



THE EFFECT OF MINDFULNESS BASED STRESS REDUCTION (MBSR) ON THE INTENSITY OF DYSPMINORE IN ADOLESCENTS AT THE PUNGGING PUBLIC HEALTH CENTER, MOJOKERTO DISTRICT

Naning Puji Suryantini

Universitas Bina Sehat PPNI Mojokerto

Corresponding Email: naning.bidan82@gmail.com

ABSTRACT	Keywords
Lower back pain is the most common form of discomfort during pregnancy experienced by mothers, especially in the second and third trimesters. Hormonal changes, weight gain, and biomechanical adaptations of the body are the main factors causing this complaint. The impact is not only pain but also disrupts daily activities, sleep quality, and increases stress. Pharmacological management is not always safe, so non-pharmacological interventions are more recommended. One potential method is pregnancy massage with stimulation of the BL40 (Weizhong) acupressure point, which works to relax muscles, improve circulation, and stimulate the release of endorphins. This study used a quasi-experimental design with a pretest–posttest without a control group. The sample consisted of 30 pregnant women in their second and third trimesters who experienced lower back pain and received antenatal care at the Sujiati Nur Elys TPMB, Dlanggu District, Mojokerto Regency. The intervention was given three times a week, with pain measured using the Numeric Rating Scale (NRS). The results showed that before the intervention, the majority of respondents experienced severe pain (53.3%), while after the intervention, none experienced severe pain. A total of 26.7% of respondents had no pain, 53.3% had mild pain, and 20% had moderate pain. The Wilcoxon test showed $p = 0.000$ ($p < 0.05$), indicating a significant difference before and after the intervention. Thus, pregnancy massage at the BL40 point has been proven effective in reducing lower back pain in pregnant women.	Pregnant massage; Acupressure ; BL40 point; Lower back pain; Pregnant women

INTRODUCTION

Dysmenorrhea is one of the most common menstrual disorders experienced by adolescent girls. Dysmenorrhea is defined as

pain in the lower abdomen that occurs before or during menstruation due to increased production of prostaglandins, which cause excessive uterine contractions. The pain can

radiate to the lower back and thighs and is often accompanied by other symptoms such as nausea, vomiting, dizziness, fatigue, and emotional disturbances. Dysmenorrhea can be divided into primary dysmenorrhea, which is not caused by reproductive organ abnormalities, and secondary dysmenorrhea, which is related to certain pathological conditions in the reproductive system (Yulizawati et al., 2024). Adolescence is a vulnerable period for dysmenorrhea due to hormonal maturity and unstable reproductive function, so complaints of menstrual pain are more common in this age group (Walyani & Purwoastuti, 2023).

Globally, dysmenorrhea remains a significant reproductive health problem for adolescents. A *systematic review* published in 2024 showed that the prevalence of dysmenorrhea in adolescents and young women ranged from 45% to 95%, with most experiencing moderate to severe pain that interfered with daily activities (Armour et al., 2024). The World Health Organization has also listed adolescent reproductive health disorders as a global health priority due to their impact on the quality of life, mental health, and productivity of young people (WHO, 2024).

In Indonesia, dysmenorrhea remains a major complaint frequently experienced by adolescent girls. The Indonesian Ministry of Health reports that more than 60% of adolescent girls have experienced menstrual pain with varying degrees of severity (Kemenkes RI, 2024). Research conducted in various regions in Indonesia indicates that approximately 55–75% of adolescents experience primary dysmenorrhea, and most report disruptions to learning, concentration, and participation in school activities during menstruation (Sari et al., 2023). In East Java Province, the prevalence of dysmenorrhea in adolescents is reported to be over 65%, making it a reproductive health issue requiring special attention (East Java Provincial Health Office, 2024).

According to a 2024 report from the Mojokerto Regency Health Office, menstrual pain remains a common reproductive health issue encountered in adolescent health services. A preliminary study conducted by researchers in the

Pungging Community Health Center in January 2026 on 20 adolescent girls showed that most respondents experienced moderate to severe menstrual pain, which led to school absences, impaired concentration, decreased physical activity, and mood swings during menstruation.

