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The Effect of Health Education Through Animated Videos on Readiness and Anxiety in Facing Menarche Among 4th–6th Grade Female Students

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ABSTRACT

Introduction: Menarche is a significant milestone in female adolescent development, often accompanied by unpreparedness and anxiety due to limited knowledge and understanding. Such anxiety may negatively impact psychological well-being and daily functioning. This study aims to examine the effect of health education delivered through animated videos on readiness and anxiety related to menarche among 4th–6th grade female students.

Methods: A pre-experimental one-group pre-test and post-test design was employed. The population consisted of all 49 female students in grades 4 to 6, with 36 participants selected using purposive sampling. Instruments included a menarche readiness questionnaire and the Hamilton Anxiety Rating Scale (HARS), with data analyzed using the paired t-test.

Results: Prior to the intervention, all participants (100%) were unprepared to face menarche. Following the intervention, 66.7% of the students were categorized as prepared. In terms of anxiety, 88.9% of students initially experienced severe anxiety, whereas post-intervention results showed that 66.7% exhibited no anxiety symptoms. Statistical analysis revealed a significant increase in readiness and a reduction in anxiety levels, with a p-value of 0.000 ($p < 0.05$), indicating that animated video-based health education had a significant effect.

Conclusion: This method proved effective in enhancing students' preparedness and reducing anxiety regarding menarche. As such, it is recommended as an engaging and accessible educational strategy at the primary school level.

Keywords: Animated Videos; Anxiety; Health Education; Menarche; Readiness

INTRODUCTION

Menarche is the first menstrual period, marked by the emergence of physiological

changes that include both physical and psychological alterations. Menarche occurs suddenly without any prior warning signs.

These changes may trigger anxiety, depending on the information received and the individual's ability to adapt.

The age at which menarche occurs varies among adolescent girls, some experience menarche as early as 8 years old, while others may experience it at 12 years old or even at 16 years old (Simon, 2021). Readiness to face the first menstruation (menarche) refers to an individual's preparedness to achieve one of the physical milestones of adolescence, namely the onset of the first menstrual period (menarche) (Nora, 2020).

Anxiety is a feeling of fear arising from the anticipation of danger, enabling individuals to prepare and take action in response to perceived threats (Lidiana et al., 2022). Adolescent girls who are not prepared for menarche may experience anxiety, shock, fear, and surprise due to their lack of knowledge regarding menstruation (Ivanna & Suwardi, 2022).

According to the World Health Organization (WHO), the prevalence of readiness for menarche is estimated at 20% of the global population, and approximately 47.7% of girls report feeling unprepared to face menstruation (Taimuri & Sumbal, 2022). Prevalence data also indicate that 9.1% of adolescents worldwide experience anxiety related to menstrual issues (Utami, 2021). In Indonesia, data from the Central Bureau of Statistics (BPS) show that 49.1% of adolescents experience anxiety related to puberty, including menstrual-related concerns (Lestari et al., 2024).

Based on a preliminary survey conducted on June 8, 2024, at SDN Pakis, among 39 female students, 36 students (92%) were found to be unprepared for menarche, and 36 students (92%) reported

anxiety about facing menarche. These findings suggest that problems related to readiness and anxiety toward menarche remain highly prevalent. One contributing factor is the lack of adequate information regarding menarche.

The factors influencing readiness and anxiety in facing menarche among adolescent girls are diverse and include both internal and external factors. According to Rodli et al (2024), internal factors include knowledge, where adequate knowledge encourages adolescent girls to prepare themselves for menarche; age, which significantly influences readiness and anxiety, with younger adolescents generally being less prepared to accept this event; and attitudes toward menstruation before experiencing menarche. External factors include sources of information, environmental influences, and parental support, particularly the role of mothers (Harlina & Aiyub, 2021).

Adolescent girls' readiness and anxiety in facing menarche are influenced by several factors, one of which is parental behavior. In addition, knowledge plays a significant role in determining adolescents' readiness to face menarche. This is because knowledge about menarche serves as a fundamental basis for understanding the physiological process that they will experience, thereby helping them prepare for its onset (Salangka et al., 2022).

