



THE EFFECT OF HEALTH EDUCATION USING ANIMATED VIDEOS ON ELEMENTARY SCHOOL GIRLS' BEHAVIOR IN FACING MENARCHE

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ABSTRACT

The behavior of elementary school students in receiving menarche depends on several things, including social support and the availability of information. To carry out a learning method, it is necessary to have media that can support or channel the information conveyed through appropriate learning media. Learning media is a means of conveying information about lessons that can arouse students' enthusiasm for learning, thereby encouraging students to learn independently. Objective This research is to determine the effect of health education using animated videos on the behavior of elementary school students in facing menarche in West Pasaman District. The research was conducted in July 2024. The type of research was Quasi Experimental with a One-Group Pret-Post Test design. The population covered in the research were female students in West Pasaman District as many as 68 samples using total sampling technique. The research instrument used a questionnaire (rhitung > rlabel and alpha cronbach > 0,6). Univariate data analysis was presented in the form of a frequency distribution and bivariate analysis used the Wilcoxon test, data processing used the computerized SPSS program IBM version 25.0. The results of the research show that there is an effect of health education using animated videos on knowledge. This research aims to see the effect of health education using animated videos on the knowledge and attitudes of elementary school students in facing menarche. The conclusion is that there is an influence of health education using animated videos on the behavior of elementary school students in facing menarche.

Keywords: animation videos; actions; attitudes; knowledge

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INTRODUCTION

Human growth and development involve a series of processes that begin in the womb and continue into adulthood. During this time, individuals go through a significant developmental phase known as adolescence. According to the WHO (2020), adolescence is defined as individuals aged between 10 and 19 years, which is divided into early adolescence (10-14 years) and late adolescence (15-19 years) (WHO, 2020). Before entering adolescence, individuals experience puberty. This period brings important changes in physical growth and development, transitioning them from childhood to adulthood. For adolescent girls, a key event during puberty is menarche, the onset of menstruation. Menarche, along with other physical changes, is part of the maturation process of the reproductive organs (Abadi et al., 2015).

Puberty involves notable psychological and physical changes. In addition to menarche, adolescent girls also experience changes in secondary sexual characteristics, such as hip and breast development, smoother skin, and increases in height and weight (Rima & A.A, 2020).

While the age of menarche varies for each individual, the normal range for this event is between 10 and 12 years. Menarche, along with puberty, is a significant moment that guides individuals through a distinct developmental stage and lays the foundation for their maturity. The first menstruation or menarche typically occurs between the ages of 10 and 16, marking the beginning of the middle adolescent stage when puberty starts before reaching the early reproductive phase (Retnangsih et al., 2018). Menarche holds significant meaning in a girl's life, both socially and medically. The age at menarche has become a focus of extensive research and is identified as a risk factor for various health outcomes in adolescence and adulthood (Haley & Freeman, 2018).

Menstruation signifies that an adolescent girl has entered a stage of maturity, particularly concerning the reproductive system. Although menarche is often used as an indicator of sexual maturity, this change is neither the first nor the last during puberty. On average, girls experience menarche at ages 12-14, but it can occur earlier, as early as 9-10 years, or later, up to 17 years. The most common age for menarche is 11 years, but this variation is influenced by several factors, including hormonal development and the individual's maturation (Hussain, 2020). In this context, menarche reflects not only physical changes but also the diversity of development during puberty. Menarche, or the start of a woman's first menstrual cycle, usually occurs 2 to 4 years after the development of breast buds and pubic hair. The age range for menarche is between 10 and 16 years. According to the World Health Organization (WHO) in 2020, early menarche is becoming increasingly common among adolescent girls. The prevalence of early menarche varies by country, for example, 14% in Canada, 10% in China, and Indonesia ranks 15th out of 67 countries with a menarche age acceleration of 0.1 years (Sari et al., 2020).

