly measures changes in knowledge after an intervention, through a baseline measurement (O_1) before treatment, the delivery of health promotion using interactive video media (X), and a repeated measurement (O_2) after the intervention.

Research Location and Timeline

The study was conducted at SD Negeri 11 Bukit Apit Puhun, Bukit Apit Puhun Village, Guguk Panjang Sub-district, Bukittinggi City, West Sumatra Province, from May to June 2026.

Population and Sampling Technique

The population comprised all fourth- and fifth-grade pupils of SD Negeri 11 Bukit Apit Puhun. Total sampling was used, meaning that all members of the population who met the inclusion criteria became respondents, yielding 49 pupils consisting of 20 fourth-grade and 29 fifth-grade pupils. The inclusion criteria were actively enrolled pupils who were willing to participate in all research activities, able to read, and physically and mentally healthy. Pupils who did not meet these criteria were excluded.

Data Collection Procedures and Instruments

Primary data were collected using a questionnaire administered before (pretest) and after (posttest) the interactive video was delivered. The instrument was adopted from Nathasya (2024) and modified with respect to the material indicators, namely the definition of private areas, body parts classified as private areas, the concept of safe and unsafe touch, and ways to prevent and report sexual violence. The questionnaire consisted of 10 multiple-choice items with four answer options; a correct answer scored 1 and an incorrect answer scored 0. Validity testing using Product Moment correlation on 20 respondents produced r values of 0.540–0.783 (r table=0.444), so all items were declared valid, while reliability testing yielded a Cronbach's Alpha of 0.825, indicating that the instrument was reliable.

Data collection began with obtaining permits from the institution, KESBANGPOL, and the school principal. Respondents were gathered in one room, given an explanation of the purpose and objectives of the study, and then signed an informed consent form. The pretest was administered on the first day, followed by education through the interactive video, replay of the video on two consecutive days, and finally the posttest. Secondary data on the number of cases of violence against children in Bukittinggi City in 2024–2025 were obtained from DP3AP2KB, while data on the number of pupils were obtained from the school administration office. The collected data were processed through editing, coding, data entry, processing, and cleaning.

Statistical Analysis

Univariate analysis was used to describe the frequency distribution of respondent characteristics as well as the mean, minimum, maximum, and standard deviation of knowledge scores before and after the intervention. Normality was tested using the Shapiro-Wilk test at a significance level of $\alpha=0.05$. Because the data were normally distributed, bivariate analysis was performed using a Paired Sample T-Test with a 95% confidence level. All analyses were carried out using IBM SPSS.

Research Ethics

This study applied the principles of informed consent, anonymity by using codes instead of respondents' identities, confidentiality of all information obtained, and voluntary participation without any coercion of prospective respondents.

Scope and Limitations of the Methodology

This study was limited to measuring the knowledge domain and did not assess attitudes or self-protective behaviour. The one group pretest-posttest design did not include a control group, so the observed change cannot be attributed solely to the intervention. The posttest was administered within a relatively short interval, so long-term knowledge retention could not be evaluated.

Results

The respondents were 49 fourth- and fifth-grade pupils aged 9–12 years. Their characteristics are presented in Table 1.

Table 1. Frequency Distribution of Respondent Characteristics (n=49)

Characteristic	Category	f	%
Sex	Male	21	42.9
	Female	28	57.1
Age (years)	9	8	16.3
	10	12	24.5
	11	27	55.1
	12	2	4.1
Grade	IV	20	40.8
	V	29	59.2

Table 1 shows that most respondents were female (57.1%), aged 11 years (55.1%), and enrolled in grade V (59.2%).

Table 2. Mean and Level of Pupils' Knowledge Before and After the Intervention (n=49)

Knowledge	Mean	SD	Min	Max	Level
Before intervention	5.32	1.19	4.00	7.00	Poor
After intervention	8.46	1.06	7.00	10.00	Good

According to Table 2, the mean knowledge score before the interactive video was 5.32 with a standard deviation of 1.19, corresponding to a poor level of knowledge. After the intervention, the mean increased to 8.46 with a standard deviation of 1.06, corresponding to a good level of knowledge. The relatively small standard deviations in both measurements indicate that knowledge scores were fairly homogeneous across respondents.

The questionnaire recapitulation showed that the lowest proportions of correct answers before the intervention were for the items on the definition of private areas (48%), the action to take when a private area is touched (50%), and the body parts that must not be touched without permission (54%). After the intervention, these three items rose to 78%, 83%, and 85%, respectively.

The Shapiro-Wilk test produced significance values of 0.069 for the pre-intervention data and 0.079 for the post-intervention data. Both values exceeded 0.05, so the data were considered normally distributed and the analysis proceeded with a Paired Sample T-Test.

Table 3. Paired Sample T-Test Results for Pupils' Knowledge Before and After the Interactive Video (n=49)

Variable	Mean before	Mean after	Gain	95% CI	p-value
Knowledge of private areas	5.32	8.46	3.14	-3.464 – -2.822	0.000

Table 3 shows a mean increase of 3.14 points with p=0.000 (p<0.05) at a 95% confidence level. This indicates a significant association between the provision of interactive video and pupils' knowledge of private areas as a step towards preventing sexual abuse at SDN 11 Bukit Apit Puhun, Bukittinggi City, in 2026.