An effort to address the issues described above is the provision of health education. Health education delivered through appropriate and effective methods has been shown to improve girls' knowledge regarding preparation for menarche (Nurfitriani & Anggraini, 2020). Various strategies can be employed to reduce anxiety associated with menarche,

one of which is health education. In this study, health education will be delivered through animated videos containing information about menarche (Anindia, 2020).

A study conducted by Sari et al (2023), demonstrated that health education using animated videos significantly improved students' knowledge and readiness in facing menarche. Therefore, the researcher intends to extend previous research by examining both anxiety and readiness as study variables. This study aimed to determine the effect of health education through animated video on readiness and anxiety in facing menarche among female students in grades 4–6.

METHOD

This study employed a quantitative research design using a pre-experimental one-group pretest–posttest approach. In this design, baseline measurements (pretest) were conducted prior to the intervention, followed by a second measurement (posttest) after the intervention had been administered. The study was conducted from July 2024 to May 2025.

The study population consisted of all female students in grades 4–6, totaling 49 students. The sampling process began with screening the entire population using menarche readiness and anxiety assessment instruments to identify students who were not ready and experienced anxiety regarding menarche. A purposive sampling technique was applied based on predetermined criteria, resulting in a final sample of 36 participants who met the study requirements.

The inclusion criteria were: female students in grades 4–6, not ready and

experiencing anxiety related to menarche, free from cognitive impairments, and willing to participate by providing informed consent from their parents or guardians. The exclusion criteria included students with chronic health conditions or specific medical disorders, those absent during the study period, and those with communication disorders or learning difficulties.

To minimize selection bias, all members of the target population were screened using the same inclusion and exclusion criteria. Potential participants were assessed through a standardized procedure and selected based on screening results without subjective judgment from the researchers. Furthermore, all eligible students were given an equal opportunity to participate in the study. Baseline characteristics, including age and grade level, were documented to assess the representativeness of the sample in relation to the target population.

The intervention consisted of health education delivered through an animated video on menarche. The educational content covered the definition of menarche, physical and psychological changes during puberty, signs and symptoms of menarche, menstrual self-care practices, and strategies for managing anxiety related to menarche. The intervention was conducted in a single group session within the classroom setting. The study procedures included: (1) administration of the pretest using the Menarche Readiness Questionnaire and the Hamilton Anxiety Rating Scale (HARS); (2) presentation of an animated educational video lasting 5–10 minutes; (3) explanation and reinforcement of the material by the researcher for

approximately 15–20 minutes; (4) a discussion and question-and-answer session lasting approximately 10 minutes; and (5) administration of the posttest using the same instruments immediately after completion of the intervention. The total duration of the intervention session was approximately 30–40 minutes.

The research instruments included the Menarche Readiness Questionnaire adapted from Solehah (2023), consisting of 22 items. Reliability testing demonstrated Cronbach's alpha coefficients of 0.856 for the knowledge component and 0.936 for the menarche readiness component, indicating good reliability and suitability for research use. Anxiety levels were measured using the Hamilton Anxiety Rating Scale (HARS) based on (Nursalam, 2021).

Data were analyzed using descriptive statistics to summarize participant characteristics, menarche readiness, and anxiety levels. Inferential analysis was performed using the Paired t-test to compare readiness and anxiety scores before and after the intervention. Statistical significance was set at $p < 0.05$.

This study was declared ethically approved by the Ethics Committee of Universitas Muhammadiyah Lamongan under approval number 126/EC/KEPK-S1/03/2025.

RESULTS

Based on Table 1, which presents the distribution of respondents' characteristics based on general data, all respondents were female, totaling 36 individuals (100%). In terms of age, the majority of respondents were 12 years old, with 12 individuals (33.3%), followed by 13 years old with 10 individuals (27.8%), 11 years

old with 7 individuals (19.4%), 14 years old with 4 individuals (11.1%), and 10 years old with 3 individuals (8.3%). Based on grade level, most respondents were in Grade 4 with 15 individuals (41.7%), followed by Grade 5 with 13 individuals (36.1%), and Grade 6 with 8 individuals (22.2%).

