

The Influence of Reproductive Health Education on Menstruation on the Knowledge of Adolescent Girls at SMPN 24 Padang

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Abstract

Adolescence is a transitional period marked by various physical and psychological changes, including the onset of menstruation in girls. Limited knowledge about menstruation may negatively affect adolescents' behavior in maintaining reproductive health. Education related to menstruation and reproductive health has the potential to improve adolescents' understanding. This study aimed to examine the effect of reproductive health education on adolescent girls' knowledge about menstruation. A quantitative, pre-experimental design with a one-group pre-test and post-test approach was used. A total of 58 participants were selected through purposive sampling. Data were analyzed using the Wilcoxon test. The findings showed that prior to the educational session, 56.9% of participants had low knowledge. After the session, 89.6% demonstrated good knowledge. The Wilcoxon statistical test indicated a significant effect of reproductive health education on menstruation-related knowledge among students at SMPN 24 Padang (p -value = 0.000). These results suggest that structured health education programs can effectively enhance adolescents' understanding of menstruation and support better reproductive health practices.

Keywords: Reproductive health education, knowledge, menstruation, adolescent girls

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Introduction

Adolescence is a transitional period between childhood and adulthood, generally occurring between ages 10 and 19 (World Health Organization, 2025). During this phase, adolescents undergo puberty—a biological maturation process marked by emotional, hormonal, and physical changes, including breast development, genital changes, voice changes, increased height, and the onset of menstruation (Breehl & Caban, 2023). Menstruation, or menarche when it first occurs, is the cyclical shedding of the uterine lining, regulated by fluctuations in estrogen

and progesterone (Rahimi Mansour et al., 2023). Menarche typically begins at age 11–12 (Munir, Immawanti, & Harawinda, 2024; Thiyagarajan, Basit, & Jeanmonod, 2025).

Globally, 1.3 billion adolescents make up 16% of the population. In Indonesia, there are 21.4 million girls aged 10–19 (Badan Pusat Statistik, 2025; WHO, 2024). On average, menarche in Indonesia occurs at ages 11–12, varying between ages 9–18 (Kemenkes & Badan Kebijakan Pembangunan Kesehatan, 2024; Rodiyah et al., 2023). During menstruation, many girls experience irregular cycles, abnormal bleeding, premenstrual syndrome, or dysmenorrhea. In fact, 75% of late adolescents (ages 17–19) report such issues (Amalia, Budhiana, & Sanjaya, 2023; Fitri et al., 2024). Dysmenorrhea is particularly common: it affects 64.5% of Indonesian girls, with more than half experiencing it severely (BRIN, 2024). Prevalence in other countries includes Sweden (72%), the US (90%), and Kuwait (85.6%) (Zhao Hu et al., 2020). Dysmenorrhea disrupts school attendance and daily functioning, lowering quality of life and academic performance. These challenges are further exacerbated by a lack of knowledge, leading to stress and anxiety during menstruation.

A study by Putri et al. (2024) found that 54% of adolescent girls experienced stress during menstruation, with age and low knowledge identified as key contributors. Younger adolescents are often less prepared emotionally and cognitively to manage menstruation. While Mohammed et al. (2020) found that only 46.4% of adolescent girls had good menstrual knowledge, Novitarum et al. (2022) noted that although knowledge improved with age and education, it remained suboptimal. Inadequate understanding of menstruation can lead to anxiety that negatively affects learning. Therefore, providing accurate menstrual education from an early age is essential.

Reproductive health education is a fundamental right, as stated in Indonesia's Health Law No. 17 of 2023, Articles 54 and 55, emphasizing the importance of providing individuals with reproductive health information, services, and counseling. This aligns with national priorities outlined in the 2020–2024 Presidential Mission, which includes improving adolescent reproductive health through intersectoral programs (Kemenkes RI, 2023). Although several studies have highlighted the benefits of menstrual education, many schools—including SMPN 24 Padang—have not implemented structured reproductive health programs. Initial observations revealed that many female students lack adequate understanding of menstruation. This underscores an apparent deficiency in current studies: the limited application of school-based reproductive health education and the insufficient evidence regarding its impact on this environment.

