

The Effect of Yoga and Meditation on Menstrual Cycle Regularity Among Adolescent Girls at SMK Bakti Utama Pati

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Abstract. Menstrual cycle irregularity is one of the most common reproductive health problems among adolescent girls and is frequently associated with hormonal imbalance, psychological stress, physical inactivity, and unhealthy lifestyles. Non-pharmacological interventions, such as yoga and meditation, have been widely recognized for their potential to improve hormonal regulation through stress reduction and neuroendocrine modulation. This study aimed to determine the effect of yoga and meditation on menstrual cycle regularity among adolescent girls at SMK Bakti Utama Pati. A quasi-experimental study with a one-group pretest-posttest design was conducted involving 22 respondents selected from a population of 116 adolescent girls using purposive sampling. Participants received a structured yoga and meditation intervention, while menstrual cycle regularity was assessed based on menstrual cycle length recorded using a menstrual cycle monitoring sheet. Data were analyzed using the Wilcoxon Signed Rank Test. Before the intervention, 18 respondents (81.8%) had irregular menstrual cycles and 4 respondents (18.2%) had regular cycles. After the intervention, the number of respondents with regular menstrual cycles increased to 17 (77.3%), while only 5 respondents (22.7%) remained irregular. The median menstrual cycle length decreased from 40 days before the intervention to 31 days after the intervention, with a statistically significant difference ($p < 0.001$). These findings indicate that yoga and meditation effectively improve menstrual cycle regularity and may serve as safe, non-pharmacological interventions to support reproductive health promotion among adolescent girls.

Keywords: Adolescent girls; meditation; menstrual cycle regularity; reproductive health; yoga.

INTRODUCTION

Adolescence is a transitional period between childhood and adulthood characterized by rapid biological, psychological, social, and emotional changes. In adolescent girls, one of the most prominent biological changes is the onset of reproductive function, marked by menarche. Menstruation is a physiological process that reflects the normal functioning of the female reproductive system; therefore, menstrual cycle characteristics are widely recognized as important indicators of women's reproductive health (UNICEF, 2021). During adolescence, the maturation of the hypothalamic–pituitary–ovarian (HPO) axis is often incomplete, making menstrual disorders such as dysmenorrhea, heavy menstrual bleeding, and irregular menstrual cycles relatively common. These conditions are frequently considered a normal part of pubertal adaptation and therefore receive limited attention. However, persistent menstrual disturbances may adversely affect reproductive health and the overall quality of life of adolescent girls (WHO, 2023).

According to the World Health Organization, there are approximately 1.3 billion adolescents aged 10–19 years worldwide, representing nearly one-sixth of the global population. Consequently, adolescent reproductive health has become a key priority in achieving the Sustainable Development Goals (SDGs) (WHO, 2023). Menstrual disorders remain among the most prevalent reproductive health problems experienced by adolescent girls across different countries. International evidence indicates that menstrual cycle irregularity is common during adolescence due to the incomplete maturation of the hormonal regulatory system and is further influenced by psychological stress, sleep patterns, physical activity, and nutritional status (Critchley *et al.*, 2020). An irregular menstrual cycle is not only an indicator of hormonal imbalance but also reflects the overall health status of adolescent girls and may have long-term implications for their reproductive health (International Federation of Gynecology and Obstetrics, 2023).

Indonesia is home to a large adolescent population, making adolescent reproductive health a major challenge in achieving national health development goals. According to the 2024 Indonesian Health Survey and several national studies, menstrual disorders remain among the most common reproductive health complaints experienced by adolescent girls, including dysmenorrhea, irregular menstrual cycles, abnormal menstrual duration, and premenstrual syndrome. Menstrual cycle irregularity among Indonesian adolescents is associated with multiple factors, such as academic stress, lifestyle changes,

insufficient physical activity, unhealthy dietary habits, poor sleep quality, and excessive screen time, all of which contribute to reduced physical activity and hormonal imbalance. These findings highlight the need for sustainable promotive and preventive strategies to improve adolescent reproductive health through health education and healthy lifestyle interventions (Ministry of Health of the Republic of Indonesia, 2023; Statistics Indonesia, 2024; Dewi & Puspitaningrum, 2024).

