

Education Using “Pocket Book” Media to Improve Knowledge on Managing Dysmenorrhea Among Adolescents

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ABSTRACT

One of the common complaints experienced by adolescents during menstruation is dysmenorrhea. Adolescent girls' knowledge of dysmenorrhea influences their attitudes and ability to manage it. With accurate and appropriate information, adolescents are more likely to respond to symptoms and complaints in a positive and constructive manner. This activity utilized a community development approach and was conducted from February 3–15, 2025, at Madrasah Tsanawiyah Negeri 1 Serang with a total of 23 participants. Univariate analysis was presented in frequencies and percentages, and bivariate analysis was performed using the Wilcoxon test. The results showed that nearly half of the participants were undernourished (47.8%). There was a 23% increase in the average knowledge score, an increase in the number of participants with good knowledge, and a decrease in those with poor knowledge. Education using a pocket book significantly improved adolescents' knowledge of dysmenorrhea ($p < 0.001$). The use of pocket books as a health education medium has proven effective in enhancing adolescents' understanding of dysmenorrhea. However, to ensure sustainability and equitable implementation, collaboration between the education and health departments is needed to design and provide standardized pocket books that can be widely used across all educational institutions.

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INTRODUCTION

One in every six people globally is an adolescent, with 85% residing in developing countries. In Indonesia, the number of adolescents and young people is growing rapidly. In 2000, the 15–24-year age group increased from 21 million to 43 million, rising from 18% to 21% of the total population.^[1]

Adolescence is a critical transitional period from childhood to adulthood marked by hormonal, physical, psychological, and social changes. Puberty begins around age 8 in girls and age 9 in boys. Genetic, nutritional, and environmental factors influence the onset of puberty, which includes emotional and psychological maturation. Psychosocial development in adolescence is divided into three stages: early, middle, and late adolescence—each with distinct characteristics. Any disruption to physical and hormonal maturation during this period may affect psychological and emotional development, emphasizing the need for a comprehensive understanding of adolescent changes.^[2]

Menstruation is a physiological event for adolescent girls, signaling reproductive maturity. However, many adolescents experience various complaints during menstruation^[3] One of the most common complaints

is dysmenorrhea—abdominal pain from uterine cramps during menstruation. Dysmenorrhea is classified as primary or secondary. Approximately 90% of adolescent girls worldwide face menstrual problems, with over 50% experiencing primary dysmenorrhea, which is unrelated to underlying pathology. It is caused by increased levels of prostaglandin F₂-alpha, a cyclooxygenase (COX-2) that leads to uterine hypertonus and vasoconstriction, resulting in ischemia and pain.^[4]

The most commonly experienced form of dysmenorrhea among adolescents is stiffness or cramping in the lower abdomen. This condition is often extremely uncomfortable and may lead to irritability, emotional sensitivity, nausea, vomiting, weight gain, bloating, back pain, headaches, acne, tension, fatigue, and even depression.^[4,5] Several risk factors are associated with the occurrence of dysmenorrhea. According to the literature, common risk factors include early menarche, a family history of dysmenorrhea, abnormal body mass index (BMI), frequent consumption of fast food, prolonged menstrual bleeding, exposure to cigarette smoke, caffeine intake, and alexithymia.^[4]

Adolescent girls' knowledge of dysmenorrhea significantly influences their attitudes toward managing the condition. With access to accurate and reliable information, adolescents are more likely to respond positively to the symptoms and discomfort they experience. Conversely, a lack of proper knowledge may lead to excessive stress and anxiety, causing negative reactions when dealing with dysmenorrhea.^[6]

Providing health education on dysmenorrhea plays an important role in improving adolescent girls' level of knowledge. Health education can broaden their insights, enhance understanding, and provide essential information to better manage dysmenorrhea. Given the generally low level of awareness among adolescent girls, delivering targeted health education is an appropriate and effective strategy to improve their knowledge.^[6]

Educational institutions such as schools serve as strategic settings for implementing dysmenorrhea management programs, as they encompass the majority of the adolescent population.^[7] Therefore, this community service initiative was well-targeted, focusing on adolescent girls within the school environment, specifically at Madrasah Tsanawiyah Negeri 1 Serang.