Dysmenorrhea not only impacts physical health but also psychological well-being in adolescents. Recurrent menstrual pain can cause stress, anxiety, irritability, sleep disturbances, and a reduced quality of life. Conversely, stress experienced by adolescents can also exacerbate the perception of menstrual pain through activation of the sympathetic nervous system and increased secretion of the hormone cortisol. As stress levels increase, the body's sensitivity to pain stimuli also increases, thus increasing the perceived intensity of dysmenorrhea (Handayani et al., 2024). Therefore, there is a reciprocal relationship between psychological stress and menstrual pain intensity that requires attention in dysmenorrhea management efforts.

Various efforts have been made to address dysmenorrhea, using both pharmacological and non-pharmacological approaches. Pharmacological treatment generally uses non-steroidal anti-inflammatory drugs (NSAIDs) and analgesics, which aim to inhibit prostaglandin synthesis, thereby reducing pain (Ministry of Health of the Republic of Indonesia, 2024). However, repeated use of these medications can cause side effects such as stomach upset, nausea, and drug dependence. Therefore, non-pharmacological interventions are more widely recommended as complementary or alternative therapies due to their safety, ease of implementation, and minimal side effects.

One non-pharmacological approach currently developing in pain management is *Mindfulness-Based Stress Reduction (MBSR)*. MBSR is a mindfulness training method that teaches individuals to consciously focus their attention on the present moment without judgment. This program combines meditation, mindful breathing, body scanning, and awareness exercises to help individuals manage stress

and improve their ability to adapt to pain (Sutejo, 2023). Through mechanisms of emotional regulation and stress response control, MBSR can reduce sympathetic nervous system activation, thereby reducing the perception of pain.

Research conducted by Kurniasari et al. (2024) showed that a four-week *mindfulness intervention* significantly reduced the intensity of dysmenorrhea in adolescent girls, with a p-value of <0.05. Another study by Prasetyo and Nugraheni (2025) also demonstrated that the MBSR program effectively reduced stress levels and menstrual pain in high school students. These results indicate that the mindfulness approach has the potential to be an effective intervention in managing dysmenorrhea.

Several previous studies have examined the effectiveness of warm compresses, dysmenorrhea exercises, yoga, deep breathing relaxation, and acupressure in reducing menstrual pain. However, research specifically examining the application of *Mindfulness-Based Stress Reduction* (MBSR) in adolescents with dysmenorrhea at the primary healthcare level, particularly in Mojokerto Regency, is still very limited. This approach has advantages because it focuses not only on reducing physical pain but also addresses psychological factors that contribute to increased pain perception.

Based on the description, the researcher is interested in conducting a study entitled "The Effect of *Mindfulness-Based Stress Reduction* (MBSR) on the Intensity of Dysmenorrhea in Adolescents at the Pungging Community Health Center, Mojokerto Regency." This study is expected to provide scientific evidence regarding the effectiveness of MBSR as a safe, easy-to-implement, and effective non-pharmacological intervention in reducing the intensity of dysmenorrhea in adolescents.

METHODS

This study used a quantitative method with a quasi-experimental type (quasi-experiment) using a pretest-posttest design without a control group. This study

was conducted by providing *Mindfulness Based Stress Reduction* (MBSR) intervention to adolescents experiencing dysmenorrhea in the work area of the Pungging Community Health Center, Mojokerto Regency. The MBSR intervention was given in a structured manner according to Standard Operating Procedures (SOPs) which included mindful breathing exercises, body scans, and mindfulness meditation exercises. The intensity of dysmenorrhea was measured using a Numeric Rating Scale (NRS) before and after the intervention to determine whether there was a significant difference in pain levels before and after MBSR administration.

Research Variables

The independent variable in this study is the implementation of *Mindfulness Based Stress Reduction* (MBSR), while the dependent variable is the intensity of dysmenorrhea in adolescents at the Pungging Community Health Center, Mojokerto Regency.