Central Java Province also continues to face a high burden of menstrual health problems among adolescent girls. A recent regional study reported that the prevalence of dysmenorrhea reached 89.5%, while 31.2% of adolescent girls experienced irregular menstrual cycles and 5.3% reported prolonged menstrual duration. These findings indicate that nearly one-third of adolescent girls in Central Java experience menstrual cycle irregularities, suggesting that menstrual health remains an important public health concern. Therefore, comprehensive preventive efforts are required, including improving reproductive health literacy, promoting healthy lifestyles, and implementing accessible non-pharmacological interventions within school settings to support adolescent reproductive health (Kusumaningrum & Yuliani, 2024).

Pati Regency, one of the districts in Central Java Province, exhibits a similar pattern of adolescent reproductive health problems. A study conducted among adolescent girls at Raudlatul Ulum Islamic Boarding School, Guyangan, Trangkil, Pati Regency, reported that menstrual cycle disorders remain common in this population. The study found that menstrual irregularities were associated with psychological stress, physical activity, nutritional status, and limited knowledge of reproductive health. These findings suggest that adolescent girls in Pati Regency require comprehensive promotive interventions that not only enhance reproductive health literacy but also improve physiological balance to support regular menstrual cycles (Kusumaningrum & Yuliani, 2024).

Menstrual cycle regularity is influenced by a complex interaction of biological, psychological, and environmental factors. Biological determinants include age at menarche, maturation of the hypothalamic–pituitary–ovarian (HPO) axis, nutritional status, body mass index, and hormonal balance. Psychological factors, particularly stress, anxiety, and depression, may increase cortisol secretion, which suppresses the release of gonadotropin-releasing hormone (GnRH) from the hypothalamus. This suppression subsequently alters the secretion of follicle-stimulating hormone (FSH) and luteinizing hormone (LH), disrupting ovulation and contributing to menstrual cycle irregularities (Critchley *et al.*, 2020; Armour *et al.*, 2023).

Environmental and lifestyle factors also play a substantial role in menstrual cycle regulation among adolescent girls. Insufficient physical activity, unhealthy dietary patterns, poor sleep quality, prolonged screen time, and excessive academic demands have all been associated with disturbances in hormonal homeostasis and menstrual cycle regularity. The interaction between these modifiable risk factors and the physiological immaturity of the reproductive endocrine system increases adolescents' susceptibility to menstrual disorders. Therefore, effective interventions should address both physiological and behavioral determinants to achieve sustainable improvements in adolescent reproductive health (Ministry of Health of the Republic of Indonesia, 2023).

Menstrual cycle irregularity among adolescent girls affects not only reproductive health but also multiple aspects of their overall well-being. Persistent irregular menstrual cycles may serve as an early indicator of hormonal dysfunction, including polycystic ovary syndrome (PCOS), ovulatory disorders, and other endocrine abnormalities. If left unaddressed, these conditions may increase the risk of anemia, impaired fertility in adulthood, reduced quality of life, and psychological problems such as anxiety and stress resulting from the uncertainty of menstrual timing. In the educational setting, adolescents experiencing menstrual disorders are more likely to have reduced concentration, lower participation in school activities, increased absenteeism, and poorer academic performance, ultimately affecting their educational achievement (ACOG, 2022; Armour *et al.*, 2023; WHO, 2023).

The Government of Indonesia has implemented various strategies to improve adolescent reproductive health through the Adolescent-Friendly Health Services (Pelayanan Kesehatan Peduli Remaja/PKPR) program delivered at primary healthcare centers, the establishment of Youth Integrated Health Posts (Posyandu Remaja), the strengthening of the School Health Program (Usaha Kesehatan Sekolah/UKS), and the integration of reproductive health education into school-based activities. These initiatives are intended to enhance adolescents' knowledge, promote healthy behaviors, improve access to reproductive health services, and facilitate the early detection of adolescent health problems. Nevertheless, several challenges continue to limit the effectiveness of these programs, including the low

utilization of PKPR services by adolescents, limited capacity of healthcare providers to deliver sustained support, suboptimal collaboration between schools and healthcare facilities, and the predominance of educational approaches over promotive interventions that directly address adolescents' physiological conditions (Ministry of Health of the Republic of Indonesia, 2023). These limitations indicate a gap between the implementation of existing adolescent reproductive health programs and the need for comprehensive interventions to effectively address menstrual cycle irregularities among adolescent girls WHO, (2023); UNICEF, (2021).