In Indonesia, Sudiknoi et al (2020) reports an average menarche age of 12 years, with some cases of first menstruation beginning at age 8, though this is rare, while the latest age for menarche is 16 years. In West Sumatra, the average age for menarche is 13 years, and in Padang city, it is 12 years (Savitri et al., 2019). The age of menarche shows a tendency to decrease over the years, reflecting variations in adolescent development across different countries due to social, economic, and environmental factors. The occurrence of menarche can trigger varied responses, influenced by knowledge level, attitudes, age, and parental upbringing. According to Juliyatmi (2015), menarche can be categorized into three types: early menarche (<10 years), normal menarche (10-14 years), and late menarche (>14 years) (Juliyatmi et al., 2015). Early menarche can impact a girl's knowledge and attitude toward menarche (Mahmudah et al., 2022). It can be a challenging time, often accompanied by fear, anxiety, and confusion, stemming from inadequate information about menstruation. Many adolescents worry about menstruation because it is new to them. Accurate information helps reduce unnecessary anxiety. Typically, girls learn about menstruation from their mothers, but some mothers are reluctant to discuss it openly due to societal taboos surrounding menstruation, leading some girls to view menstruation negatively (Alomair et al., 2022).

Studies show that only 6% of 150 girls in Nepal are aware that menstruation is a natural and normal process (Alomair et al., 2022). In India, 64% of adolescent girls are afraid of menarche, and 86% feel unprepared for it (Mahmudah et al., 2022) This is due to a lack of knowledge and preparation for menarche. In Indonesia, research involving 1,403 adolescents from 16 schools in 4 provinces found that 41% of adolescents felt they had inadequate information about menstruation, affecting their preparation and personal hygiene during their first menstruation (Sinaga, 2020). In the Health Office of West Sumatra Province, Suryanti, (2024) found that 54% of early adolescent girls felt anxious about menstruation due to a lack

of knowledge about menarche. Meanwhile, 33% felt anxious despite receiving information from various sources such as older siblings, mothers, or social media, remaining confused about what to do during menarche and embarrassed if known by the opposite sex. Only 13% felt prepared for menarche (Suryanti et al., 2024) Research at SDN 24 Ujung Gurun in Padang Barat revealed that 82.9% of students in grades IV-VI had low knowledge before receiving health education about menarche (Nurhayati & Purwandari, 2023).

Factors affecting menarche in adolescent girls include unmodifiable factors such as genetics and hormones, as well as modifiable factors such as nutritional status, food consumption, socio-economic conditions, media exposure, sexual behavior, and lifestyle (Makarimah & Muniroh, 2018). Research by Suripa (2016) indicates that 71% of 52 respondents exposed to adult media (pornography) might influence their knowledge about menstruation (Hidayat & Farid, 2016). As community nurses, the role in enhancing adolescents' knowledge about menarche is crucial. According to Sexual and Reproductive Health and Rights (SRHR), nurses are responsible for educating adolescents about reproductive health to prepare them for changes, including menarche (WHO, 2019). Elementary school students in grades IV, V, and VI are mostly aged 10-12 years. At this age, they might begin menstruating, indicating the onset of puberty. An important aspect for children in this age range is comprehensive reproductive health education. In elementary science classes, introducing reproductive organs can help children understand and not feel taboo about menstruation, so they are prepared and able to adapt to these changes (Hussain, 2020).

One effective educational method is the use of animated video media. Animated videos can present information in an engaging and understandable way, utilizing multiple senses to enhance student comprehension (Hill et al., 2021). Research by Rahmawati et al., (2023) shows that animated videos significantly improve adolescents' knowledge and readiness for menarche. In Lembah Melintang District, West Pasaman Regency, there is an urgent need to improve knowledge about menarche among elementary school students, particularly at SDN 05 and SDN 12. Initial observations show that many students who have experienced menarche have not received adequate education on this topic. This study aims to evaluate the effectiveness of animated video education in enhancing knowledge and readiness for menarche among elementary school students in West Pasaman. By providing appropriate education and adequate social support, adolescent girls can face menarche with more confidence and readiness, reducing the negative impact of ignorance about menstruation. (Hill et al., 2021) This research is expected to contribute significantly to improving the understanding and readiness of adolescent girls in West Pasaman Regency regarding menarche through the use of effective animated video media.

METHOD

This research is a quantitative study using an experimental approach with a "quasi-experimental design with one-group pretest-posttest design. The independent variable is the animated video, while the dependent variables include knowledge, attitudes, and behaviors. The statistical analysis is conducted to determine the effect before and after the animated video intervention by measuring the knowledge of elementary school girls in facing menarche (pre-test) and then re-measuring these variables after the animated video intervention (post-test). The population in this study includes all students from grades IV to VI for the 2023/2024 academic year at SDN 05 Lembah Melintang and SDN 12 Lembah Melintang in West Pasaman Regency, who have experienced menarche, totaling 68 students—28 students from SDN 05 and 40 students from SDN 12. The number of samples in this research was 68 people using total sampling techniques.