Results and Discussion

The respondent characteristics show that the proportion of female pupils (57.1%) was slightly higher than that of male pupils (42.9%). Empirically, both boys and girls are at risk of sexual abuse, yet the forms of behaviour, degree of vulnerability, and social stigma they face differ. Girls are often placed in a more vulnerable position, whereas boys are assumed to be stronger, so cases involving them tend to escape attention, be reported late, or be denied. Gender role construction from an early age influences how children respond to threats, so education on private areas must be delivered inclusively to both sexes (Swarjana, 2022; Nathasya, 2024).

Most respondents were 11 years old (55.1%) and were therefore in late childhood. According to Piaget's theory of cognitive development, children aged 7–12 years are in the concrete operational stage and thus find it easier to absorb information conveyed through real examples, visualisation, animation, and demonstration than through abstract explanation (Juwantara, 2019). At this age, curiosity about the body and social interaction increases, while the capacity to identify risky situations still requires adult guidance. These characteristics make interactive audiovisual media suitable for delivering material on private areas (Aulia, 2025).

The mean pre-intervention knowledge score of 5.32 indicates that most respondents had not yet grasped the concept of private areas, the boundaries between safe and unsafe touch, or the actions to take when facing a situation that could lead to sexual abuse. Knowledge results from a person's sensory perception of an object, particularly through sight and hearing, and is strongly influenced by information received through formal education, mass media, the social environment, and personal experience (Darsini et al., 2019). The low baseline scores in this study are thought to be related to limited access to age-appropriate information and sexual education, both at home and at school (Sumarni et al., 2025).

After the interactive video was delivered, the mean knowledge score rose to 8.46, an increase of 3.14 points, accompanied by higher proportions of correct answers on the items that had initially

been the weakest. This can be explained by Edgar Dale's Cone of Experience, which holds that information is more easily understood when it is conveyed through a combination of visual and audio elements. Interactive video combines images, animation, sound, text, and everyday examples, engaging more senses, increasing attention, and facilitating retention of the material (Syamsidar et al., 2018; Zhuhra & Mardelita, 2024).

The Paired Sample T-Test produced p=0.000 (p<0.05), indicating a significant association between the provision of interactive video on private areas and the improvement of pupils' knowledge. Beyond its visual and audio elements, the interactive nature of the video allowed pupils to participate through questions and quizzes, enabling them to recall the information received and gauge their own understanding. Such active involvement matters because knowledge of sexual abuse prevention requires not only recalling the definition of private areas but also understanding the appropriate action to take in unsafe situations (Siregar et al., 2025; Salsabila et al., 2026).

These findings are consistent with Hajri et al. (2025), who showed that interactive educational media improved school-age children's knowledge of bodily privacy, and with Sumarni et al. (2025), who reported the effectiveness of interactive video in educating primary school pupils about preventing sexual violence. Similar results were reported by Nurma'rufah et al. (2023), who found that the proportion of pupils with good knowledge rose from 68% to 96% after sexual education delivered through animated video and role play, and by Amalia et al. (2025), who recorded an increase in the mean score from 12.20 to 14.00 after animated video education. Compared with the latter study, the improvement in the present study was larger, at 3.14 points, which is thought to relate to video material dealing specifically with private areas and to the interactive elements embedded in the medium.

From a health promotion perspective, these findings can be linked to Lawrence Green's theory, which positions knowledge as a predisposing factor in the formation of health behaviour. Improved knowledge of private areas is an important first step in building children's self-protective capacity (Chusniah Rachmawati, 2019). Even so, improved knowledge cannot be interpreted directly as behaviour change, because this study measured only the knowledge domain before and after the intervention.

Implications

These findings indicate that interactive video can serve as a health promotion medium in primary schools. Schools and health workers may integrate this medium into school health programmes and routine health education sessions as a preventive measure against violence and sexual abuse of children.

Research Contribution

This study contributes empirical evidence on the use of an interactive video designed specifically around private-area content for fourth- and fifth-grade primary school pupils, a combination of medium and target group that has received little attention in previous research in Bukittinggi City.

Limitations

This study has several limitations. First, because the respondents were primary school pupils, differences in interpreting the questionnaire items may have remained despite the explanation given before completion. Second, the one group pretest-posttest design without a control group did not

allow comparison with pupils who received no intervention. Third, the posttest was administered after a relatively short interval, so long-term knowledge retention could not be assessed.

Suggestions

Future research is advised to use a quasi-experimental design with a control group, to add measurements of attitudes and self-protective skills, and to conduct follow-up measurements to assess knowledge retention. Schools and families also need to provide ongoing reinforcement so that the knowledge gained can be applied in everyday life.

Conclusion

The mean knowledge score of fourth- and fifth-grade pupils at SD Negeri 11 Bukit Apit Puhun, Bukittinggi City, regarding private areas as an effort to prevent sexual abuse was 5.32 before the interactive video, corresponding to a poor level of knowledge, and rose to 8.46, a good level, after the intervention, giving an increase of 3.14 points. The Paired Sample T-Test produced $p=0.000$ ($p<0.05$), indicating a significant association between the provision of interactive video on private areas and pupils' knowledge of sexual abuse prevention. Based on these findings, schools are advised to integrate interactive video media into health education on a continuing basis, while health workers may use it as an alternative medium for health education in primary schools.

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Author Contribution Statement

HT contributed to the conception of the study, data collection, data analysis, and manuscript writing. RG contributed to the development of the study design, methodological supervision, and manuscript editing. MAJ contributed to instrument review and manuscript revision. All authors have read and approved the final manuscript.

Conflict of Interest

The authors declare that there is no conflict of interest in this research and in the publication of this manuscript.

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