Therefore, this study aims to analyze the influence of reproductive health education on menstrual knowledge among adolescent girls at SMPN 24 Padang. The findings are expected to inform future health education strategies at the school level and contribute to improved menstrual readiness and adolescent well-being.

Method

This quantitative study employed a pre-experimental one-group pretest-posttest design and was conducted at SMPN 24 Padang in May 2025. A total of 58 Grade VII female students who had experienced menstruation and were willing to participate were selected using purposive sampling. The intervention provided was a 90-minute reproductive health education session on menstruation, delivered by a health educator and supported by school teachers. It included interactive lectures and Q&A sessions using materials such as leaflets, presentation slides, and anatomical charts. The instrument used was a 10-item multiple-choice questionnaire assessing menstruation knowledge, with each correct answer scored as one and incorrect as 0. A total of 10 questionnaire items were considered valid, as they exhibited a significant Pearson correlation ($p < 0.05$). This indicates that the items effectively measured the intended construct. Additionally, the reliability test using Cronbach's Alpha produced a score of 0.76,

which demonstrates good internal consistency (greater than 0.7). Data were analyzed using univariate and bivariate methods; the Kolmogorov–Smirnov test showed that data were not normally distributed, so the Wilcoxon Signed-Rank Test was applied to evaluate changes in knowledge before and after the intervention. This study obtained permission from the school, and all participants gave their consent by signing an informed consent form. All collected data were kept confidential and handled according to research ethics principles.

Results and Discussion

Menarche Age

Table 4.1 shows the frequency distribution of respondent's age at menarche. Out of 58 respondents, the majority (89.7%) experienced menarche at a normal age between 11 and 13 years. A total of 5 respondents (8.6%) experienced early menarche, which occurred before the age of 11, and only one respondent (1.7%) experienced late menarche, which happened after the age of 13.

Table 4.1 Frequency Distribution of Respondents by Menarche Age

Usia Menarche	(f)	(%)
Rapid (early) menarche (<11 years)	5	8.6
Normal menarche (11-13 years)	52	89.7
Late menarche (>13 years)	1	1.7
Total	58	100

Source: Primary Data, 2025

Menarche is a physiological event significantly influenced by hormonal activity, primarily the hormones follicle-stimulating hormone (FSH), luteinizing hormone (LH), and estrogen. These hormones are crucial for ovum maturation and the menstrual cycle (Putri, AIP, & Yulia, 2024). Menarche is generally considered normal when it occurs between the ages of 11 and 13, while onset before age 11 is regarded as early. However, the age at which menarche occurs can naturally vary among individuals, typically ranging from 10 to 16 years. In addition to hormonal factors, the timing of menarche is also affected by environmental factors such as nutritional adequacy, body weight, and stress levels in adolescent girls. This interplay of internal and external factors accounts for the variations in the age at which menarche occurs among individuals (Amalia et al., 2024).

The results of this study are consistent with global findings indicating that the average age of menarche falls within the range of 11 to 13 years (Parent et al., 2003). Nutritional status and adolescent health play a crucial role in determining the timing of menarche. A study by Golub et al. (2008) stated that good nutritional conditions and an adequate body mass index correlate with earlier onset of menarche. Conversely, malnutrition and chronic stress can delay menarche (Canelon & Boland, 2020).

Although the majority of respondents experienced menarche within the normal age range, those with early or late menarche still require special attention. Early menarche, for instance, has been associated with long-term health risks such as reproductive disorders and psychosocial problems (Day et al., 2015). Therefore, monitoring health status and providing reproductive health education from an early age is essential.

Knowledge Before Intervention

Table 4.2 presents the frequency distribution of respondent's knowledge levels regarding reproductive health related to menstruation prior to the intervention. Out of 58 respondents, only 5 (8.62%) demonstrated good knowledge, 20 (34.48%) had moderate knowledge, while the majority, 33 respondents (56.90%), exhibited low levels of knowledge.

Table 4.2 Frequency Distribution of Respondents' Levels of Knowledge Before Intervention

Pre Test Knowledge	(f)	(%)
Good	5	8.62
Enough	20	34.48
Less	33	56.90
Total	58	100

Source: Primary Data, 2025

These results indicate that before receiving reproductive health education regarding menstruation, most adolescent girls had insufficient knowledge. This finding is consistent with the study by Kurniawati et al. (2022), which reported low levels of menstrual health knowledge among adolescents, attributed to limited access to accurate information and cultural taboos surrounding discussions about menstruation.

