

The Effect of Yoga Exercise on Reducing Dysmenorrhea Pain Among Adolescent Girls at SMK Negeri 1 Cibatu

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ABSTRACT

Background: Dysmenorrhea is a common menstrual complaint experienced by adolescent girls and may interfere with learning activities and daily activities. Yoga exercise is a non-pharmacological approach that may help reduce pain through relaxation, breathing regulation, reduced muscle tension, improved circulation, and the body's analgesic response. Objective: To determine the effect of yoga exercise on reducing dysmenorrhea pain among adolescent girls at SMK Negeri 1 Cibatu. Methods: This quantitative study used a pre-experimental one-group pretest-posttest design. The sample consisted of 30 adolescent girls who experienced dysmenorrhea and were selected using purposive sampling. Pain intensity was measured using the Numeric Rating Scale before and after the intervention. Data were analyzed using univariate analysis and

the Wilcoxon Signed Ranks test. Results: Before the intervention, 17 respondents (56.7%) experienced severe pain, 10 respondents (33.3%) experienced moderate pain, and 3 respondents (10.0%) experienced mild pain. After yoga, 11 respondents (36.7%) reported no pain, 11 respondents (36.7%) reported mild pain, and 8 respondents (26.7%) reported moderate pain. No severe pain was observed after the intervention. The mean pain score decreased from 2.57 to 0.90, and the Wilcoxon test showed $p=0.000$. Conclusion: Yoga exercise had a significant effect on reducing dysmenorrhea pain intensity among adolescent girls.

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INTRODUCTION

Adolescence is an important period of growth and development characterized by relatively rapid physical, hormonal, psychological, and social changes. One of the biological signs of development in adolescent girls is menstruation. Menstruation is a physiological process, but in some adolescents it may be accompanied by complaints that interfere with daily life, one of which is dysmenorrhea. In this study, dysmenorrhea is understood as pain occurring before or during menstruation, mainly associated with uterine contractions and increased prostaglandin levels. These complaints may affect comfort, daily activities, learning concentration, and school attendance among adolescents.

Dysmenorrhea is an important issue in adolescent reproductive health because recurrent pain may cause adolescents to limit their activities and choose treatments that are not necessarily appropriate. This study notes that dysmenorrhea may interfere with attention and concentration, making the learning process less optimal. In addition, adolescents may have limited understanding of safe ways to manage menstrual pain. Therefore, an approach that is easy to perform, relatively simple, and applicable in a school environment is relevant to develop.

Dysmenorrhea can be managed through pharmacological and non-pharmacological approaches. Pharmacological therapy may help reduce pain, but medication use should also consider indications and side effects. One non-pharmacological option discussed in this study is yoga exercise. Yoga combines body movements, stretching, relaxation, and breathing regulation. This relaxed state is expected to reduce muscle tension, improve blood circulation, and influence pain perception. In the literature reviewed in this study, Wati (2018) explained that relaxation in yoga is associated with endorphin release, while Wulanda et al. (2020) described the benefits of exercise in helping reduce menstrual pain.

Physiologically, primary dysmenorrhea is associated with increased prostaglandin levels, which cause stronger myometrial contractions. Excessive contractions may be associated with uterine blood-vessel vasoconstriction, resulting in ischemia and pain. Yoga is expected to help through relaxation, breathing regulation, and improved circulation. Directed movements may help the body become calmer, while breathing exercises may reduce tension and improve comfort during menstruation. These mechanisms form the basis for selecting yoga as the intervention in this study.

Previous studies have shown findings that support the use of yoga. Hadiani and Ferina (2021) reported that yoga exercise can reduce dysmenorrhea in adolescents. Windayanti et al. (2021) discussed yoga as an approach to reduce primary menstrual pain in adolescent girls, while Ajria et al. (2022) and Fajria et al. (2022) reported the effectiveness of yoga exercise in reducing menstrual pain. Lestari, Mastina, and Sanputri (2025) also found differences in pain levels before and after yoga among adolescent girls. These findings provide a basis for further studying yoga in a school setting.

This study was conducted at SMK Negeri 1 Cibatu, Purwakarta, involving adolescent girls who experienced dysmenorrhea. The study aimed to determine changes in pain intensity before and after yoga exercise and to examine the respondents' characteristics based on age and age at menarche.

