



## **The Effect of Animated Educational Videos on Adolescents' Knowledge of Reproductive Health in Efforts to Prevent Stunting**

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### **Abstract**

Stunting is a growth disorder in children caused by inadequate nutrition, affecting their physical and cognitive abilities. One contributing factor to stunting is early marriage, which is closely related to a low understanding of adolescent reproductive health. This study aims to analyze the effect of animated educational video media on adolescents' knowledge of reproductive health in efforts to prevent stunting. This quantitative study uses a pre-experimental design with a one-group pre-test and post-test arrangement. Data collection uses total sampling with 66 respondents. The research is conducted at SMPN 5 Satap Kunto Darussalam. The measurement tool is a validated and reliable questionnaire on reproductive health, sexuality, and teenage pregnancy prevention. The data is analyzed using the Wilcoxon test. The results show an increase in adolescents' knowledge before and after the intervention with animated educational video media. Statistical tests confirm that the intervention is effective in improving adolescents' average knowledge regarding reproductive health, with a p-value of 0.000 ( $< \alpha$  0.05). Animated educational video media effectively improves adolescents' knowledge about reproductive health in efforts to prevent stunting. This media can serve as a useful tool for adolescents to enhance knowledge and actions related to reproductive health and stunting prevention.

**Keywords:** Adolescents, Animated Educational Video, Knowledge, Reproductive Health, Stunting.



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### **INTRODUCTION**

Stunting is a growth and development disorder experienced by children due to malnutrition, repeated infections, and insufficient psychosocial stimulation. Children are categorized as stunted if their height is more than two standard deviations below the median growth standard for children (WHO, 2015). Stunting can occur from fetal age and may not be evident until the child is two years old, leading to physical and cognitive limitations (Kemenkes RI, 2022). According to Kuwa et al. (2021), stunting is a sign of growth retardation in children under five, which can be seen through short stature caused by accumulated malnutrition. The global prevalence of stunting in 2020 was recorded at 22%, or approximately 149.2 million children, while in Indonesia, the prevalence reached 31.8%, making it the second-highest rate in Southeast Asia. Data from the National Population and Family Planning Agency (BKKBN) in 2021 indicated that the stunting rate in Indonesia was 24.4%, exceeding the WHO standard (Kemenkes RI, 2021). According to the National Nutrition Status Survey 2022, the prevalence of stunting in Indonesia was recorded at 21.6%. In Riau Province, the prevalence of stunting in 2022 was 17%, showing a decrease from the previous year's 22.3%. In Rokan Hulu Regency, the prevalence of stunting in 2022 was 22%. One sub-district in Rokan Hulu, Kunto Darussalam, showed a stunting prevalence rate of 5.9% among toddlers in August 2021. However, there were villages with the largest increase in stunting prevalence, such as Muara Dilam Village, which experienced an increase from 2.4% to 8.3% in 2021 (Rokan Hulu District Health Office, 2021).

Efforts to prevent stunting in Indonesia so far have been more focused on mothers and toddlers, with an approach that rarely involves adolescents. Education on adolescent

reproductive health is crucial, considering that early marriage is closely related to reproductive health issues that can contribute to stunting (Taufikurrahman et al., 2023). Early marriage has adverse effects on both mothers and children. Mothers who marry at an early age are usually not physically, psychologically, or economically prepared to become parents, which increases the risk of stunting in children (Ula et al., 2022). In Indonesia, early marriage still occurs frequently, especially among poor families who view marriage as a solution to reduce the economic burden (Ilmiyah et al., 2022). According to the Republic of Indonesia Law Number 16 of 2019, which amends Law Number 1 of 1974 on Marriage, marriage is only allowed if both the man and woman have reached the age of 19. However, despite this regulation, early marriage still happens, indicating that this policy has not fully delivered the expected impact (Hardianti & Nurwati, 2021). Early marriage is not only risky for the health of the mother but also for the child born. A mother who marries at an early age is usually unprepared physically, mentally, and economically, which can lead to nutritional problems in the child, including stunting. The lack of maternal knowledge regarding prenatal care also contributes to this issue (Khairunnisa, 2022). Moreover, early marriage can lead to new poverty because economic unpreparedness adds to the family's burden (Isfatayati et al., 2022). One of the causes of early marriage is reproductive health problems among adolescents, including free association and lack of understanding about sexual and reproductive health (Sekarayu & Nurwati, 2021). Education on reproductive health is very important, especially for adolescents, to prevent early marriage and stunting, as well as to encourage them to be responsible for themselves and their future (Myraldi et al., 2023).