According to Darsini et al. (2019), knowledge is formed through a cognitive process that involves receiving information via the senses and processing it into understanding. High levels of ignorance may result from cognitive limitations, lack of exposure to relevant information, and low motivation to learn (Pringgayuda et al., 2021). This is supported by Handayani and Febrianti (2023), who emphasized the importance of reproductive health education to enhance adolescent girls' knowledge to understand and manage menstruation appropriately.

This lack of knowledge may lead to misconceptions and negative perceptions about menstruation, which can result in unhealthy behaviors such as poor menstrual hygiene and increased psychological stress (Yuningsih & Mujiyanti, 2023). Therefore, educational interventions are essential to improve adolescent girls' understanding and attitudes toward reproductive health, thereby enhancing their overall quality of life and well-being.

Knowledge After Intervention

Table 4.3 presents the frequency distribution of respondent's knowledge levels regarding reproductive health related to menstruation following the intervention. Out of 58 respondents, 52 (89.66%) demonstrated good knowledge, while six respondents (10.34%) exhibited moderate knowledge. Notably, there were no respondents with low levels of knowledge.

Table 4.3 Frequency Distribution of Respondents' Levels of Cognition After Intervention

Post Test Knowledge	(f)	(%)
Good	52	89.66
Enough	6	10.34
Total	58	100

Source: Primary Data, 2025

The results indicate a significant increase in respondent's knowledge levels following reproductive health education about menstruation. This improvement aligns with a study by Fauziah et al. (2024), which reported that systematic reproductive health education greatly enhances adolescent girls' understanding of menstruation. According to learning theory,

interventions that use interactive delivery methods and educational media, such as leaflets can strengthen student's memory and comprehension (Aisyah et al., 2023). This is supported by research conducted by Ade and Yuswantina (2024), which found a significant increase in adolescent's knowledge after receiving education through leaflet media.

Moreover, this increase in knowledge is essential, as a good understanding of menstruation can help adolescents manage their menstrual cycles in a healthier and more confident manner, while also reducing the risk of reproductive health issues (Rodiyah et al., 2023). Adequate knowledge also fosters positive attitudes and appropriate behaviors during menstruation, contributing to the overall physical and mental well-being of adolescents (Yuningsih & Mujiyanti, 2023).

However, it is important to emphasize that this increase in knowledge must be followed by ongoing education to ensure that the information becomes integrated into lasting habits and behaviors. Future research could explore other factors that influence the effectiveness of education, such as the roles of family and the social environment.

The Influence of Health Education About Menstruation

Table 4.4 presents the analysis results on the effect of health education about menstruation on the knowledge level of adolescent girls using the Wilcoxon statistical test. From 58 respondents, a p-value of 0.000 was obtained with a significance level of $\alpha = 0.05$, resulting in $p < \alpha$. Therefore, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_o) is rejected. This indicates that there is a significant effect of reproductive health education about menstruation on the knowledge level of adolescent girls at SMPN 24 Padang.

Table 4.4 Analysis of the Influence of Health Education on Menstruation

Knowledge Pre Test – Post Test	N	Mean Rank	Sum of Ranks	P-Value
Post Test < Pre Test	0	0.00	0.00	0.000
Post Test > Pre Test	57	29.00	1653.00	
Post Test = Pre Test	1			
Total	58			

Source: Primary Data, 2025

The results showed that none of the respondents experienced a decline in knowledge after the intervention (negative ranks = 0), while 57 respondents exhibited increased knowledge, and one respondent showed no change (tie). This finding highlights the effectiveness of reproductive health education in enhancing adolescents' understanding of menstruation.

Knowledge is acquired through a cognitive process initiated by sensory stimuli such as visual and auditory inputs (Notoadmodjo cited in Silitonga & Yeti, 2021). Cognitive factors, including limited prior knowledge, impaired cognitive function, insufficient exposure to relevant information, and low motivation to learn, are primary contributors to inadequate knowledge (Pringgayuda et al., 2021). Therefore, reproductive health education is essential to address these deficiencies and improve adolescent girls' knowledge (Handayani & Febrianti, 2023).