Yoga and meditation have increasingly been recognized as promising non-pharmacological interventions for promoting women's reproductive health. Yoga integrates physical postures (asanas), breathing techniques (pranayama), relaxation, and meditation into a comprehensive mind–body practice that positively influences neuroendocrine regulation (Pascoe *et al.*, 2023). Regular yoga practice has been shown to reduce cortisol levels, enhance parasympathetic nervous system activity, improve blood circulation to the reproductive organs, stimulate endorphin release, and promote hormonal balance involved in regulating the menstrual cycle (Cramer *et al.*, 2022). Meditation complements these physiological benefits by reducing sympathetic nervous system activity, thereby alleviating psychological stress, improving sleep quality, enhancing emotional well-being, and supporting hormonal homeostasis. The integration of yoga and meditation therefore provides a holistic approach that simultaneously promotes physical and psychological health among adolescent girls (Field, 2024).

The management of menstrual disorders has traditionally relied on pharmacological therapies tailored to the underlying cause, including non-steroidal anti-inflammatory drugs (NSAIDs), hormonal therapy, and combined oral contraceptives. Although these treatments are effective for specific clinical conditions, their long-term use requires medical supervision because of the potential for adverse effects, including gastrointestinal irritation, nausea, digestive disorders, headaches, fluid retention, and an increased risk of thromboembolic events associated with certain hormonal therapies (ACOG, 2022). These limitations have encouraged the growing adoption of safer and more accessible non-pharmacological interventions that are cost-effective and can be practiced independently by adolescents. Among these approaches, yoga and meditation have demonstrated considerable potential in improving both reproductive and mental health outcomes, making them attractive complementary strategies for adolescent reproductive health promotion (NICE, 2023); (Armour *et al.*, 2023).

Previous studies have consistently demonstrated the beneficial effects of yoga on menstrual health among adolescent girls. Suswardani *et al.* (2025) reported that regular Hatha Yoga practice significantly improved menstrual cycle regularity among adolescent girls. Similarly, Sharma *et al.* (2023) found that consistent yoga practice enhanced hormonal balance, reduced psychological stress, and improved reproductive function in adolescents and young women. A systematic review conducted by Cramer *et al.* (2022) concluded that yoga is effective in alleviating various menstrual disorders through neuroendocrine regulation and the reduction of stress responses. Furthermore, Pascoe *et al.* (2023) demonstrated that meditation effectively reduces cortisol levels and improves psychological well-being, thereby indirectly contributing to improved menstrual cycle regularity. Despite these promising findings, studies evaluating the combined effects of yoga and meditation as a single intervention package on menstrual cycle regularity among adolescent girls, particularly in vocational high school settings and in Pati Regency, remain limited. Therefore, this study was conducted to provide scientific evidence regarding the effectiveness of a combined yoga and meditation intervention in improving menstrual cycle regularity among adolescent girls.

As a preliminary step, a pilot assessment was conducted in January 2026 at SMK Bakti Utama Pati through interviews with eight adolescent girls who had experienced menarche. The findings revealed that five participants reported irregular menstrual cycles, characterized by cycles occurring either earlier or later than the normal range of 21–35 days, while three participants reported relatively regular menstrual cycles. Most participants with irregular menstrual cycles also reported experiencing academic stress related to school assignments and examinations, sleeping less than seven hours per night, and engaging in insufficient regular physical activity. In addition, several participants indicated that they had limited knowledge of the factors influencing menstrual cycle regularity and had never received information regarding yoga or meditation as potential strategies for maintaining reproductive health. These preliminary findings highlight the need for accessible, school-based, non-pharmacological interventions to improve menstrual health among adolescent girls and provide a strong rationale for conducting the present study.

The preliminary findings also revealed that the strategies adopted by the participants to manage menstrual problems were limited to resting, consuming warm beverages, or waiting for the symptoms to resolve spontaneously. None of the participants had previously participated in yoga or meditation programs specifically designed to promote reproductive health or improve menstrual cycle regularity. These findings indicate an unmet need for safe, practical, and non-pharmacological interventions that can be easily implemented within the school setting and practiced independently by adolescent girls to improve menstrual cycle regularity.