Table 1. Distribution of Respondents' Characteristics Based on General Data

General data	n	(%)
Gender		
Female	36	100%
Total	36	100%
Age		
10 years	3	8.3%
11 years	7	19.4%
12 years	12	33.3%
13 years	10	27.8%
14 years	4	11.1%
Total	36	100%
Grade levels		
Grade 4	15	41,7%
Grade 5	13	36,1%
Grade 6	8	22,2%
Total	36	100%

Based on Table 2, it can be seen that before the health education intervention using animated videos, all students, totaling 36 (100%), were not ready to face menarche. In the post-test results, after the health education intervention using animated videos, almost all students, namely 24 (66.7%), were ready to face menarche, while a small proportion, namely 12 students (33.3%), were still not ready.

Table 2. Distribution of Readiness and Anxiety Toward Menarche Before and After Health Education Using Animated Videos Among 4th–6th Grade Female Students

Variable/ Category	Pre-Test		Post-Test	
	n	(%)	n	(%)
Readiness for Menarche				
Ready	0	0	24	66.7%
Not Ready	36	100%	12	33.3%
Total	36	100%	36	100%
Anxiety				
No anxiety	0	0	24	66.7%
Mild anxiety	0	0	11	30.6%
Moderate anxiety	4	11.1%	1	2.8%
Severe anxiety	32	88.9%	0	0
Panic/very severe anxiety	0	0	0	0
Total	36	100%	36	100%

Table 3. The Effect of Health Education Through Animated Videos on Readiness and Anxiety in Facing Menarche Among 4th–6th Grade Female Students

Variable	n	Mean ± SD	Value p
Post Test Readiness	36	-16,361 ± 8,868	0,000
Post Test Anxiety	33	19,722 ± 5,715	0,000

Based on Table 2, it can be seen that before the health education intervention using animated videos, almost all students, namely 32 (88.9%), experienced severe anxiety, while a small proportion, namely 4 students (11.1%), experienced moderate anxiety. After the health education intervention using animated videos, most students, namely 24 (66.7%), did not experience anxiety, while a small proportion, namely 1 student (2.8%), experienced moderate anxiety.

Based on Table 3, it can be seen that there was a significant increase in readiness and a decrease in anxiety after the health education intervention using animated video media. The mean difference in readiness scores before and after the intervention was -16.361 ± 8.868 , and the mean difference in anxiety scores

was 19.722 ± 5.715 . Based on the results of the paired t-test, the p-value was 0.000 ($p < 0.05$), indicating that H1 was accepted. This means that there is an effect of health education using animated videos on anxiety related to menarche among female students.

DISCUSSION

Readiness to Face Menarche Before Health Education Using Animated Videos

Based on the results of the study, before receiving health education, all respondents, were categorized as not ready to face menarche. The pre-test results showed that most students still had limited understanding of menarche, both in terms of physical and psychological changes that occur during the first menstruation. This

condition indicates the need for health education to improve students' readiness to face menarche.

These findings are consistent with the study by Sari et al (2023), which stated that most elementary school girls felt unprepared for menarche due to a lack of information and knowledge. Mahmudah (2021) also emphasized that early reproductive health education can improve adolescents' readiness to face puberty. In addition, Hidayah & Palila (2023), reported that unpreparedness for menarche may lead to anxiety, fear, and embarrassment among adolescent girls.

The lack of readiness among students is also influenced by the limited information provided by both family and school regarding reproductive health. Faozi et al. (2020) stated that insufficient knowledge about bodily changes during puberty results in adolescent girls being unprepared for menarche. Therefore, providing health education through engaging media such as animated videos is considered important to improve students' understanding, as well as their mental and emotional readiness to face the first menstruation.

Readiness to Face Menarche After Health Education Using Animated Videos

Based on the results presented in Table 2, health education delivered through animated videos had a positive impact on students' readiness to face menarche. Following the intervention, the majority of students were categorized as ready to face menarche, while the remaining students were still not ready. These findings indicate that animated video media is effective in improving students'

understanding and readiness to experience their first menstruation.