The objective of this study was to determine the effect of yoga exercise on reducing dysmenorrhea pain among adolescent girls at SMK Negeri 1 Cibat. Specifically, the study aimed to describe pain levels before and after the intervention and identify respondent characteristics based on age and age at menarche. The results are expected to provide input for schools, health workers, and adolescent girls in developing simple promotive and preventive efforts to help manage menstrual pain.

RESEARCH METHODS

This was a quantitative study using a pre-experimental one-group pretest-posttest design. The design began with an initial measurement of pain intensity (pretest), followed by the yoga exercise intervention, and then a second measurement (posttest). The study did not use a control group. This design was used to observe changes in pain conditions in the same respondents before and after receiving the intervention.

The study was conducted from January to February 2026 at SMK Negeri 1 Cibat, Purwakarta. The study population consisted of 30 adolescent girls, all of whom became research participants. The sampling technique used was purposive sampling, namely selecting respondents based on predetermined criteria to match the research objectives. Thus, 30 respondents were included in the analysis.

The inclusion criteria were adolescent girls who were willing to participate, experienced primary dysmenorrhea during menstruation, had mild to moderate pain intensity according to the intervention design, were not using pain-relieving medication or other non-pharmacological therapy during the study, had relatively regular menstrual cycles, and had no history of certain gynecological diseases. Exclusion criteria included unwillingness to participate, not currently menstruating, secondary dysmenorrhea due to gynecological disorders, use of analgesics or other therapies, conditions requiring special medical care, or severe psychological disorders.

The data used were primary data obtained directly from respondents through interviews and observation sheets. The independent variable was yoga exercise, while the dependent variable was dysmenorrhea pain intensity. The intervention instrument was a yoga exercise implementation checklist, while pain intensity was assessed using the Numeric Rating Scale (NRS) ranging from 0 to 10. In the classification used in this study, a score of 0 indicated no pain, 1–3 mild pain, 4–6 moderate pain, and 7–10 severe pain.

The intervention consisted of a series of yoga movements intended to promote relaxation and help reduce bodily tension. In the research design, yoga exercise was

performed twice a week for approximately 30 minutes. The pretest measurement was conducted before the intervention and the posttest measurement after the intervention according to the research procedure. During the sessions, respondents were guided to perform the movements and breathing exercises in a structured manner.

Data processing included editing, coding, entry, cleaning, and tabulation. Univariate analysis was used to describe respondent characteristics and the distribution of pain intensity before and after the intervention. Because pain intensity data were ordinal and measurements were taken from the same respondents, bivariate analysis used the Wilcoxon Signed Ranks test. A normality test was also conducted using the Shapiro-Wilk test because the number of respondents was less than 50. Statistical decisions used a significance level of $\alpha=0.05$; $p \leq 0.05$ was interpreted as indicating a significant difference or effect.

RESULTS AND DISCUSSION

The study involved 30 adolescent girls at SMK Negeri 1 Cibatu, Purwakarta. The analysis included characteristics based on age and age at menarche, the distribution of pain intensity before and after yoga exercise, the normality test, and analysis of differences between pretest and posttest measurements. The findings showed changes in pain categories after the yoga intervention.

Table 1. Respondent characteristics by age

No	Current age	Frequency	Percentage(%)
1	15 years	14	46,6
2	16 years	13	43,3
3	17 years	3	10,0
Total		30	100

The table above shows that the largest proportion of respondents experiencing dysmenorrhea were 15 years old, with 14 respondents (46.6%), followed by 13 respondents aged 16 years (43.3%), while the smallest proportion was 17 years old, with 3 respondents (10.0%).

Table 2. Respondent characteristics by age at menarche

Nio	Age at Mienarch	Friekuency	Piercentage(%)
1	< 12 years= early	0	0
2	12 - 14 years = nìormal	16	53,7
3	> 14 tahun years = latte mienarch	14	46,3
Tiotal		30	100%

The table above shows that the largest proportion of respondents had a normal age at menarche (12–14 years), totaling 16 respondents (53.7%), while 14 respondents (46.3%) had menarche after the age of 14 years.