METHOD

This community service activity employed a Community Development approach, which emphasizes the empowerment and active involvement of the community as both the subject and object of development. The approach aimed to directly engage community members in various stages of implementation to enhance their participation in development efforts for their own benefit.

The program was conducted from February 3–15, 2025, at Madrasah Tsanawiyah Negeri 1 Serang, located at Jalan Ciptayasa Km. 01 Ciruas - Serang, Banten 42182. A total of 23 female students who were members of the Youth Red Cross (PMR) extracurricular activity participated in this initiative. The community service activities were carried out through the following stages:

1. Development of a pocket book titled "Managing Dysmenorrhea in Adolescents."
2. Coordination and submission of a permission request to Madrasah Tsanawiyah Negeri 1 Serang.
3. Scheduling the implementation of the program in collaboration with the school.
4. Measurement of height and weight to assess nutritional status based on Body Mass Index (BMI) during the first week.
5. Administration of a pre-test to evaluate the participants' initial knowledge of dysmenorrhea management.
6. Provision of health education and counseling about dysmenorrhea, including non-pharmacological management strategies, over a period of one month.
7. Distribution of the pocket book to support better comprehension of the materials delivered.
8. Administration of a post-test to re-assess knowledge levels one month later using a structured questionnaire.
9. Data processing using univariate and bivariate analysis (Wilcoxon test).
10. Reporting on the implementation of the community service program



Figure 1. Pocket Book Cover: “Managing Dysmenorrhea in Adolescents”

After the completion of the community service activities, data were processed through univariate analysis presented in the form of frequencies and percentages, as well as bivariate analysis using the Wilcoxon test. The results were then interpreted to draw conclusions regarding the effectiveness of the community engagement initiative.

RESULTS



Figures 1a, 1b, 1c. Educational sessions delivered to participants



Figures 2a, 2b. Q&A sessions and distribution of souvenirs

The community service program was conducted smoothly and in accordance with the agreed schedule, as coordinated between the implementation team and the school representatives, including the Vice Principal, the supervising teacher of the Youth Red Cross (PMR) extracurricular program, and the PMR trainers. The participants showed enthusiasm and maintained discipline throughout the activity. Height and weight measurements were not conducted directly, as the participants were already aware of their respective measurements and submitted this information through a Google Form. Both the pre-test and post-test questionnaires were also distributed online via Google Forms.

Tabel 1. Nutritional Status of Adolescents (n=23)

Nutritional Status	Frequency	Percentage (%)
Underweight	11	47.8
Normal	8	34.8
Overweight	2	8.7
Obese	2	8.7

Tabel 1 shows that nearly half of the participants had an underweight nutritional status (47.8%). Additionally, some participants were categorized as overweight (8.7%) or obese (8.7%). Meanwhile, only 34.8% of the participants had a normal nutritional status.

Tabel 2. Pre- and Post-Test Knowledge Scores on Dysmenorrhea Among Adolescents (n=23)

Knowledge Level	Pre-test		Post-test		Score Difference
	Frequency	Percentage (%)	Frequency	Percentage (%)	
Poor	9	39.1	1	4.3	- 34.8 %
Fair	6	26.1	5	21.7	- 4.4 %
Good	8	34.8	17	73.9	39.1 %
Average Score		62.2%		85.2%	23%

Tabel 2 illustrates an overall increase in the average knowledge score by 23%, from 62.2% in the pre-test to 85.2% in the post-test. There was a substantial rise in the number of participants with good knowledge and a corresponding decline in those with poor knowledge. The proportion of participants with good knowledge increased by 39.1%, from 34.8% in the pre-test to 73.9% in the post-test. Conversely, the number of participants with poor knowledge decreased by 34.8%, from 39.1% to 4.3%. The number of participants with fair knowledge also decreased by 4.4%.