Health education about early marriage and reproductive health can be delivered through various media, one of which is educational videos. Educational videos have been proven effective in increasing knowledge because they simultaneously stimulate the senses through visual and audio elements (Thursyana et al., 2019). Research also shows that video media is more effective than print media in increasing understanding of health issues (Limbong & Simarmata, 2020). Educational videos have been widely used to convey health messages to the public and have proven effective in improving adolescents' knowledge about stunting (Amelia & Sitoayu, 2023). A study by Ilham (2022) showed that educational videos positively influenced the increase in adolescent knowledge about stunting prevention. A preliminary study conducted by the researcher at State Junior High School 5 Satap Kunto Darussalam in November 2023 revealed that the majority of female students had insufficient knowledge about stunting prevention, particularly regarding the impacts of early marriage, reproductive health, and family planning. Additionally, these students reported that they had never received information about reproductive health in the form of educational videos. Based on this background, this study aims to explore the effect of animated educational videos on adolescents' knowledge of reproductive health in efforts to prevent stunting.

## **RESEARCH METHODS**

This is a quantitative study with a pre-experiment design using a one-group pre-test post-test approach without a control group. The sample was taken using a total sampling technique at State Junior High School 5 Satap Kunto Darussalam. The study used animated educational videos as an intervention and measured its impact on adolescents' knowledge of reproductive health for stunting prevention using the Wilcoxon test.

## **RESEARCH RESULTS AND DISCUSSION**

This study was conducted at State Junior High School 5 Satap Kunto Darussalam, involving 66 respondents. The results obtained are as follows:

## Respondent Characteristics

**Table 1. Distribution of Respondent Characteristics**

Characteristics	Frequency (n)	Percentage (%)
Age		
1. 13 years old	23	35.0
2. 14 years old	30	45.0
3. 15 years old	9	14.0
4. 16 years old	4	6.0
Gender		
1. Male	30	45.0
2. Female	36	55.0
Father's Education		
1. Elementary School	20	30.0
2. Junior High School	26	40.0
3. High School	18	27.0
4. Associate Degree/ Bachelor's Degree	2	3.0
Mother's Education		
1. Elementary School	28	42.0
2. Junior High School	18	27.0
3. High School	19	29.0
4. Associate Degree/ Bachelor's Degree	1	2.0
Father's Occupation		
1. Unemployed	0	0.0
2. Laborer/ Farmer	56	85.0
3. Private Sector Employee	10	15.0
4. Teacher/ Police/ Military	0	0.0
Mother's Occupation		
1. Housewives	58	88.0
2. Laborer/ Farmer	7	11.0
3. Private Sector Employee	1	1.0
4. Teacher/ Police/ Military	0	0.0
Total	50	100

Based on Table 1, it can be seen that out of 66 respondents, the majority are 14 years old, with 30 respondents (45%). Based on gender characteristics, the majority are female, with 36 respondents (55%). Based on the father's education, most respondents' fathers completed Junior High School (SMP), with 26 respondents (40%). Based on the mother's education, most respondents' mothers completed Elementary School (SD), with 28 respondents (42%). Based on the father's occupation, almost all respondents' fathers work as laborers/farmers, with 56 respondents (85%). Lastly, based on the mother's occupation, the majority are housewives (IRT), with 58 respondents (88%).