This finding is consistent with the study conducted by Sari et al. (2023), which reported that health education can improve female students' readiness to face menarche. The studies by Dewi (2020) and Nurfalah (2023), also showed that reproductive health education significantly improves students' knowledge, attitudes, and emotional readiness regarding menstruation. The use of audiovisual media is considered more effective because the information is easier to understand and more engaging for school-aged children.

The improvement in students' readiness after the post-test indicates that health education not only increased knowledge but also helped reduce fear, embarrassment, and anxiety related to menarche. In addition, the education made students more confident and more open to discussing menstruation with their parents and teachers.

Anxiety in Facing Menarche Before Health Education Using Animated Videos

Based on the results of the study presented in Table 3, before receiving health education, almost all students experienced severe anxiety, while a small proportion of students experienced moderate anxiety. The pre-test results showed that many students felt fear, embarrassment, and unpreparedness in facing menarche due to a lack of information obtained from parents and teachers. Most of the information they received came only from peers or social media, which is not necessarily accurate.

These findings are in line with the studies by Wakano et al (2020), and Winarti et al (2021), which showed that most pre-menarche students experience anxiety in facing their first menstruation. This anxiety is generally caused by a lack of knowledge about the physical and psychological changes that occur during menarche. The study by Lestari et al. (2024), also stated that adolescents who have not received reproductive health education tend to have higher levels of anxiety, mainly due to myths and negative perceptions about menstruation.

These findings indicate that the lack of education and open communication about menstruation plays a major role in the high level of anxiety among students. Therefore, early reproductive health education is very important to help students understand menarche, so it can reduce fear, embarrassment, and anxiety in facing it.

Anxiety in Facing Menarche After Health Education Using Animated Videos

Based on the results of the study presented in Table 5, after receiving health education regarding menarche, the majority of students did not experience anxiety, some students experienced mild anxiety, and only a small proportion of students experienced moderate anxiety. The post-test results showed a decrease in students' anxiety levels after being given health education through animated video media. These findings are in line with the studies by Wakano et al. (2020) and Wahyuni et al. (2022), which reported that health education can reduce anxiety levels among pre-menarche students. The use of animated video media is considered

effective because the material is easier to understand and more engaging for elementary school-aged children, thereby helping to improve understanding and readiness to face the first menstruation. The studies by Lestari et al. (2024) and Hafid (2024), also stated that education regarding puberty and menstruation can make adolescents feel calmer, less panicked, and develop a more positive attitude toward menarche. In this study, most students reported feeling more prepared and no longer perceiving menstruation as something frightening after receiving education. Thus, health education through animated videos has been proven effective in reducing anxiety as well as improving students' emotional readiness to face menarche.

The Effect of Health Education Through Animated Videos on Readiness and Anxiety in Facing Menarche Among 4th–6th Grade Female Students

Based on the results of the study presented in Table 6, there was a significant improvement between the pre-test and post-test results in students' readiness and anxiety after receiving health education through animated video media. The Paired T-test results showed a p-value of 0.000 ($p < 0.05$), indicating that H1 was accepted. This means that health education using animated videos had an effect on readiness and anxiety in facing menarche among Grade 4–6 students. The researcher believes that animated videos are an effective educational medium because they can improve students' understanding of menarche. Better knowledge helps students reduce fear and anxiety, making them more prepared to face their menarche.

These findings are in line with the study by Sunarsa et al. (2022), which stated that education through animated videos is effective in improving adolescents' understanding and readiness for puberty. Wahyuni (2022) and Sakila et al. (2024), also explained that audiovisual media can reduce anxiety because information is delivered in a more engaging, concrete, and easier-to-understand way compared to verbal methods alone.

The use of animated videos is considered appropriate for delivering sensitive topics such as menarche to elementary school-aged children. This media helps students better understand the menstruation process, thereby increasing confidence, mental readiness, and reducing fear, confusion, and stress in facing menarche. With better knowledge, students become more physically and emotionally prepared when experiencing their first menstruation.

CONCLUSION

Based on the results of the study, it can be concluded that health education through animated videos had an effect on the readiness and anxiety of female students in grades 4–6 in facing menarche. After receiving the education, students' readiness increased and their anxiety levels decreased.

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