



The Effectiveness of a Menstrual Hygiene Pocketbook in Improving Knowledge and Hygiene Behavior Among Students at SDN 2 Petuk Katimpun

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ABSTRACT

Introduction. Menstruation is a natural biological phenomenon experienced by every woman. However, limited knowledge and misconceptions about menstruation can affect reproductive health. This study aims to assess the effectiveness of the Menstrual Hygiene Pocketbook in improving the knowledge and menstrual hygiene behavior of female students in grades 4, 5, and 6 at SDN 2 Petuk Katimpun. **Methods.** The research method used a quantitative method with a quasi-experiment design; the approach used in this study was a pre-test and post-test design without a control group. **Results.** The results show that the average knowledge score of the students increased from 10.09 in the pre-test to 14.53 in the post-test. Students' behavior also showed a significant improvement, with the average pre-test score increasing from 9.59 to 13.26 after receiving education using the pocketbook. **Conclusion.** The Menstrual Hygiene Pocketbook proves to be an effective tool for enhancing awareness and menstrual hygiene practices among adolescent girls. However, without a control group, conclusions about causality should be drawn with caution, and external factors such as information from parents or the media may influence the study's results.

1. Introduction

Adolescence is a transitional phase from childhood to adulthood (ages 10 to 19) that represents a critical period in human development, as well as a key time for establishing a strong foundation for health.¹ One of the major biological milestones that adolescent girls experience is menstruation, which marks the maturation of the reproductive system.² The first menstrual cycle in a female adolescent is known as the menarche. With an average onset age of 12.4 years, menarche usually happens between the ages of 10 and 16.³ A comprehensive understanding of menstruation and menstrual hygiene is crucial for maintaining reproductive health.

Menstrual Hygiene Management (MHM) describes the methods of keeping oneself clean in order to avoid a number of health issues.⁴ Nonetheless, studies reveal that a large number of teenage girls still lack basic understanding about menstruation hygiene, which could result in inadequate cleanliness habits.

Choosing the appropriate sanitary products, how frequently to change pads, and how to maintain personal cleanliness during menstruation are all areas that are frequently misunderstood, despite the fact that they are all crucial for lowering the risk of infections and other reproductive health problems.⁵ Furthermore, a lot of students don't understand how important it is to refrain from bad habits like using unclean pads or products with chemicals that can damage the intimate area.⁶ Lack of awareness of these hygiene procedures frequently leads to misunderstandings and mistakes in managing menstrual hygiene, which may raise the risk of recurrent tract infections and other health issues.⁷

The Sustainable Development Goals (SDGs), especially Goal 5, underscore the significance of gender equality and the empowerment of women and girls, together with the enhancement of reproductive health.⁸ Making sure teenage girls are adequately informed about menstruation and how to take care of their reproductive health is one way to accomplish

this goal.

According to research by Sartika et al. (2022), 96% of third-grade female students at SDK Santo Vincentius 1 Surabaya had not been given information about menstruation, and 80.56% of them were unprepared for menarche.⁹ Greater awareness and correct hygiene practices can help reduce the risk of reproductive tract infections and other negative health outcomes.¹⁰ The risk of infections of the reproductive tract and other adverse health consequences can be decreased with increased awareness and good hygiene habits.¹⁰ Moreover, a study by Sitohang & Adella (2019) demonstrated that health education significantly improved female students' understanding of menstrual hygiene, with their average score rising from 19.91 to 29.63 ($p=0.001$).¹¹ Therefore, more effective educational interventions are needed to enhance students' understanding of menstrual hygiene.¹²

Schools are important settings where knowledge, including health education, can be disseminated, enabling students to better maintain their health. According to a study by Abeba et al. (2024), books are a useful informational tool for enhancing adolescents' comprehension of menarche and lowering their anxiety about biological changes.¹³ Based on this background, the aim of this study was to assess the effectiveness of a menstrual hygiene booklet in improving knowledge and hygiene practices among students at SDN 2 Petuk Katimpun.

2. Methods

This study was conducted in November 2024 at SD Negeri 2 Petuk Katimpun. The study's objective was to evaluate how much students knew and how their behavior changed after receiving a menstrual hygiene booklet as a teaching tool. The research method used was a quantitative approach with a quasi-experimental design, specifically a pre-test and post-test design without a control group. This research has been approved by the Ethics Committee of the Faculty of Medicine, University of Palangka Raya, with the registration number: 128/UN24.9/LL/2024.