Table 3. Dysmenorrhea pain intensity before yoga exercise

Nio	Dysmenorrhea	friequency	Pierscentage(%)
1	Mild pain	3	10,0
2	Moderate pain	10	33,3
3	Severe pain	17	56,7
Tiotal		30	100

The table above shows that most respondents experienced severe dysmenorrhea pain, totaling 17 respondents (56.7%), followed by moderate pain in 10 respondents (33.3%), while 3 respondents (10.0%) experienced mild pain.

Table 4. Dysmenorrhea pain intensity after yoga exercise

	Dysmenorrhea pain	Frequency	Piercentage(%)
1	No pain	11	36,6
2	Mild pain	11	36,6
3	Moderate pain	8	26,7
Tiotal		30	100

The table above shows that 11 respondents (36.7%) reported no dysmenorrhea pain, 11 respondents (36.7%) reported mild pain, and 8 respondents (26.7%) reported moderate pain.

Table 5. Descriptive statistics of pain scores before and after yoga exercise

Dysmenorrhea Pain	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	0.350	30	0.000*	0.725	30	0.000
Posttest	0.354	30	0.000	0.637	30	0.000

Table 6. Normality test of pretest and posttest pain scores

Dysmenorrhea Pain	N	Mean	SD	Mean	SE
Before	30	0.100	1.094	0.200	0.620
After	30	-1.567	0.935	0.171	0.000
Pain Reduction	30	-1.467	0.129	0.029	

Based on the table above, the mean dysmenorrhea pain score before yoga exercise was 0.100 and after the intervention was -1.567, with a mean pain reduction of -1.467. These results indicate a decrease in dysmenorrhea pain among adolescent girls after being advised to perform yoga exercise.

Table 7. Results of the Wilcoxon Signed Ranks test

Yoga Exercise		
Dysmenorrhea Pain		
Variable		
	f (%)	p-value
Menarche		
< 12 years = early menarche	0	0.000
12-14 years = normal menarche	16 (53.3%)	

> 14 years = late menarche	14 (46.7%)	
Age		
15 years	14 (46.7%)	0.000
16 years	13 (43.3%)	
17 years	3 (10.0%)	

According to the table above, age at menarche and current respondent age were significantly associated with dysmenorrhea pain among adolescent girls at SMK Negeri 1 Cibatu, Purwakarta, with a p-value of 0.000 < 0.05.

This study showed that yoga exercise had an effect on reducing dysmenorrhea pain intensity among adolescent girls at SMK Negeri 1 Cibatu. The main finding was reflected in the changes in pain categories and the Wilcoxon test results. Before the intervention, more than half of the respondents were in the severe pain category. After the intervention, no respondents remained in the severe pain category, and some respondents moved to the no-pain or mild-pain categories. The mean pain score also decreased from 2.57 to 0.90. These findings indicate that the change was not only statistically significant but was also visible in the distribution of pain categories experienced by the respondents.

Physiologically, pain in primary dysmenorrhea is associated with increased prostaglandin levels, which cause stronger uterine contractions. Excessive contractions may reduce uterine tissue perfusion and contribute to the development of pain. Widhayanti et al. (2021), as cited in this study, explained the relationship between increased prostaglandins, uterine contractions, and menstrual pain. This condition may cause adolescents to experience discomfort, difficulty concentrating, and limitations in daily activities.

Yoga can be a non-pharmacological approach because it combines movement, stretching, relaxation, and breathing. When the body performs directed movements accompanied by regulated breathing, muscle tension may decrease. Relaxation also helps create a calmer physical state, which may reduce the perception of pain stimuli. In the literature reviewed in this study, yoga is associated with the release of endorphins and enkephalins, which contribute to analgesic responses. Thus, the changes in pain scores observed in this study may be understood as the result of combined physical and relaxation effects.

The results of this study are consistent with Hadiani and Ferina (2021), who reported that yoga exercise can reduce dysmenorrhea in adolescents. Windayanti et al. (2021) also discussed yoga as an effort to reduce primary menstrual pain among adolescent girls. Ajria et al. (2022) reported the effectiveness of yoga exercise in reducing menstrual pain among women aged 16–20 years. Fajria et al. (2022) also served as a reference supporting yoga as a non-pharmacological intervention. Lestari et al. (2025) found differences in pain levels before and after yoga among adolescent girls. The similar direction of these findings strengthens the results of the present study.