Operational Definition

Operational Definition of Variables, this study consists of two variables, namely the independent variable and the dependent variable. The independent variable is the Implementation of Mindfulness Based Stress Reduction (MBSR), which is a non-pharmacological intervention provided by researchers in accordance with Standard Operating Procedures (SOP) to help young women manage stress and menstrual pain through mindfulness practice. The implementation of MBSR is carried out through three main components, namely mindful breathing, body scan, and mindfulness meditation. These three components are given in a structured manner according to the SOP as a form of intervention to increase self-awareness and relaxation abilities of respondents during the menstrual period.

The dependent variable in this study was the intensity of dysmenorrhea in adolescent girls, namely the level of menstrual pain experienced by respondents

during menstruation before and after the MBSR intervention. Pain intensity was measured using a Numeric Rating Scale (NRS) recorded through an observation sheet. The measurement scale used was a ratio scale with a score range of 0 to 10. The measurement results were categorized into four levels: no pain with a score of 0, mild pain with a score of 1–3, moderate pain with a score of 4–6, and severe pain with a score of 7–10. This measurement was used to determine changes in dysmenorrhea intensity that occurred after respondents received the Mindfulness Based Stress Reduction (MBSR) intervention.

Population and Sample

The population and sample in this study were adolescent girls experiencing dysmenorrhea in the Pungging Community Health Center (Puskesmas) area of Mojokerto Regency. Based on initial data obtained from screening and data collection activities for adolescents experiencing menstrual pain, 30 adolescent girls met the study criteria. Data were then collected before and after the *Mindfulness-Based Stress Reduction* (MBSR) intervention.

1.1 Data Collection Tools

The data collection method used in this study was an observation sheet. An observation sheet is a research instrument used to systematically record respondents' conditions according to predetermined indicators. This instrument serves as a guide for researchers to ensure an objective, structured, and consistent data collection process, thereby minimizing assessment bias. In this study, the observation sheet was used to measure changes in dysmenorrhea intensity using the Numeric Rating Scale (NRS) before and after the MBSR intervention.

Data Collection Procedures

1. Identifying respondents and requesting their willingness to participate in the research sample. Once the respondents are willing, they will be given an informed consent form.
2. After respondents agreed to be research samples, observations were made on

the intensity of dysmenorrhea before intervention was given using the Numeric Rating Scale (NRS).

3. The observation results were recorded on an observation sheet containing the level of menstrual pain based on the NRS scale.
4. Providing education on *Mindfulness Based Stress Reduction* (MBSR) and implementing interventions according to SOPs which include mindful breathing exercises, body scans, and mindfulness meditation.
5. Conduct re-observation of the intensity of dysmenorrhea after implementing the MBSR intervention using the Numeric Rating Scale (NRS).
6. After all the data is collected, tabulation and data processing are carried out.
7. Compile a research report based on the data obtained .

Data analysis

The results of this study were used to determine differences in dysmenorrhea intensity in adolescents before and after the *Mindfulness-Based Stress Reduction* (MBSR) intervention. These differences were measured using the Numeric Rating Scale (NRS) recorded on an observation sheet. Data analysis was performed using the Wilcoxon Signed Rank Test to determine the significance of differences in pain intensity before and after the intervention. The analysis is expected to demonstrate that *Mindfulness-Based Stress Reduction* (MBSR) is effective in reducing dysmenorrhea intensity in adolescents, thus making it a safe, easy-to-implement, and beneficial non-pharmacological therapy alternative for adolescent health services at community health centers.

RESULTS

Research result

General Data

1. Respondent Characteristics Based on Age

Table 1 Frequency Distribution of Respondents Based on Age at Pungging Community Health Center, Mojokerto Regency

Age	Respondents	
	F	%
10-13 years	3	10
14-16 years	12	40
17-21 years	15	50
Amount	30	100.0

Source: Primary Research Data, 2026

Table 4.1 shows that based on age characteristics, half of the respondents were late adolescent girls aged 17-21 years, namely 15 respondents (50%).