The population of this study consisted of all students at SD Negeri 2 Petuk Katimpun, totaling 216 students. The research sample included female students in grades 4 to 6 who met the inclusion criteria, which were: willingness to participate in the study (with parental/guardian consent), having not received formal education on menstrual hygiene at

school within the past 6 months, the ability to read, and no cognitive or learning disabilities. The exclusion criteria were students who were unwilling to participate in the study and students with language disorders or communication limitations that could affect their understanding of the contents of the booklet and the research questionnaire. A total sampling technique was used to select participants who met the inclusion criteria, with a final sample size of 34 female students.

The pocketbook has been validated to ensure its quality and effectiveness as an educational tool for elementary school students. The readability of the pocketbook was assessed by the research team to ensure the language used is easy to understand by elementary school-age students, with clear and simple sentences. The accuracy of the information is maintained by referencing official health guidelines from reliable sources. Cultural appropriateness was also considered, particularly in the section discussing myths and facts about menstruation, with respect to local cultural norms.

Education was conducted using a menstrual hygiene booklet and took place within the school environment, with no direct involvement from parents. The teacher played a role in assisting the students during the educational sessions and helped explain the material in the booklet. Data collection was carried out through observation, documentation, and questionnaires. Additionally, the students filled out a questionnaire that included general information, details about their first menstruation, knowledge about menstruation, and their behavior in maintaining personal hygiene.

The analysis steps included determining the average pre-test and post-test scores, conducting a normality test using the Shapiro-Wilk test, followed by hypothesis testing using the Wilcoxon test, as the data were not normally distributed. The analysis was performed using SPSS version 22.

3. Results

This study aims to develop and evaluate the effectiveness of a pocketbook on menstrual hygiene, specifically designed for female elementary school students, particularly at SDN 2 Petuk Katimpun. Table 1 shows that there were 8 students (23.5%) who had experienced menstruation and 26 students (76.5%) who had not experienced menstruation.

Table 1. Distribution of students who have menstruated

Class of students	Had periods				Total	
	Yes		No		N	%
	n	%	n	%		
IV	0	0.0	9	100.0	9	100.0
V	6	30.0	14	70.0	20	100.0
VI	2	40.0	3	60.0	5	100.0
Total	8	23.5	26	76.5	34	100.0

Table 2. Distribution of age at first menstruation

Age (years)	Number of Students (n)	Percentage (%)
9	1	12,5
10	4	50,0
11	3	37,5
Total	8	100

Table 3. Student knowledge test results using the Wilcoxon test

		N	Mean Rank	Sum of Ranks	Z	p-value
Post-Knowledge	Negative ranks	1 ^a	3.00	3.00	-4.7972 ^b	0,000
Pre-Knowledge	Positive ranks	32 ^b	17.44	558.00		
	Ties	1 ^c				
	Total	34				

Table 4. Student behavior test results using the Wilcoxon test

		N	Mean Rank	Sum of Ranks	Z	p-value
Post-Knowledge	Negative ranks	a3 ^a	6.50	19.50	-4.389 ^b	0,000
Pre-Knowledge	Positive ranks	27 ^b	16.50	445.50		
	Ties	4 ^c				
	Total	34				

Table 2 shows that the age at which girls started menstruating was 9 years old. Table 3 shows how the data is ranked based on the difference between the before and after values: There was only 1 student who experienced a decrease in scores after the treatment, there was 32 students experienced an increase in scores after the treatment and there is 1 student who has the same score before and after treatment. The majority of respondents experienced an increase in knowledge after treatment.

Table 3 also shows the results of the Wilcoxon Signed Ranks Test: Z value = -4.972. This is the Wilcoxon test statistic that indicates the magnitude of the difference between the before and after conditions. From the results of this test, it can be concluded that the treatment provided had a positive impact on increasing knowledge. The majority of participants experienced an increase, only one person experienced a decrease, and one other person remained at the same score. This shows that the intervention or training provided was successful in significantly increasing knowledge.

Table 4 shows how the data are ranked based on the difference between the before and after values: There was only 3 students who experienced a decrease in scores after the treatment, there was 27 students experienced an increase in scores after the treatment. There was 1 student who had the same score before and after treatment. The majority of respondents experienced an increase in knowledge after treatment. Table 4 also shows that 32 students experienced an increase in hygiene behavior before and after being given menstrual hygiene education using a pocketbook, namely from an average value of 6.50 to 16.50. With a p value of 0.000 (<0.05), it can

be concluded that H_a is accepted, meaning that there is an effect of providing menstrual hygiene education using a pocketbook on the hygiene behavior of female students.