The findings are also consistent with Arini et al. (2020) regarding the effect of yoga exercise on reducing menstrual pain intensity among adolescent nursing students. Yulina et al. (2020) also reported the effectiveness of yoga exercise in reducing dysmenorrhea pain. Wardani and Suryanti (2020) discussed yoga as an effort to relieve menstrual pain among adolescent girls. Thus, yoga is relevant not only to one age group or one location but has been studied among various adolescent and young-women populations.

The changes observed in this study can be seen more clearly in the 26 respondents who experienced a reduction in pain scores. No respondent experienced an increase in pain after the intervention, which supports the direction of the observed change. Four respondents had the same values before and after the intervention. This indicates that responses to yoga were not completely uniform among individuals. Pain experience, physical condition, menstrual characteristics, and individual responses to relaxation may contribute to variations in change.

Respondent age characteristics also need to be considered. Most respondents were 15 years old. This age group is in adolescence and is still experiencing reproductive system development. The study explains that primary dysmenorrhea is commonly found from adolescence to young adulthood. However, the predominance of 15-year-old respondents in this study cannot directly be interpreted as evidence that age 15 is the main cause of dysmenorrhea. The distribution was also influenced by the composition of students who met the study criteria at the research site.

The respondents' age at menarche ranged from 13 to 14 years. In this study, age at menarche was considered as one of the variables because the age at first menstruation may be related to subsequent menstrual experiences. The analysis stated that age at menarche and respondent age had an effect on the reduction of dysmenorrhea pain, with $p=0.000$. This finding should be understood within the context of the study and does not necessarily

demonstrate a causal relationship because the study design did not use a control group and the sample size was relatively limited.

From an application perspective, yoga exercise has the advantage of being possible to perform using simple movements and without medication. In a school context, yoga may be considered as part of adolescent reproductive health education. Schools can collaborate with health workers to provide information about menstruation, dysmenorrhea, warning signs, and safe non-pharmacological management. Adolescents should also understand that very severe or recurrent menstrual pain, or pain accompanied by unusual symptoms, requires further examination.

The findings support the promotive and preventive role of midwifery services. Health workers, particularly midwives, can provide education about menstrual health and help adolescents choose appropriate pain-management strategies. Yoga can be used as one option, not as a substitute for medical examination when medical care is needed. Appropriate educational approaches are expected to improve adolescents' ability to recognize and manage menstrual complaints more independently.

This study has limitations. The one-group pretest-posttest design did not include a control group, so changes in pain could not be compared with a group that did not receive yoga. The sample consisted of only 30 respondents from one school, so the generalizability of the findings should be considered carefully. In addition, pain intensity is a subjective experience that may be influenced by psychological conditions and individual experiences. Nevertheless, the reduction in pain categories, decrease in the mean score, and significant Wilcoxon test result provide empirical evidence, within the study population, that yoga exercise was associated with reduced dysmenorrhea pain.

CONCLUSION AND RECOMMENDATIONS

Based on the research findings, it can be concluded that there was a change in dysmenorrhea pain intensity among adolescent girls after yoga exercise was provided. Before the intervention, most respondents experienced severe pain, totaling 17 respondents (56.7%), whereas no respondents experienced severe pain after the intervention. After yoga, 11 respondents (36.7%) reported no pain, 11 respondents (36.7%) experienced mild pain, and 8 respondents (26.7%) experienced moderate pain. The mean pain score decreased from 2.57 to 0.90. The Wilcoxon Signed Ranks test produced $p=0.000$, indicating a significant effect of yoga exercise on reducing dysmenorrhea pain intensity among adolescent girls at SMK Negeri 1 Cibatu.

Recommendations

In the research setting, schools are expected to consider reproductive health education and yoga exercise activities as promotive and preventive efforts to help adolescents manage menstrual pain.

Adolescent girls who experience dysmenorrhea may use yoga exercise as one non-pharmacological option, performed regularly and according to their abilities. Adolescents should also recognize signs and symptoms that require examination by a health professional.

Future researchers are advised to use a larger sample, include a control group or a stronger research design, and consider other factors that may influence dysmenorrhea pain so that the findings can be generalized more broadly.