Based on the evidence presented, menstrual cycle irregularity remains a prevalent reproductive health problem among adolescent girls and is influenced by multiple factors, particularly psychological stress and lifestyle-related behaviors. Although the Indonesian government has implemented several promotive programs, including the Adolescent-Friendly Health Services (PKPR), the School Health Program (UKS), and reproductive health services at primary healthcare centers, their implementation continues to rely predominantly on educational approaches with limited emphasis on interventions targeting adolescents' physiological and psychological well-being. Yoga and meditation have emerged as promising non-pharmacological interventions capable of improving menstrual cycle regularity through hormonal regulation and stress reduction. However, evidence regarding the combined effects of these interventions among adolescent girls, particularly in vocational high school settings in Pati Regency, remains limited. Therefore, this study was conducted to examine the effect of yoga and meditation on menstrual cycle regularity among adolescent girls at SMK Bakti Utama Pati.

METHODS

This study employed a quantitative approach using a quasi-experimental one-group pretest–posttest design to examine the effect of yoga and meditation on menstrual cycle regularity among adolescent girls. The study was conducted at SMK Bakti Utama Pati, Indonesia, from January to March 2026. The study population consisted of 58 female students who had experienced menarche. A total of 22 respondents were selected using purposive sampling based on the following inclusion criteria: female adolescents aged 15–18 years, had experienced menarche for at least one year, had irregular menstrual cycles during the previous three months, were willing to participate in the study, and completed all stages of the intervention and data collection. Participants receiving hormonal therapy or having a history of specific reproductive disorders were excluded from the study. The intervention consisted of a structured yoga and meditation program. Menstrual cycle regularity was assessed before (pretest) and after (posttest) the intervention using a menstrual cycle observation sheet based on menstrual cycle length. Data were analyzed using descriptive statistics to summarize respondents' characteristics and menstrual cycle regularity. The effect of the intervention was analyzed using the Wilcoxon Signed-Rank Test with a 95% confidence level and a significance level of $p < 0.05$.

RESULTS AND DISCUSSION

Table 1. Characteristics of Respondents by Age

Age (year)	Frequency (f)	Percentage (%)
15	5	22,7
16	11	50,0
17	6	27,3
Total	22	100

Source: Primary Data (2026)

As presented in Table 1, the majority of respondents were 16 years old ($n = 11$; 50.0%), followed by those aged 17 years ($n = 6$; 27.3%) and 15 years ($n = 5$; 22.7%). These findings indicate that most participants were in the middle adolescence stage, a developmental period characterized by the ongoing maturation of the reproductive system. During this stage, the hypothalamic–pituitary–ovarian (HPO) axis has not yet reached full physiological maturity, making the regulation of reproductive hormones more susceptible to both internal and external influences, including psychological stress, physical activity, sleep patterns, nutritional status, and lifestyle factors. Consequently, adolescents in this age group are more vulnerable to experiencing menstrual cycle irregularities. The age distribution of the respondents was therefore considered appropriate for the objectives of this study, as middle adolescence

represents a critical period for implementing promotive interventions, such as yoga and meditation, to support hormonal balance and promote reproductive health from an early age (World Health Organization [WHO], 2023; American College of Obstetricians and Gynecologists [ACOG], 2022; Ministry of Health of the Republic of Indonesia, 2023).

Table 2. Menstrual Cycle Regularity Before the Yoga and Meditation Intervention Among Adolescent Girls at SMK Bakti Utama Pati, 2026

Menstrual Cycle Regularity	Frequency (f)	Percentage (%)
Regular (21–35 days)	4	18,2
Irregular (<21 days or >35 days)	18	81,8
Total	22	100

Source: Primary Data (2026)

As shown in Table 2, before the yoga and meditation intervention, the majority of respondents had irregular menstrual cycles, accounting for 18 participants (81.8%), whereas only 4 participants (18.2%) had regular menstrual cycles. These findings indicate that most adolescent girls experienced menstrual cycle irregularities prior to the intervention. This condition may be explained by the fact that, during adolescence, the reproductive system is still undergoing maturation, and the hypothalamic–pituitary–ovarian (HPO) axis has not yet reached full physiological stability. Consequently, hormonal regulation is more susceptible to various internal and external influences.