2 Respondent Characteristics Based on Education

Table 2Frequency Distribution of Respondents Based on Education at Pungging Community Health Center, Mojokerto Regency

Education	Respondents		
		F	%
JUNIOR SCHOOL	HIGH	8	26.7
SENIOR SCHOOL	HIGH	18	60
College		4	13.3
Amount		30	100.0

Source: Primary Research Data, 2026

Based on table 2, it is known that the majority of respondents had a high school education, namely 18 respondents (60%), respondents who had a junior high school education were 8 respondents (26.7%), and 4 respondents (13.3%) had a tertiary education.

Special Data

1. Distribution of Pain Scale Based on *Numeric Rating Scale (NRS)* Before Intervention

Table 3 Distribution of Pain Scale Based on *the Numeric Rating Scale (NRS)* Before Intervention at the Pungging Community Health Center, Mojokerto Regency

Intensity of Dysmenorrhea Before Intervention	Respondents	
	F	%
No Pain	0	0
Mild Pain (1-3)	5	16.7
Moderate Pain (4-6)	12	40
Severe Pain (7-10)	13	43.3
Amount	30	100

Source: Primary Research Data, 2026

Based on Table 3, it is known that almost half of the respondents experienced severe dysmenorrhea, namely 13 respondents (43.3%), while a small number of respondents experienced mild dysmenorrhea, namely 5 respondents (16.7%).

2. Distribution of Pain Scale Based on *Numeric Rating Scale (NRS)* After Intervention

Table 4 Distribution of Pain Scale Based on *the Numeric Rating Scale (NRS)* After Intervention at the Pungging Community Health Center, Mojokerto Regency

Dysmenorrhea Intensity After Intervention	Respondents	
	F	%
No Pain	10	33.3
Mild Pain (1-3)	14	46.7
Moderate Pain (4-6)	6	20.0
Severe Pain (7-10)	0	0
Amount	30	100

Source: Primary Research Data, 2026

Table 4 shows that nearly half of the respondents experienced mild pain (score 1–3) after the intervention (14 respondents (46.7%). Furthermore, nearly half of the respondents experienced no pain (10 respondents (33.3%)), and none of the respondents experienced severe pain (score 7–10) after the intervention.

3 Differences in Dysmenorrhea Intensity Before and After Intervention

Table 5 Differences in Dysmenorrhea Intensity Before and After Intervention

Dysmenorrhea Intensity	Before Intervention		After Intervention	
	F	%	F	%
No Pain	0	0	10	33.3
Mild Pain (1-3)	5	16.7	14	46.7
Moderate Pain (4-6)	12	40	6	20.0
Severe Pain (7-10)	13	43.3	0	0
Amount	30	100	30	100
Willcoxon Statistical Test : $p\text{-value } 0.000 < \alpha 0.05$				

Source: Primary Data, 2026

Mindfulness Based Stress Reduction (MBSR) intervention . There was a decrease in dysmenorrhea intensity before and after the intervention, from none of the respondents (0%) in the no pain category before, increasing to 10 respondents (33.3%) who did not experience pain after the intervention. In addition, before the intervention, almost half of the respondents (43.3%) experienced severe pain, while after the intervention, none of the respondents (0%) experienced severe pain.

The results of the statistical test using the Wilcoxon Signed Rank Test showed a $p\text{-value of } 0.000 < \alpha 0.05$ so that H_1 was accepted, which means there was a difference in the intensity of dysmenorrhea between before and after the *Mindfulness Based Stress Reduction (MBSR)* intervention was given to adolescents at the Pungging Community Health Center, Mojokerto Regency.

DISCUSSION

1. Intensity of Dysmenorrhea Before Intervention

Mindfulness Based Stress Reduction (MBSR) intervention , almost half of the respondents experienced severe dysmenorrhea (13 respondents (43.3%)), while 12 respondents (40%) experienced moderate dysmenorrhea and 5 respondents (16.7%) experienced mild dysmenorrhea. There were no respondents in the painless category. These results indicate that the

majority of adolescents at the Pungging Community Health Center in Mojokerto Regency experienced moderate to severe menstrual pain before the intervention.

