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The impact of dysmenorrhea on the learning process of adolescent girls

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Abstract

Dysmenorrhea is a menstrual pain condition that can interfere with women's daily activities and overall quality of life. Women of reproductive age frequently experience dysmenorrhea, which may cause them to take breaks from work, school, or routine tasks for several hours or even several days. According to the World Health Organization (WHO), approximately 1,769,425 women (90%) experience dysmenorrhea, and 10%–15% of them report severe symptoms. These severe cases lead to functional limitations, with around 15% of adolescent girls reporting restricted activities due to dysmenorrhea. This study aimed to determine the effect of dysmenorrhea on the learning process of adolescent girls. The research employed an analytic observational design with a cross-sectional approach. Primary data were collected through direct observation using standardized observation sheets. Data analysis included univariate and bivariate procedures, and the Chi-Square test was used to assess the relationship between dysmenorrhea and learning-related outcomes. The results showed a significant association between dysmenorrhea and the learning process of adolescent girls ($p = 0.001$), indicating that dysmenorrhea adversely affects students' ability to focus, participate, and perform optimally in the classroom at SMP Negeri 21 Pontianak.

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INTRODUCTION

Dysmenorrhea comes from the Greek word *dysmenorrhea*, consisting of “dys” meaning difficult, “meno” meaning month, and “rrhea” meaning flow, so dysmenorrhea can be interpreted as a menstrual blood flow disorder (Núñez-Troconis, Carvallo, & Martínez-Núñez, 2021; Wahyuni, & Maghfiroh, 2022; Zaid et al., 2022; Sari, Darmawansyah, & Anissa, 2024; Amjad et al., 2025; Sarva, Mohapatra, & Subudhi, 2025). Dysmenorrhea is a condition characterized by severe pain during menstruation (McKenna, & Fogleman, 2021; Itani et al., 2022; Orlandi et al., 2022; Serrahima, & Martínez, 2023). The pain arises due to excessive amounts of prostaglandin F₂α in menstrual blood, which stimulates uterine hyperactivity and causes uterine muscle spasms. Dysmenorrhea presents as abdominal pain originating from uterine cramps that occur during menstruation (Gutman, Nunez, & Fisher, 2022).

Menstrual pain is considered one of the most common symptoms experienced by women, but because it is subjective, the severity or intensity is often difficult to assess. Despite its high frequency and long-standing recognition, the pathogenesis of dysmenorrhea has not been fully understood (Prawirohardjo, 2009). Dysmenorrhea is defined as regular uterine pain occurring before or during menstruation and is not associated with pelvic pathology but is believed to result from excessive prostaglandin production. Secondary dysmenorrhea, however, is caused by underlying conditions such as endometriosis (Martire et al., 2023; Krzemińska, Kołodziej, & Biniewicz, 2024; Begum, 2025). Dysmenorrhea can be severe enough to interfere with daily activities (Manuaba, 2010).

Women of reproductive age often complain of dysmenorrhea, which forces sufferers to rest and withdraw from work or daily activities for several hours or even days (Leon-Larios et al., 2014). Moreover, dysmenorrhea is a leading cause of repeated school absences. Studies in the United States have demonstrated that adolescents with dysmenorrhea experience declines in academic, social, and athletic performance (Sims, & Singh, 2024; Abbas et al., 2025). From these definitions, it can be concluded that dysmenorrhea is a form of pelvic pain unrelated to pelvic pathology, with symptoms ranging from mild discomfort to intense spasmodic pain in the lower abdomen, buttocks, and medial thighs.

Although numerous studies have described the clinical characteristics, causes, and symptoms of dysmenorrhea, research examining its direct effect on the learning process of adolescent students, particularly within Indonesian educational settings, remains limited. Existing literature tends to focus more on physiological aspects rather than behavioral or academic outcomes. Therefore, this study offers novelty by investigating dysmenorrhea as a determinant of learning disruption among junior high school female students, an aspect that has not been comprehensively explored in previous research.

Based on these gaps, this study aims to analyze the influence of dysmenorrhea on the learning process of adolescent girls, particularly in terms of their concentration, participation, and overall academic engagement at SMP Negeri 21 Pontianak. This investigation is expected to provide valuable insights into how menstrual pain impacts educational performance and to inform interventions that support students experiencing dysmenorrhea.

METHOD

This study employed an analytical observational approach with a cross-sectional design to examine the relationship between dysmenorrhea and the learning process of female adolescents. The population in this research consisted of all female students enrolled at SMP Negeri 21 Pontianak, totaling 433 individuals. The sample was selected using a purposive sampling technique based on predetermined inclusion criteria, resulting in a total of 60 participants.

Data collection utilized observation sheets and the Numerical Rating Scale (NRS) to assess the severity of dysmenorrhea experienced by respondents. Sample characteristics measured on an ordinal scale were analyzed descriptively to provide an overview of the participants' demographic and clinical profiles.

To determine the association between dysmenorrhea and learning disruptions among female adolescents, the Chi-Square test was applied as the inferential statistical method. All analyses were conducted at a significance level of 0.05.

RESULTS AND DISCUSSION

Table 1. Distribution of Respondents Based on Age, Dysmenorrhea Occurrence, and Learning Process Disorders.