RESULTS

Table 1.
Respondent characteristics (n= 68)

Characteristic	F	%
Age		
10 Years	6	8,8
11 Years	17	25,0
12 Years	45	66,2
Grade Level		
IV	3	4,4
V	10	14,7
VI	55	80,9
Age OF Menarche		
10 Years	12	41,2
11 Years	40	58,8
12 Years	16	23,5
Mother's Occupation		
Working Mother	43	63,2
Housewife	25	36,8

Table 1, it can be concluded that out of 68 respondents, more than half are in the age range of 12 years, with 45 individuals (66.2%) falling into this category. The majority are in Grade VI, with a total of 55 students (80.9%). The most common age at menarche is 11 years, reported by 40 individuals (58.8%). Additionally, the most common maternal occupation is "Working Mother," accounting for 43 individuals (63.2%).

Table 2.
Frequency Distribution of Respondents' Knowledge Before and After Intervention (n= 68)

Knowledge	Pre Test		Post test	
	f	%	f	%
Poor	28	41,2	1	1,5
Fair	36	52,9	33	48,5
Good	4	5,9	34	50,0

Table 2, it can be concluded that out of 68 respondents, before the intervention using the animated video, more than half had fair knowledge, with 36 individuals (52.9%). After the intervention with the animated video, the number of respondents with fair knowledge decreased to 33 individuals (48.5%).

Table 3.
The Effect of Health Education Using Animated Videos on Students' Knowledge about Menarche (n= 68)

Treatment	N	Median	SD	Min	Max	P-Valuee	Z Value
Before	68	11,00	1,570	8	17	0,000	-7.245
After	68	13,50	1,595	10	47		

Table 3, the results of the statistical test using the Wilcoxon test show a Z value of -7.245, which is less than 1.96, and a p-value of 0.000 (p<0.05). This indicates that there is an effect of health education using animated videos on students' knowledge about menarche at Lembah Melintang Elementary School in Pasaman Barat District.

DISCUSSION

Knowledge before Intervention

The study results show that out of 68 respondents, 36 individuals (52.9%) had fair knowledge before the intervention. This means that more than half of the respondents still needed accurate information about menarche to improve their knowledge. In this study, the average

age of respondents is within the 12-year age range, with 45 individuals (66.2%) in this group. Age is one of the factors that influence a person's knowledge (Juliana et al., 2022). Among the respondents with fair knowledge, 26 individuals (38.2%) are in the 12-year age range. Age is closely related to cognitive maturity; as age increases, so does the ability to think rationally, control emotions, and process information more quickly (Juliana, et al., 2022). Similarly, Fitriani et al., (2023) found that insufficient knowledge is influenced by factors such as age. The study showed that 47.7% of pretest knowledge about menarche was among early adolescents aged 10-12 years. Early adolescents often experience curiosity about changes in their bodies, develop new thoughts, and become quickly interested in various matters.

According to the American Psychological Association (APA, 2019), adolescents need support for optimal health and development, including physical and mental health, sexual and reproductive health, education, social environment, and support in building skills necessary for becoming productive and healthy adults. Based on the questionnaire results, it was found that 43 respondents (63.2%) did not know about menarche, as shown in questionnaire item 4, even though menstruation is a natural process in females (Sukarni et al., 2019). Additionally, many students were unaware of the types of sanitary pads, with only 36 respondents (52.9%) answering correctly in questionnaire item 9. Knowledge about the timing for changing sanitary pads, as shown in questionnaire item 12, was correct for only 38 respondents (55.9%). Insufficient knowledge about menarche can lead to issues with personal hygiene, increasing the risk of reproductive organ infections and resulting in psychological changes such as anxiety Alomair et al., 2022).

Knowledge after Intervention

The study results show that after the intervention, which involved the use of an animated video, there was an improvement in knowledge among the 68 respondents. Specifically, 34 individuals (50%) exhibited good knowledge following the intervention. This change in knowledge was influenced by the treatment provided by the researchers, which was the introduction of the animated video. The animated video, lasting 5 minutes and 15 seconds, featured a teenage character named MENA and aimed to provide general education about menarche (the first menstruation). The results indicate that watching the video improved respondents' knowledge, as evidenced by 56 individuals (82.4%) correctly identifying menarche as a sign of puberty and not a disease, and 54 individuals (79.4%) recognizing this fact. Additionally, 49 individuals (72.1%) were aware of the types of sanitary pads, and the same number (72.1%) answered correctly about the timing for changing pads.