Dysmenorrhea is pain that occurs before or during menstruation, felt in the lower abdomen and can radiate to the lower back or thighs. Dysmenorrhea occurs due to excessive uterine contractions during menstruation, triggered by increased prostaglandin production in the endometrium. Increased prostaglandins cause stronger uterine muscle contractions, resulting in vasoconstriction of uterine blood vessels, reducing oxygen supply to the tissues and causing pain. Furthermore, prostaglandins entering the bloodstream can cause accompanying symptoms such as nausea, vomiting, diarrhea, dizziness, headaches, and fatigue, which further worsen the condition in adolescents during menstruation.

According to Winengsih et al. (2023), severe dysmenorrhea is a condition where menstrual pain is so severe that it can interfere with daily activities and often requires specific treatment to reduce the pain. Meanwhile, Fatmawati et al. (2024) explain that dysmenorrhea can have physical impacts such as fatigue, sleep disturbances, and limited activity, as well as psychological impacts such as stress, anxiety, mood swings, and decreased concentration in learning.

This indicates that the high number of respondents experiencing moderate and severe dysmenorrhea indicates that menstrual pain remains a significant reproductive health problem among adolescents. This condition is likely influenced by the physiological process of menstruation, which causes an increase in prostaglandins, as well as psychological factors such as academic stress, social pressure, and adolescents' lack of ability to manage menstrual pain. Consequently, most respondents perceived menstrual pain as disruptive to daily activities, resulting in moderate to severe pain intensity. Therefore, the results of this study demonstrate a congruence between the research findings and the theory that increased uterine activity and psychological factors play a significant

role in the occurrence of dysmenorrhea in adolescents.

2. Dysmenorrhea Intensity After Intervention

The results showed that after the *Mindfulness-Based Stress Reduction* (MBSR) intervention, there was a significant change in the intensity of respondents' dysmenorrhea. Ten respondents (33.3%) no longer experienced pain, 14 respondents (46.7%) experienced mild pain, and six respondents (20%) experienced moderate pain. No respondents experienced severe dysmenorrhea after the intervention. These results indicate a shift in pain levels from moderate and severe to mild or even no pain at all.

The reduction in dysmenorrhea intensity is consistent with the *Mindfulness-Based Stress Reduction* (MBSR) theory by Rahmawati and Kusuma (2023), which explains that mindfulness is a form of full awareness of current experiences without negatively evaluating them. The MBSR intervention consists of several main components: mindful breathing, body scans, mindfulness meditation, and present-moment awareness, which aim to help individuals manage stress, increase relaxation, and reduce the perception of pain.

Physiologically, mindfulness practice can reduce sympathetic nervous system activity and increase parasympathetic nervous system activity, resulting in greater relaxation. Furthermore, MBSR can lower levels of stress hormones like cortisol, reduce muscle tension, enhance emotional regulation, and improve an individual's ability to cope with pain. When individuals focus more on the present moment without overreacting emotionally to pain, their perception of pain decreases. This results in menstrual pain that was previously perceived as severe becoming less severe after structured mindfulness practice (Ding et al. 2023).

This demonstrates a clear gap between the facts and existing theories. The success of MBSR in reducing dysmenorrhea intensity in this study was not only due to the relaxation effects that emerged during the

exercise, but also due to changes in how respondents interpreted the sensation of pain. Through mindful breathing and body scan exercises, respondents learned to accept the sensation of menstrual pain without overreacting emotionally. This condition made adolescents calmer, better able to manage stress, and less focused on the pain they were experiencing. As a result, the intensity of pain felt gradually decreased until some respondents no longer felt pain after the intervention.