Menstruation is a physiological process characterized by hormonal fluctuations and associated symptoms such as lower back pain, acne, and other discomforts. Adequate knowledge enables adolescents to appropriately understand and manage these symptoms, thus preventing the deterioration of their physical and mental health. Lack of menstrual knowledge often leads to misinterpretation of menstrual signs or pain, resulting in psychological distress and negative self-perception. Studies indicate that adolescents with poor menstrual knowledge are four times

more likely to engage in inappropriate vulvar hygiene during menstruation, as well as experience anxiety, fear, and confusion (Yuningsih & Mujiyanti, 2023).

The initial finding of generally low knowledge among the respondents suggests limited access to adequate information and health education before the intervention. This observation is consistent with Pringgayuda et al. (2021), who identified cognitive limitations and insufficient information exposure as critical factors underlying low knowledge in adolescents. Hence, educational interventions are imperative to bridge this knowledge gap (Handayani & Febrianti, 2023). The intervention, which comprised lectures, discussions, and question-and-answer sessions, focused on topics such as menstrual cycle, hormonal changes, and menstrual hygiene. The utilization of leaflets as supplementary learning media further reinforced these concepts. This approach facilitated repeated review and better comprehension of the material by the adolescents (Aisyah et al., 2023). The efficacy of leaflets in health education has been corroborated by Wijaya and Yuswantina (2024), who reported significant improvements in knowledge following education supported by leaflet materials. This strategy enhances memory retention and fosters greater motivation for learning among adolescents.

These findings align with previous studies demonstrating that menstrual health education substantially increases adolescent girls' knowledge and comprehension. For instance, the research results by Ghimire et al. (2024) in Nepal indicate that school-based health education interventions are crucial in significantly improving adolescent girl's knowledge and practices regarding menstrual hygiene. The knowledge score in the intervention group increased from 10% to 67%, while the non-intervention group remained low at 7.5%. The striking difference between the intervention and non-intervention groups highlights that timely education, with appropriate content and the crucial role of effective delivery methods, can encourage positive behavioral changes. Similarly, Rodiyah et al. (2023) and Fauziah et al. (2024) showed that menstrual health education significantly enhances girl's readiness to manage their menstrual cycles effectively.

Menstruation, a normal physiological process, presents unique challenges for many adolescent girls due to limited knowledge and prevailing social taboos. The significant findings by Belayneh et al. (2019) reveal that most schoolgirls in Gedeo lack a comprehensive understanding and practice inadequate menstrual hygiene, are of utmost importance. The study also establishes a significant link between poor hygiene and factors such as younger age, longer menstrual duration, and low knowledge. These findings underscore the crucial need for culturally sensitive educational efforts to promote better practices from an early age (Belayneh et al., 2019).

Furthermore, early reproductive health education plays a crucial role in empowering adolescents with a foundational understanding of physiological changes during puberty and menstruation, which are essential components of maturation into reproductive adulthood (Fauziah et al., 2024). This comprehensive education equips adolescents with the knowledge and skills to effectively manage physical symptoms such as menstrual pain and skin disorders, thereby mitigating excessive anxiety that could adversely affect their physical and psychological well-being (Yuningsih & Mujiyanti, 2023).

In conclusion, this study provides compelling evidence that systematic reproductive health education, incorporating effective educational media such as leaflets, significantly enhances adolescent girls' knowledge of menstruation. This knowledge not only prepares them physically and psychologically to face menstrual cycles with a positive attitude and healthy behaviors but also contributes to their overall well-being (Rodiyah et al., 2023). The findings of this study offer hope for the future of adolescent reproductive health education.

Conclusion

This study demonstrates that providing reproductive health education can significantly improve adolescent girl's knowledge about menstruation, offering valuable insights for the development of school-based policy. It is recommended that schools integrate reproductive health topics into the formal curriculum using interactive approaches and educational media. Additionally, schools should ensure access to adequate sanitation facilities and play a crucial role in providing health counseling services, thereby reassuring the audience about the support system. To strengthen the scientific evidence, future research is encouraged to further explore the influence of socio-cultural factors and the use of digital media in shaping healthy menstrual behaviors among adolescents.

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