This finding aligns with Sultana et al., 2020) research, which demonstrated that educational programs tailored to cultural and social contexts could enhance knowledge, attitudes, and healthy behaviors related to menstruation among adolescent girls in Bangladesh. The study emphasized the importance of comprehensive menstruation education in promoting reproductive health and well-being. One effective intervention model highlighted was the use of innovative learning media, such as animated videos. The use of animated videos helps explain material effectively and supports the multisensory and interactive learning theory, which involves the active engagement of students with learning materials. Similarly, (Hanifah et al., 2021) found that before the animated video intervention, students' average knowledge was 13.62%, which increased to 20.19% after the intervention. Additionally, (Sari et al., 2024) found that health education using animated videos led to an increase in knowledge from 89.4% before the intervention to 98.2% after it.

The research indicates that before the animated video intervention, only 41.2% of students had good knowledge, which increased to 50% after the educational intervention. This suggests that students' understanding improved following the education provided. Knowledge is influenced by information availability; individuals who receive information can enhance their understanding. Easy access to information can accelerate knowledge acquisition. Generation 4.0 is more engaged with advanced technological educational media, such as audiovisual approaches in animated videos with unique and appealing characters (Aisah et al., 2021). The study demonstrates that animated videos are effective in increasing knowledge. The advantages of using animated videos for health education include their long-term usability and accessibility whenever the material is relevant. They also capture students' attention, increase motivation, and offer interactive features that accommodate user responses. This finding is consistent with the Health Promotion Model developed by Nola J. Pender, which posits that understanding factors influencing health behavior change, including knowledge, requires developing strategies for positive health education. Based on these results, knowledge is a critical aspect of lifelong learning and is essential for everyone. Insufficient knowledge can lead to negative perceptions of new information. Therefore, providing accurate information through health education is crucial to enhancing adolescents' understanding of reproductive health, particularly menarche.

The Effect of Health Education Using Animated Videos on Elementary School Girls' Knowledge about Menarche

The research results, analyzed using the Wilcoxon test, showed a p-value of 0.000 ($p < 0.05$), indicating that animated videos have a significant impact on improving elementary school girls' knowledge about menarche in Pasaman Barat Regency. The animated video was designed to be engaging for the students, featuring a character named Mena, a 10-year-old girl who provides education about the first menstruation to elementary school students. The video, with a duration of 5 minutes and 15 seconds, narrates Mena's adventure in facing menarche. Animated videos combine audio and visual media to capture learners' attention, present detailed objects, and help in understanding complex lessons. This aligns with Nola J. Pender's Health Promotion Model (HPM), which suggests the need for strategies to provide positive health education. Animated videos contribute significantly to changes in adolescents' knowledge, particularly in terms of information and persuasion. Audiovisual media, with its two synergistic elements—sound and sight—stimulates both auditory and visual senses, leading to more effective learning outcomes. This is because vision is the primary sensory channel for knowledge acquisition (about 75% to 87%), while other senses contribute less (13% to 25%), making it easier for adolescents to apply the information presented in the video (Suwanti et al., 2021). In this study, the animated video provided information about menstruation, the menstrual cycle, and the changes occurring during menstruation. The engaging presentation of this information influenced the students' knowledge. Aisah et al., (2021) also noted that animated videos are highly effective in health education due to their engaging, artistic, and easy-to-understand nature, making them informative and effective across various age groups and health conditions. This finding is consistent with Hanifah et al. (2021), who studied the effectiveness of health education through animated videos versus PowerPoint presentations. They found a significant difference, with a p-value of 0.000, indicating the effectiveness of animated videos in enhancing knowledge about menarche.

CONCLUSION

Health education using animated videos significantly improves the knowledge of elementary school girls in facing menarche. Before the intervention, the levels of knowledge the students were in less favorable categories. However, after the intervention using animated videos, there

was a significant increase in all three aspects. The percentage of students with good knowledge increased from 5.9% to 50%. Statistical analysis shows a significant effect of health education using animated videos on these three aspects ($p=0.000$). This indicates that using animated videos as a health education tool is effective in better preparing elementary school girls to face menarche with improved knowledge

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