The Effect of *Mindfulness Based Stress Reduction* (MBSR) on the Intensity of Dysmenorrhea in Adolescents

Based on the analysis results using the Wilcoxon Signed Rank Test, a p-value of $0.000 < \alpha 0.05$ was obtained. These results indicate that H_1 is accepted, which means there is an effect of *Mindfulness Based Stress Reduction* (MBSR) on the intensity of dysmenorrhea in adolescents at the Pungging Community Health Center, Mojokerto Regency. Before the intervention, almost half of the respondents experienced severe dysmenorrhea (43.3%), while after the intervention there were no more respondents who experienced severe pain. In addition, the number of respondents who did not experience pain increased from 0% to 33.3%.

The results of this study align with the theory proposed by (Kabat-Zinn, 2013), which states that *Mindfulness-Based Stress Reduction* (MBSR) is a mindfulness training program aimed at increasing individual awareness of current experiences without judging them. Through mindful breathing, body scans, meditation, and mindful movement exercises, individuals can improve their ability to manage stress, control emotions, and deal with pain more adaptively. Furthermore, research by Ding et al. (2023) shows that mindfulness can reduce sympathetic nervous system activity and increase parasympathetic nervous system activity, resulting in greater relaxation. This contributes to lower stress hormone levels, reduced muscle tension, and decreased pain perception. This reduced stress response plays a crucial role in reducing the intensity of menstrual pain.

The main goal of MBSR is to increase self-awareness, reduce stress and anxiety, improve emotional regulation, and help individuals develop more effective coping mechanisms for dealing with physical and psychological discomfort. In the context of dysmenorrhea, mindfulness helps adolescents accept the sensation of pain without overreacting emotionally, thus lowering the perception of menstrual pain (Sari et al. 2024). Research results (Fatmawati et al. 2024) also explain that stress is a factor that can increase a person's sensitivity to pain. Individuals with high levels of stress tend to have a more severe perception of pain than those who are able to manage stress well. Therefore, stress management through MBSR interventions can help reduce the intensity of dysmenorrhea experienced by adolescents.

Based on the research results and theories presented, it can be seen that there is no gap between the facts and the theory. The research facts show a decrease in the intensity of dysmenorrhea after the MBSR intervention, while the theory and previous research results explain that MBSR can reduce stress, improve emotional regulation, and reduce pain perception through physiological and psychological mechanisms. The agreement between the research results and the theory and previous research indicates that *Mindfulness-Based Stress Reduction* (MBSR) is effective as a non-pharmacological intervention to reduce the intensity of dysmenorrhea in adolescents.

The success of the MBSR intervention in this study demonstrates that psychological aspects play a crucial role in the perception of menstrual pain. When adolescents are able to manage stress, increase self-awareness, and accept pain sensations more adaptively, the intensity of pain experienced decreases. The reduction in dysmenorrhea intensity observed in the majority of respondents demonstrates that MBSR is an effective, safe, and easily implemented intervention in adolescent health care. Therefore, MBSR can be recommended as a non-pharmacological therapy that can be integrated into adolescent reproductive health care

programs at community health centers (Puskesmas) and educational institutions to improve the quality of life for adolescents experiencing dysmenorrhea.

CONCLUSION

Based on the results of research on the effect of *Mindfulness Based Stress Reduction* (MBSR) on the intensity of dysmenorrhea in adolescents at the Pungging Community Health Center, Mojokerto Regency, it can be concluded that:

1. The intensity of dysmenorrhea in adolescents before being given the *Mindfulness Based Stress Reduction* (MBSR) intervention was mostly in the category of severe pain as many as 13 respondents (43.3%), moderate pain as many as 12 respondents (40%), and mild pain as many as 5 respondents (16.7%).
2. The intensity of dysmenorrhea in adolescents after receiving the *Mindfulness-Based Stress Reduction* (MBSR) intervention was mostly in the mild pain category (14 respondents (46.7%), no pain (10 respondents (33.3%), and moderate pain (6 respondents (20%). No respondents experienced severe pain after the intervention.
3. *Mindfulness Based Stress Reduction* (MBSR) intervention at the Pungging Community Health Center in Mojokerto Regency. The Wilcoxon Signed Rank Test results showed a p-value of 0.000 ($p < 0.05$), thus *Mindfulness Based Stress Reduction* (MBSR) was proven effective in reducing the intensity of dysmenorrhea in adolescents.