REFERENCES

- Ajria, S., Iskandar, & Tharida, M. (2022). Analisis efektifitas senam yoga terhadap penurunan nyeri menstruasi pada perempuan usia 16–20 tahun di Komplek Lanud SIM Bandara Sultan Iskandar Muda. *Journal of Healthcare Technology and Medicine*, 8(1), 16–22.
- Arini, D., Saputri, D. I., Supriyanti, D., & Ernawati, D. (2020). Pengaruh senam yoga terhadap penurunan intensitas nyeri haid pada remaja mahasiswi keperawatan STIKES Hang Tuah Surabaya. *Borneo Nursing Journal*, 2(1), 46–54.
- Chandrayani, C., Rimpiorok, M. H., & Desiyanti, I. W. (2022). Pengaruh senam dismenore terhadap penurunan dismenore pada remaja putri. *Jurnal Sains dan Kesehatan*, 6(1), 7–11. <https://doi.org/10.57214/jusika.v6i1.91>
- Fajria, S., Iskandar, & Tharida, M. (2022). Analisis efektifitas senam yoga terhadap penurunan nyeri menstruasi pada perempuan usia 16–20 tahun di Komplek Lanud SIM Bandara Sultan Iskandar Muda. *Journal of Healthcare Technology and Medicine*, 8(1), 16–22.
- Hadianti, D. N., & Ferina, F. (2021). Senam yoga menurunkan dismenore pada remaja. *Jurnal Riset Kesehatan Poltekkes Depkes Bandung*, 13(1), 239–245. <https://doi.org/10.34011/juriskesbdg.v13i1.1910>
- Hamal, D. K., & Juliana, F. (2022). Faktor-faktor yang berhubungan dengan kejadian dismenorea primer pada remaja putri di SMK Farmasi Bhumihsada Jakarta tahun 2021. *Media Publikasi Promosi Kesehatan Indonesia*, 5(7), 865–869. <https://doi.org/10.56338/mppki.v5i7.2391>

- Handayani, R., Isnaeni, I., Ahmad, E. H., Sangahti, S., & Mahmud, Y. (2022). Efektivitas latihan abdominal stretching terhadap penurunan dismenorhe remaja. *Jurnal Kesehatan Manarang*, 8(3), 198–205. <https://doi.org/10.33490/jkm.v8i3.679>
- Isni, F., Salafas, E., Suryani, L., & Runiatin. (2023). Akupresure dan yoga untuk mengurangi nyeri haid (disminore) pada remaja putri. *Prosiding Seminar Nasional dan CFP Kebidanan Universitas Ngudi Waluyo*.
- Lestari, S., Mastina, M., & Sanputri, Y. R. (2025). Pengaruh yoga terhadap nyeri dysmenorrhea primer pada remaja putri Pondok Pesantren Nurul Jalal Kabupaten Tebo. *JUKEJ: Jurnal Kesehatan Jompa*, 4(1), 573–577. <https://doi.org/10.57218/jkj.vol4.iss1.1831>
- Ulaa, M. A., Triwijayanti, R., Fadlilah, M., Ningrum, W. A. C., Trilia, Yelisni, I., & Rahmania, A. (2020). Application of mind-body practice: Yoga for reducing long pain primary dysmenorrhea. In *Advances in Health Sciences Research*, 27.
- Wardani, I. G. A. N., & Suryanti, P. E. (2020). Yoga sebagai upaya meringankan nyeri haid pada remaja perempuan. *Jurnal Yoga dan Kesehatan*, 3(2), 195–202. <https://doi.org/10.25078/jyk.v3i2.1747>
- Windayanti, H., Khayati, Y. N., Veftisia, V., Widyaningsih, A., Dewi, M. K., Izzah, L. F., Mulyani, M., Aprilia, N., Sabwan, I. K., & Sari, L. A. (2021). Yoga untuk mengurangi nyeri haid primer pada remaja putri. *Indonesian Journal of Community Empowerment*, 3(2), 93–100. <https://doi.org/10.35473/ijc>
- Wulanda, C., Luthfi, A., & Hidayat, R. (2020). Efektifitas senam dismenore pada pagi dan sore hari terhadap penanganan nyeri haid pada remaja putri saat haid di SMPN 2 Bangkinang Kota tahun 2019. *Jurnal Kesehatan Tambusai*, 1(1), 1–11. <https://doi.org/10.31004/jkt.v1i1.106/article/view/501> (Diakses 17 April 2020)