In addition to physiological immaturity, menstrual cycle irregularities are associated with several modifiable factors, including psychological stress, insufficient physical activity, poor sleep quality, nutritional status, and unhealthy lifestyle behaviors. Elevated cortisol levels resulting from chronic psychological stress may suppress the secretion of gonadotropin-releasing hormone (GnRH), thereby disrupting the release of follicle-stimulating hormone (FSH) and luteinizing hormone (LH). This hormonal dysregulation can impair ovulation and ultimately lead to irregular menstrual cycles. These findings are consistent with those reported by Armour *et al.* (2023), who identified psychological stress and lifestyle-related factors as major determinants of menstrual cycle irregularities among adolescent girls. Similarly, Critchley *et al.* (2020) emphasized that hormonal imbalance resulting from the interaction of physiological and psychological factors plays a crucial role in the development of menstrual disorders.

The predominance of irregular menstrual cycles at baseline indicates that the study participants represented an appropriate target population for the intervention. This baseline condition provided a suitable foundation for evaluating the effectiveness of yoga and meditation as non-pharmacological interventions aimed at improving hormonal regulation and promoting menstrual cycle regularity among adolescent girls.

Table 3. Menstrual Cycle Regularity Following the Yoga and Meditation Intervention Among Adolescent Girls at SMK Bakti Utama Pati, 2026

Menstrual Cycle Regularity	Frequency (f)	Percentage (%)
Regular (21–35 days)	17	77,3
Irregular (<21 days or >35 days)	5	22,7
Total	22	100

Source: Primary Data (2026)

As presented in Table 3, following the yoga and meditation intervention, the majority of respondents had regular menstrual cycles, comprising 17 participants (77.3%), while only 5 participants (22.7%) continued to experience irregular menstrual cycles. Compared with the baseline findings, these results demonstrate a substantial increase in the proportion of participants with regular menstrual cycles after the intervention. This improvement suggests that the combined yoga and meditation program may positively influence menstrual cycle regulation through neuroendocrine mechanisms.

The beneficial effects of yoga and meditation can be explained by their ability to reduce sympathetic nervous system activity and decrease cortisol secretion, the primary stress hormone. Lower cortisol levels facilitate the restoration of the hypothalamic–pituitary–ovarian (HPO) axis, thereby promoting the normal secretion of gonadotropin-releasing hormone (GnRH), follicle-stimulating hormone (FSH), and luteinizing hormone (LH), all of which play essential roles in ovulation and menstrual cycle regulation. Furthermore, regular yoga practice combined with meditation enhances parasympathetic nervous system activity, improves blood circulation to the reproductive organs, stimulates endorphin release, and induces a state of relaxation that supports hormonal homeostasis.

Collectively, these physiological responses contribute to improved menstrual cycle regularity among adolescent girls.

The present findings are consistent with those reported by Cramer *et al.* (2022), who concluded that yoga improves reproductive health by regulating neuroendocrine function and attenuating physiological stress responses. Likewise, Pascoe *et al.* (2023) demonstrated that meditation effectively reduces cortisol levels and enhances psychological well-being, thereby indirectly supporting hormonal regulation. The marked improvement in menstrual cycle regularity observed after the intervention suggests that yoga and meditation may serve as safe, feasible, and effective non-pharmacological approaches for promoting reproductive health among adolescent girls. These findings also support the integration of structured yoga and meditation programs into school-based adolescent health promotion initiatives as complementary strategies to improve menstrual health.

Table 4. Hasil Analisis Pengaruh Yoga dan Meditasi terhadap Lama Siklus Menstruasi pada Remaja Putri di SMK Bakti Utama Pati Tahun 2026

Variable	Median (Min-Maks)	<i>p-value</i>
Before the intervention	40 (29-45)	0,001
After the intervention	31 (28-40)	

Source: uji Wilcoxon Signed Rang Test

As presented in Table 4, the results of the Wilcoxon Signed-Rank Test revealed a statistically significant effect of the yoga and meditation intervention on menstrual cycle length among adolescent girls at SMK Bakti Utama Pati ($p < 0.001$). The median menstrual cycle length decreased from 40 days (range: 29–45 days) before the intervention to 31 days (range: 28–40 days) after the intervention. These findings indicate that participation in the structured yoga and meditation program shifted the respondents' menstrual cycle length toward the normal range of 21–35 days. The observed improvement suggests that the intervention contributed to better regulation of the menstrual cycle and supports the effectiveness of yoga and meditation as complementary non-pharmacological strategies for improving menstrual health among adolescent girls.