REFERENCES

- Amour, M., Parry, K., Al-Dabbas, M.A., Curry, C., Holmes, K., MacMillan, F., Ferfolja, T., & Smith, C.A. (2024). The prevalence and academic impact of dysmenorrhea among adolescents: A systematic review and meta-analysis. *BMC Women's Health*, 24 (1), 112–124.
- Crane, R.S., Callen-Davies, R., Francis, A., et al. (2023). *Mindfulness-based*

- stress reduction for our time: A curriculum that is up to the task . Mindfulness .*
- Mojokerto Regency Health Office. (2024). *Mojokerto Regency Health Profile 2024*. Mojokerto Regency Health Office.
- East Java Provincial Health Office. (2024). *East Java Provincial Health Profile 2024*. East Java Provincial Health Office.
- Ding, F., Wu, J., & Zhang, Y. (2023). Can mindfulness-based stress reduction relieve depressive symptoms? A systematic review and meta-analysis. *Journal of Mental Health .*
- Farahdiba, A., Amalia, T., Titi, & Sofiyahtrii. (2023). *Adolescent reproductive health textbook .* Guepedia.
- Fatmawati, TY, et al. (2024). *Adolescent reproductive health .* CV Bravo Press Indonesia.
- Handayani, S., Rahmawati, D., & Wulandari, N. (2024). Relationship between stress level and dysmenorrhea among adolescent girls. *Indonesian Midwifery Journal, 15* (2), 98–106.
- Ministry of Health of the Republic of Indonesia. (2024b). *Indonesia's health profile in 2024*. Ministry of Health of the Republic of Indonesia.
- Kristiana, IF, et al. (2025). *Textbook of child and adolescent developmental psychology .* Diponegoro University Publisher.
- Kurniasari, A., Putri, DA, & Setyaningsih, E. (2024). Effectiveness of mindfulness intervention on menstrual pain among adolescents. *Journal of Nursing and Public Health, 13* (1), 45–53.
- Michaelsen, MM, et al. (2023). Mindfulness-based and mindfulness-informed interventions at the workplace: A systematic review and meta-regression analysis of RCTs. *Mindfulness .*
- Prasetyo, B., & Nugraheni, R. (2025). *Mindfulness-Based Stress Reduction on Dysmenorrhea Intensity Among Female Students. Indonesian Journal of Health Promotion, 20* (1), 35–43.
- Puspitasari, CE, et al. (2025). *Reproductive health .* Sonpedia Publishing Indonesia.
- Rahmawati, D., & Kusuma, A. (2023). *Mindfulness and adolescent mental health .* Deepublish.
- Rosyida, DAC (nd). *Textbook of reproductive health for adolescents and women .* Pustaka Baru Press.
- Ruspita, R., Susanti, K., & Rahmi, R. (2023). *Reproductive health in adolescents .* Gosyen Publishing.
- Sari, NP, Lestari, D., & Fitriana, R. (2023). Factors associated with the occurrence of dysmenorrhea in adolescent girls. *Indonesian Journal of Reproductive Health, 14* (2), 87–95.
- Sari, R., et al. (2024). *Stress management and mindfulness interventions in health .* Media Sains Indonesia.
- Sutejo. (2023). *Mindfulness in health and nursing services .* Pustaka Baru Press.
- Walyani, ES, & Purwoastuti, E. (2023). *Reproductive health and family planning .* Pustaka Baru Press.
- Wexler, T. M., & Schellinger, J. (2023). Mindfulness-based stress reduction for nurses: An integrative review. *Journal of Holistic Nursing .*
- Winengsih, E., et al. (2023). *Midwifery care for adolescent reproductive health .* Get Press Indonesia.
- World Health Organization. (2024). *Adolescent reproductive health: Global health priorities .* World Health Organization.
- Yulizawati, Y., Insani, AA, Iryani, D., & Fikawati, S. (2024). *Women's reproductive health .* Indomedia Pustaka.