## Description of Pre-test and Post-test Knowledge of Adolescent Reproductive Health

**Table 2. Frequency Distribution of Respondents' Knowledge Results on the Pre-Test and Post-Test**

Group	N	Category	Frequency (n)	Percentage (%)
Pre-Test	66	1. Good	1	1.0
		2. Adequate	11	17.0
		3. Poor	54	82.0
Post-Test	66	1. Good	48	73.0
		2. Adequate	17	26.0
		3. Poor	1	1.0



Based on Table 4.2, it can be seen that during the pre-test, out of 66 respondents, 54 respondents had poor knowledge about reproductive health, with a percentage of 82%. 11 respondents had satisfactory knowledge, with a percentage of 17%, and 1 respondent had good knowledge, with a percentage of 1%. Meanwhile, during the post-test, out of 66 respondents, 48 respondents had good knowledge about reproductive health, with a percentage of 73%, 17 respondents had satisfactory knowledge, with a percentage of 26%, and 1 respondent had poor knowledge, with a percentage of 1%.

### **The Influence of Animated Educational Videos on Adolescent Knowledge**

**Table 4. Analysis of the Impact of Intervention on Adolescent Knowledge**

Group	N	Mean	SD	P-Value
Pre-Test	66	42.00	0,142	0,000
Post-Test	66	82.00	0.094	

Based on the statistical test results, the average knowledge of adolescents before the intervention (pre-test) was 42.00, categorized as poor knowledge, while the average knowledge of adolescents after the intervention (post-test) was 82.00, categorized as good knowledge. The increase in the average knowledge of adolescents about reproductive health after the intervention was 40.00. Based on the statistical test results using the Wilcoxon test, it can be seen from the table above that there is a difference in the adolescents' knowledge before and after the animated educational video intervention, with a p-value of 0.000, which means the  $p\text{-value} < \alpha$  (0.05). Therefore, it can be concluded that  $H_0$  is rejected and  $H_a$  is accepted, indicating a difference in the average knowledge of adolescents before and after the intervention.

## **Discussion**

### **Respondent Characteristics**

This study shows that the majority of respondents are 14 years old (45%) and predominantly female (55%). This aligns with Piaget's cognitive development theory, which states that adolescents at this age start to think logically and abstractly, reflecting on the future and moral issues. It also highlights the difference in knowledge between genders, where females tend to comprehend and accept reproductive health information more quickly than males, supporting Anwar et al. (2019), who argued that females generally develop cognitive abilities faster and more maturely than males. Regarding parental education, the findings indicate that 40% of respondents had fathers with a Junior High School education, and 42% had mothers with an elementary school education. This suggests a significant relationship between parental education levels and adolescents' reproductive health knowledge. The study's results are consistent with previous research showing that effective reproductive health education can significantly improve adolescents' knowledge and attitudes (Sari, 2020). It is expected that with improved knowledge, adolescents will make better decisions about their reproductive health, reducing risks related to early marriage and unplanned pregnancies.

Furthermore, parental education plays a crucial role in shaping a child's awareness of various life aspects, including reproductive health. Parents with higher education are generally better equipped to communicate, support the learning process, and pay more attention to their children's educational needs. In contrast, parents with lower education often have limited access to relevant and important information, including reproductive health topics (Darroch et al., 2016). This highlights the importance of increasing literacy among parents as part of a strategic effort to improve adolescents' reproductive health knowledge. Finally, regarding

parental occupations, 56 fathers were employed as laborers or farmers, and 58 mothers were housewives. Parental occupation directly influences children's knowledge since working parents have more opportunities for social interactions and learning, which in turn enriches their ability to communicate information, including reproductive health, to their children (Kinasen & Jani, 2024). These findings reinforce the need for more targeted reproductive health education programs that consider the socio-economic and educational backgrounds of families.