Tabel 3. The Effect of Education on Increasing Adolescent Knowledge About Dysmenorrhea (n=23)

Variable	Z	p-value
Post-test vs Pre-test	-3.829	<0.001

Table 3 shows that the bivariate analysis using the Wilcoxon test revealed a significant effect of education using a pocket book on increasing adolescent knowledge about dysmenorrhea, with a p-value of <0.001 . This result indicates that the educational intervention was statistically effective in improving participants' knowledge.

DISCUSSION

The results of this community service activity are consistent with previous research, which reported an increase in adolescent girls' knowledge following health education. The average score rose from 69.26 in the pre-test to 88.9 in the post-test, with a significance value of $p = 0.000$, which is less than $\alpha = 0.05$. This indicates that health education significantly improves adolescent girls' knowledge regarding dysmenorrhea and its non-pharmacological management.^[8]

The knowledge possessed by adolescent girls about dysmenorrhea greatly influences their attitudes in coping with the condition. When provided with accurate and sufficient information, they are more likely to respond positively to the symptoms and discomfort. Conversely, a lack of information may lead to excessive stress and anxiety, resulting in negative responses when dealing with dysmenorrhea.^[9]

Health education regarding dysmenorrhea has been shown to have a significant impact on improving adolescent girls' knowledge. Through educational interventions, they can gain broader insights, understanding, and awareness of dysmenorrhea. Given the generally low levels of knowledge among adolescents, providing targeted health education is an effective approach to enhance their understanding of this condition.^[10]

Adequate knowledge is expected to drive positive behavioral change in adolescents when facing dysmenorrhea. In contrast, limited knowledge may contribute to negative attitudes in managing the condition. Therefore, health professionals should intensify promotive efforts to increase adolescents' awareness, especially concerning the importance of understanding dysmenorrhea. Well-informed individuals are more likely to adopt constructive attitudes.^[11,12]

Adolescents' knowledge in managing dysmenorrhea is a key factor in determining appropriate coping strategies. This information can be acquired from various sources, including books, mass media, educational programs, and personal networks. New information obtained from the media may form the basis of new knowledge within the cognitive domain.^[13]

Pocket books as educational media are considered effective in improving adolescent knowledge, as the information is concise, portable, and easily accessible at any time.^[14] Pocket books also offer advantages in terms of accessibility, especially for individuals with limited access to digital technology. Their content is typically organized in a compact and focused manner, making it easier for readers to understand health information in a short period. Moreover, pocket books do not rely on battery power or internet connectivity, and their systematic structure aids in comprehending health concepts clearly. Overall, pocket books are practical and effective tools for conveying health information to various audiences.^[15]

Pocket books have also proven to be effective in enhancing adolescents' understanding of reproductive health. They offer several benefits, such as consistent information delivery, attractive full-color design, time and energy efficiency, portability, and clear, concise content. Visually engaging designs help foster a positive attitude among adolescents toward the learning process.^[16] Compared to verbal counseling alone, pocket books are more effective in increasing adolescent knowledge, thanks to their accessibility and flexible usage. However, the continued use of pocket books depends on the support of healthcare service providers, particularly in terms of funding for their production and distribution to future generations.^[17]

Based on these explanations, the community service team concludes that the use of pocket books as a health education medium for adolescents is an effective method to enhance their understanding of dysmenorrhea. Nevertheless, collaboration with the education and health departments is essential to develop and provide standardized pocket books as educational materials that can be widely implemented across schools.

CONCLUSION

The results of this community service activity using a pocket book on "Managing Dysmenorrhea in Adolescents" demonstrated an improvement in adolescents' knowledge. These findings indicate that pocket books are effective educational tools for enhancing adolescents' understanding of dysmenorrhea. It is expected that the increase in knowledge will contribute to better adolescent health outcomes and help prevent reproductive health issues, particularly dysmenorrhea, in the future.

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