From a physiological perspective, yoga and meditation influence menstrual cycle regulation through modulation of the hypothalamic–pituitary–ovarian (HPO) axis, the primary neuroendocrine system responsible for regulating female reproductive hormones. The combination of yoga and meditation reduces sympathetic nervous system activity and lowers cortisol secretion in response to psychological stress. Reduced cortisol levels minimize the inhibition of gonadotropin-releasing hormone (GnRH) release from the hypothalamus, thereby promoting the normal secretion of follicle-stimulating hormone (FSH) and luteinizing hormone (LH). This hormonal regulation supports follicular development, ovulation, and corpus luteum formation, all of which are essential for maintaining regular menstrual cycles. Furthermore, yoga enhances parasympathetic nervous system activity, improves blood circulation to the reproductive organs, stimulates the release of β -endorphins, and induces physiological relaxation, thereby contributing to hormonal homeostasis and improved menstrual cycle regulation (Pascoe *et al.*, 2023; Cramer *et al.*, 2022).

The findings of the present study are consistent with those reported by Shete *et al.* (2022), who demonstrated that regular yoga practice improved reproductive hormonal balance and contributed to the normalization of menstrual cycles among adolescent girls. Similarly, Kaur *et al.* (2023) found that the combination of yoga and relaxation techniques significantly reduced psychological stress and enhanced reproductive function through modulation of the neuroendocrine system. In addition, Pascoe *et al.* (2023) reported that consistent meditation practice was associated with lower cortisol levels, improved psychological well-being, and better hormonal regulation, all of which contribute to women's reproductive health. The consistency of these findings with the present study further supports the effectiveness of yoga and meditation as non-pharmacological interventions for improving menstrual cycle regularity among adolescent girls.

Despite the overall improvement observed following the intervention, five respondents (22.7%) continued to experience irregular menstrual cycles. This finding suggests that menstrual cycle regularity is influenced not only by physical activity and relaxation techniques but also by other factors that were not assessed in the present study, including nutritional status, sleep quality, persistent psychological stress, habitual physical activity, and individual hormonal variations. Therefore, the effectiveness of yoga and meditation should be complemented by the adoption of a healthy lifestyle to achieve optimal

reproductive health outcomes (ACOG, 2022); Ministry of Health of the Republic of Indonesia, 2023).

The present study extends the existing evidence on non-pharmacological interventions for adolescent menstrual health by evaluating the combined effects of yoga and meditation on menstrual cycle regularity in a vocational high school setting. Previous studies have primarily investigated yoga or meditation as separate interventions, with greater emphasis on reducing menstrual pain (dysmenorrhea) rather than improving menstrual cycle regularity. By integrating yoga and meditation into a structured intervention program, the present study addresses both the physiological and psychological factors associated with menstrual cycle irregularities. This integrated approach offers a practical, safe, and cost-effective strategy that can be readily implemented within school environments to support adolescent reproductive health.

The findings of this study contribute to the advancement of promotive and preventive strategies for adolescent reproductive health. Incorporating structured yoga and meditation programs into the Adolescent-Friendly Health Services (Pelayanan Kesehatan Peduli Remaja/PKPR) and the School Health Program (Usaha Kesehatan Sekolah/UKS) may provide an effective complementary approach for improving menstrual health among adolescent girls. In addition to benefiting individual health, the findings provide evidence that can inform healthcare professionals, educators, and researchers in developing evidence-based complementary interventions for adolescent reproductive health. The implementation of school-based yoga and meditation programs may also represent a sustainable, accessible, and low-cost strategy for enhancing both reproductive health and psychological well-being among adolescent girls.

CONCLUSION

This study concludes that yoga and meditation have a significant effect on menstrual cycle regularity among adolescent girls at SMK Bakti Utama Pati. The results of the Wilcoxon Signed-Rank Test demonstrated a statistically significant difference in menstrual cycle length before and after the intervention ($p < 0.001$). Following the intervention, the majority of participants achieved menstrual cycle lengths within the normal range, indicating that the combined yoga and meditation program effectively improved menstrual cycle regulation. These findings suggest that yoga and meditation represent safe, practical, and effective non-pharmacological interventions for supporting hormonal balance and promoting adolescent reproductive health. The study further highlights the potential integration of structured yoga and meditation programs into school-based health promotion initiatives, the School Health Program (Usaha Kesehatan Sekolah/UKS), and Adolescent-Friendly Health Services (Pelayanan Kesehatan Peduli Remaja/PKPR) to strengthen promotive and preventive reproductive health strategies for adolescent girls.

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