### **Description of Pre-test and Post-test Knowledge of Adolescent Reproductive Health**

A pre-test was conducted to assess the adolescents' knowledge of reproductive health before being given the intervention in the form of an animated educational video. Based on the results of the research conducted with 66 respondents, 54 of them had a low level of knowledge about reproductive health, 11 had an adequate level of knowledge, and 1 had a good level of knowledge. The average score for reproductive health knowledge among adolescents before the intervention (pre-test) was 42.00, which, according to Bloom's cut-off point theory, falls into the low knowledge category. This result indicates that the majority of adolescents still have low knowledge related to reproductive health, which points to the need for an educational intervention to improve their understanding. This situation is a significant concern, as insufficient knowledge can affect decision-making and healthy behaviors in adolescents' reproductive health. This statement is supported by the research of Anggraini et al. (2022), which aimed to determine the effect of educational videos on early adolescents' knowledge and attitudes regarding reproductive health, where the pre-test score in their study was 16.47, categorizing the knowledge as adequate. Adolescents need to understand early marriage and reproductive health thoroughly to prevent stunted births and improve the quality of the next generation of human resources (Taufikurrahman et al., 2023). To improve knowledge, health education is needed, where media plays an important role in its success. One of the media that can be used is an animated educational video.

### **The Influence of Animated Educational Videos on Adolescent Knowledge**

Based on the research conducted, the use of a 6-minute animated educational video and the experience of adolescents who had never received reproductive health education showed a significant difference in the average knowledge of reproductive health among adolescents before and after the video intervention, with a p-value of 0.000, which means  $p\text{-value} < \alpha (0.05)$ , or  $H_0$  is rejected. This is because the average knowledge of adolescents before the intervention (pre-test) was 42.00, which falls into the "low knowledge" category, while the average knowledge of adolescents after the intervention (post-test) was 82.00, which falls into the "good knowledge" category. It can be concluded that there was an increase in the average knowledge of reproductive health among adolescents before and after the intervention in the form of an animated educational video, with an increase of 40.00 points. This research shows results that are consistent with the study by Ayu et al. (2024), which aimed to determine the difference in knowledge between the use of video media and flip charts regarding premarital sexual behavior at the Tibubeneng village youth posyandu. The results showed that adolescents in the video group had higher knowledge about premarital sexual behavior compared to the flip chart group, as video is a modern medium that can be both seen and heard (Ayu et al., 2024). Additionally, the study by Ilhami et al. (2022) on students of SMA 4 Cimahi showed that health education through video had an impact on adolescents' knowledge of reproductive health. This proves that the use of educational video interventions is effective in improving the respondents' knowledge. The success of health promotion in the community is highly dependent on the learning components.



Promotional media is a means or effort to present the message or information to be conveyed (Tokan et al., 2024). Media is essential in health education or health promotion because it can simplify the delivery of information and avoid errors in its communication (Notoatmodjo, 2014). Animated educational video media is a tool that presents moving images accompanied by sound simultaneously, allowing the subject to better understand the material. Video media has its own appeal due to its dynamic and engaging nature, which can increase motivation and interest in the material compared to other more monotonous media. The delivery of material in the form of simulations or practical tutorials is more effectively done through video media because the combination of visuals and audio facilitates better understanding of practical material (Dianawati, 2022). According to Huda et al. (2021), the increase in knowledge occurs because educational videos stimulate the brain's ability to create connections between the verbal and visual representations of content, leading to a deeper understanding for those watching it. Additionally, Haryanto and Bagaskara (2021) explained that when watching a video or film, humans actively engage both sides of their brains. The left hemisphere processes words, understands logic, and processes the information presented in the video, while the right hemisphere processes visual elements such as images, colors, rhythm, music, and stimulates imagination. With the active involvement of both brain hemispheres, information received while watching a video tends to be easier to remember and lasts longer (Haryanto & Bagaskara, 2021).

## CONCLUSION

This study analyzes the effect of animated educational videos on adolescents' knowledge of reproductive health in efforts to prevent stunting. The majority of respondents were 14 years old (45%) and most were female (56%). Based on the parents' education, the majority of fathers had completed junior high school (40%) and mothers had completed elementary school (42%). Most fathers worked as laborers/farmers (85%), while most mothers were housewives (88%). The average knowledge of adolescents about reproductive health before the intervention (pre-test) was categorized as low, with a score of 42.00. After being given the intervention in the form of an animated educational video (post-test), the average score increased to 82.00, which falls into the "good" category. The Wilcoxon statistical test showed a p-value of 0.000 ( $\alpha < 0.05$ ), indicating a significant difference between the adolescents' knowledge before and after the animated educational video intervention.

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