4. Discussion

This study aimed to assess the effectiveness of a menstrual hygiene pocketbook in improving the knowledge and hygiene behavior of elementary school girls, specifically at SDN 2 Petuk Katimpun. The pocketbook is designed to be an accessible educational tool that covers essential topics about menstruation, including what to do during the first menstruation, understanding the menstrual cycle, how to choose sanitary pads, tips for maintaining hygiene during menstruation, and addressing common menstrual myths and facts.^{14,15} The choice of a pocketbook as the medium of intervention was made because it does not rely on technological devices or an internet connection, which ensures broader accessibility for students. This self-directed learning tool is made possible by its straightforward language and accompanying illustrations, which aid students in understanding the subject matter. This format allows students to learn at their own pace, unlike digital media, which often requires devices and may not always be as easily accessible.¹⁶

The findings of this study are consistent with those of Abeba et al.'s (2024) investigation into the use of books as a menarche-related informational medium. The findings from Abeba's study demonstrated that adolescents who used books as their source of information had a better understanding of the physical and emotional changes associated with menstruation, which enabled them to be more prepared for their first period.¹³ Similarly,

the research by Hanif et al. (2018) explored the effectiveness of a pocketbook designed to promote Clean and Healthy Lifestyle Behaviors (PHBS) among students. Students who received the pocketbook intervention, either alone or in conjunction with counseling, showed notable improvements in their knowledge, attitudes, and intentions, according to the study. These findings suggest that printed media, like pocketbooks, can be an effective tool in conveying essential health-related information to elementary school students.¹⁷

The findings of this study also show that students' knowledge and hygiene practices were significantly impacted by the menstrual hygiene pocketbook. The pre-test average score for hygiene behavior was 6.50, which significantly increased to 16.50 in the post-test, with a p-value of 0.000 ($p < 0.05$). This statistically significant improvement indicates that the pocketbook intervention was highly effective in enhancing students' hygiene practices. These findings are consistent with those of Taamu et al. (2020), who examined the effectiveness of a pocketbook intervention aimed at improving handwashing knowledge and skills among students. Although the context of the interventions differed—menstrual hygiene in this study versus hand hygiene in Taamu's study—the consistent positive outcomes across both studies suggest that pocketbooks are a reliable and effective tool for enhancing health knowledge and behavior among adolescents.¹⁸

Furthermore, this study's findings align with those of Adyani et al.'s (2022) investigation, which also discovered improvements in menstrual hygiene behavior and knowledge after educational interventions.¹⁹ Although they used leaflets and audiovisual materials in their study, the pocketbook intervention's positive outcomes further support the idea that printed materials, like booklets and pocketbooks, can be a useful tool for providing students with educational content. Additionally, a study by Putri (2022) that employed a menstrual hygiene management module in Pesantren (Islamic boarding schools) revealed comparable results. After receiving the module, the students demonstrated a significant increase in both their knowledge and attitudes towards menstrual hygiene.²⁰ This emphasizes even more how well printed educational materials, like pocketbooks or modules, can help students understand and practice better menstrual hygiene.

The Health Belief Model (HBM) offers important insight into the underlying mechanisms of the favorable results in this study.²¹ According to the HBM, people's beliefs about the advantages of taking preventive action and their perceptions of their susceptibility to health risks, such as infections brought on by inadequate menstrual hygiene, have an impact on changes in health behavior. After the pocketbook-based educational intervention, students' awareness of the significance of menstrual

hygiene and the dangers of poor hygiene practices increased. They were probably inspired to improve their menstrual hygiene habits by this newfound knowledge.²²

Furthermore, another framework for comprehending how knowledge affects behavior is provided by the Theory of Planned Behavior (TPB).²³ The TPB asserts that a person's knowledge about a behavior influences their attitudes toward that behavior. Students' attitudes regarding the significance of maintaining hygiene during menstruation improved as a result of their increased knowledge of menstrual hygiene, according to this study. The pocketbook was an effective tool for changing students' attitudes because of its clear language and captivating illustrations, which made it easier for them to understand the material.²⁴

Despite the fact that the study's findings show how well the pocketbook works to improve students' knowledge and hygiene habits, it is difficult to prove a direct link between the pocketbook intervention and the improvements that were seen because there was no control group. Other factors, such as information from parents, peers, or external media, could have also contributed to the students' increased knowledge of menstruation and hygiene. Therefore, while the study provides strong evidence for the effectiveness of the pocketbook, the results may not entirely reflect the intervention's isolated impact.

5. Conclusion

The use of a pocketbook as an educational medium is statistically effective in improving students' knowledge and behavior related to menstrual hygiene. However, without a control group, conclusions about causality should be drawn with caution. External factors, such as information received from parents or media, may influence the study's results. Therefore, further research with a stronger design, such as using a control group and long-term monitoring, is needed to confirm the long-term impact of using this pocketbook.

6. Author Contribution

Uswatun Hasanah Purnama Sari made a research proposal, assisted by Farah Fauziyah, making pocketbook media was carried out by all team members, the preparation of questionnaires was carried out by Laila Rahmawati and Siskaevia, for research, data processing and preparation of articles was carried out by all team members.

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