Variable	Frequency	Percentage
Age		
12	8	13.3
13	26	43.3
14	26	43.3
Occurrence of dysmenorrhea		
Dysmenorrhea	48	80
No Dysmenorrhea	12	20
Learning Process		
Disturbed	25	41.7
Not Disturbed	35	58.3

Based on Table 1, the distribution of respondent characteristics by age shows that respondents aged 12, 8 (13.3%), respondents aged 13 years numbered 26 people (43.3%), and respondents aged 14 years numbered 26 people (43.3%). The frequency distribution of respondents based on the occurrence of dysmenorrhea pain shows that the majority of respondents who experience dysmenorrhea number 48 people (80%). The frequency distribution frequency of respondents based on learning process disruption shows that the majority of respondents who experienced learning process disruption numbered 25 people (41.7%).

Table 2. Impact of Dysmenorrhea on the Learning Process of Female Adolescents at SMP Negeri 21 Pontianak.

Incidence of dysmenorrhea	Disrupted		Not Disrupted		Total		p-value	PR
	n	%	n	%	n	%		
Dysmenorrhea	25	52	23	48	48	100	0.001	2.087
No dysmenorrhea	0	0	12	34.3	12	100		

Based on Table 2, it can be seen that of the 60 respondents who experienced dysmenorrhea, most experienced disturbances in their learning process, namely 25 people (100%). Statistical tests show that dysmenorrhea has a significant effect on the learning process of female students (PR = 2.087; p = 0.001) and the proportion of female students whose learning process is disrupted is 2.087 times greater in the dysmenorrhea group than in those who do not experience dysmenorrhea.

DISCUSSION

The results of this study showed that most of the 60 adolescent girls experienced dysmenorrhea as measured by the Numerical Rating Scale (NRS). This finding is consistent with the study by Susanti (2018), which reported that more than half (56.7%) of adolescent girls experienced severe menstrual pain and a similar proportion (66.7%) demonstrated

adequate learning activities. Through the Spearman rank test with a p-value of 0.000 ($p < 0.05$), her study concluded a significant relationship between menstrual pain and learning activities among adolescent girls. Women of reproductive age frequently complain of dysmenorrhea, which often requires rest and withdrawal from daily tasks for several hours or even days (Leon-Larios et al., 2024). Dysmenorrhea has also been identified as a major cause of repeated school absences, and studies in the United States have shown that adolescents suffering from dysmenorrhea experience declines in academic, social, and athletic performance (Gutman, Nunez, & Fisher, 2022).

In terms of learning activity disturbances, this study found that 25 respondents (41.7%) experienced disruptions in the learning process, while 35 respondents (58.3%) did not. Although dysmenorrhea interferes with students' concentration during the teaching and learning process, the data collected through questionnaires indicated that many students continued to engage in class activities. A total of 22 students (36.7%) exchanged opinions during lessons, 28 students (46.7%) actively took notes, and 26 students (43.3%) responded to their peers' answers. This suggests that teachers play a vital role in maintaining student motivation and attention, helping them participate actively despite discomfort. The level of student engagement in asking questions remained high at 37 students (61.7%), and 32 students (53.3%) continued to participate in learning activities even while experiencing menstrual pain.

Furthermore, the study revealed that students' concentration remained relatively high, with 38 respondents (63.3%) continuing to focus during class activities. These findings suggest that while dysmenorrhea causes notable discomfort and may disrupt the learning process, many students still maintain their commitment to academic participation. This is supported by research from Saguni et al. (2013), which found a significant relationship between dysmenorrhea and learning activities among adolescent girls, as indicated by a p-value of 0.000 ($p < 0.05$). These studies support the view that dysmenorrhea commonly disrupts daily activities, limiting the ability of young women to carry out normal routines.

The impact of dysmenorrhea on learning was further confirmed in this study through Chi-Square analysis, which showed a significant association between dysmenorrhea and learning disturbances at SMP Negeri 21 Pontianak. The p-value of 0.001 ($p < 0.05$) and the relative risk (RR = 2.087) indicate that students experiencing dysmenorrhea are more than twice as likely to encounter disruptions in the learning process compared to those without dysmenorrhea. This suggests that menstrual pain affects academic focus and performance. These findings align with research by Kurniawati (2008), which reported that adolescents with dysmenorrhea often experience disruptions and tend to limit their activities. Likewise, Handayani (2011) reported that adolescent girls experiencing dysmenorrhea tend to have more school absences and poorer academic performance.

Interviews conducted with teachers at SMP Negeri 21 Pontianak corroborated these findings, as teachers reported that some students experiencing dysmenorrhea during class hours request permission to leave or refrain from participating in learning activities. This supports the conclusion that dysmenorrhea has a tangible impact on both attendance and academic engagement among adolescent girls. Overall, while some students demonstrate resilience and continue to participate in classroom activities, dysmenorrhea remains a significant factor hindering optimal learning and school performance.

CONCLUSION

Most female adolescents at SMP Negeri 21 Pontianak experienced dysmenorrhea, and a considerable proportion also reported disturbances in the learning process. The findings demonstrated a significant association between dysmenorrhea and learning difficulties, indicating that menstrual pain contributes to reduced concentration and participation in classroom activities. These results highlight the need for greater attention to

menstrual health among students to support their academic performance. Future studies are encouraged to explore additional factors that may influence dysmenorrhea in order to develop more comprehensive prevention and management strategies.

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