Advances in Healthcare Research
Volume 3, Issue 2 (2025)
Website: https://advancesinresearch.id/index.php/AHR
OPEN ACCESS
e-ISSN: 2985-9808

The Effect of Ginger Extract on Reducing Dysmenorrhea Pain in Adolescents

Sielfi Lutfia Meilani [1] Diah Andriani Kusumastuti [2*] Ummi Kulsum [3]

[1] Universitas Muhammadiyah Kudus, Kudus, Indonesia. Email: 32021170007@std.umku.ac.id
[2] Universitas Muhammadiyah Kudus, Kudus, Indonesia. Email: diahandriani@umkudus.ac.id
[3] Universitas Muhammadiyah Kudus, Kudus, Indonesia. Email: ummikulsum@umkudus.ac.id

ARTICLE HISTORY

Received: July 23, 2025
Revised: August 10, 2025
Accepted: August 16, 2025

DOI :
https://doi.org/10.60079/ahr.v3i2.594

Advances in Research

ABSTRACT

Purpose: This study aims to analyze the effect of ginger extract consumption on reducing dysmenorrhea pain in adolescent girls. The research is based on the hypothesis that ginger extract, due to its anti-inflammatory properties, significantly decreases menstrual pain intensity and provides a safe non-pharmacological treatment alternative.

Research Method: The study employed a quasi-experimental design with a one-group pretest-posttest approach. The population consisted of 406 female students at SMP Negeri 2 Gebog, with a sample of 70 respondents selected using the Slovin formula. Data were collected through pain scale assessments before and after administration of ginger extract. Analysis was conducted using the Kolmogorov-Smirnov normality test and the Wilcoxon signed-rank test, as the data exhibited a non-normal distribution.

Results and Discussion: Findings revealed a significant reduction in dysmenorrhea pain levels after consuming ginger extract, with a p-value of 0.000 (<0.05). Before the intervention, most respondents reported moderate to severe pain, whereas after the intervention, the majority experienced mild pain or no pain. This confirms the hypothesis and aligns with previous studies highlighting the effectiveness of ginger extract in reducing menstrual pain.

Implications: The results suggest that ginger extract can be promoted as a low-cost, accessible, and safe alternative to manage dysmenorrhea among adolescents. Future research should consider larger samples, control groups, and long-term effects to strengthen generalizability.

Keywords: dysmenorrhea; adolescent girls; ginger extract; non-pharmacological therapy; menstrual pain management.

Introduction

Adolescence is a transitional period between childhood and adulthood, typically occurring between the ages of 10 and 19. Adolescents experience changes in three key aspects: psychosocial development, which includes the desire to understand oneself; cognitive development, which encompasses the ability to think critically; and physical changes. One of the physical/biological changes in adolescent girls is the onset of menstruation. Menstruation occurs due to the shedding of the uterine lining, accompanied by bleeding that occurs repeatedly every month for 3-7 days, except during pregnancy. Common symptoms during menstruation include irritability, anxiety, difficulty sleeping, breast enlargement, and menstrual pain/dysmenorrhea (Dewi *et al.*, 2024).

OPEN ACCESS
e-ISSN: 2985-9808

According to data from the World Health Organization (WHO) in 2020, 1,769,425 (90%) women experience dysmenorrhea, with 10-16% experiencing severe dysmenorrhea (Indah & Susilowati, 2022). In Indonesia, according to a study by Nurfadillah *et al.,* (2021), 64.25% of women experience dysmenorrhea, comprising 54.89% primary dysmenorrhea and 9.36% secondary dysmenorrhea (Pujiati, 2024). According to the Central Java Statistics Agency (2018), the number of women over the age of 15 has reached 13,424,304, with approximately 56% of adolescent girls experiencing dysmenorrhea (Indah & Susilowati, 2022). Based on data from the Health Department of Kudus District, the number of menstrual pain cases in Kudus District was 11,565 (29.8%), with fluctuations noted, particularly among those aged 15–19 years (Pratitis *et al.,* 2024).

Dysmenorrhea is a common issue associated with menstruation. When accompanied by symptoms such as headaches, fatigue, nausea, vomiting, diarrhea, chills, and muscle cramps, it can impair the quality of life and social interactions of adolescent girls. Although it has a good prognosis, this condition still affects quality of life, with 3-33% of women experiencing severe pain lasting 1-3 days during each menstrual cycle. The negative impacts of dysmenorrhea also include reduced academic performance in adolescents, impaired sleep quality, adverse effects on mood, physical and psychological discomfort, and the onset of stress, anxiety, and depression (Pujiati, 2024).

Many people believe that menstrual cramps are a regular occurrence and can happen to women who experience menstruation, especially teenage girls. However, many women experience prolonged and persistent pain during menstruation to the point where they are unable to perform daily activities due to unbearable pain (Sari *et al.,* 2023). There are several ways to manage menstrual cramps, the simplest being applying heat packs, relaxation, rest, taking medication, or drinking herbal remedies. If left untreated, menstrual cramps can affect an individual's mental and physical functioning, making it urgent to take action through pharmacological or non-pharmacological methods. Pharmacological therapy involves the administration of analgesic medications to alleviate pain by blocking prostaglandins. Non-pharmacological therapies include herbal treatments, relaxation, and acupuncture. Some plants that can be used include cinnamon, turmeric, and ginger (Kusumastuti *et al.,* 2021).

Ginger is a type of herbal drink that can help warm the body and alleviate menstrual pain due to its anti-inflammatory properties. It works by inhibiting the activity of enzymes in the cyclooxygenase cycle, thereby preventing the release of these enzymes that contribute to the formation of prostaglandins, which trigger inflammation (Maulida *et al.,* 2023). Ginger is beneficial in reducing dysmenorrhea pain because the essential oils it contains enhance the body's ability to neutralize cramps, especially during menstruation. Therefore, ginger is highly recommended for women experiencing dysmenorrhea (Gardenia, 2024). According to a study conducted by Jayanti & Winarni (2024), there is an effect of ginger extract administration on reducing the intensity of dysmenorrhea in adolescents, as indicated by the results of the Wilcoxon signed-rank test, yielding a p-value <0.001, which is less than 0.05.

A study conducted by Rahayu & Nujulah, (2018) showed that administering 250 mg of red ginger extract three days before menstruation and on the first day of menstruation was effective in reducing dysmenorrhea among midwifery students at Sakinah Midwifery Academy in Pasuruan, with significant results (p = 0.000). These findings are supported by a study by Hasanah *et al.,* (2023), which compared the effectiveness of ginger and turmeric extracts in reducing dysmenorrhea pain in adolescent girls, with ginger extract proving more effective in alleviating pain. Meanwhile, the study by Kostania & Kurniawati (2016) further supports these findings by researching female students at the Poltekkes Surakarta dormitory. This study compared three groups: ginger extract, turmeric extract, and

OPEN ACCESS
e-ISSN: 2985-9808

placebo, and showed that ginger extract was more effective in reducing menstrual pain compared to turmeric extract ($p = 0.04 < 0.05$; t-calculated = 9.690 > 4.802). All three studies indicate that ginger extract can be an effective non-pharmacological treatment alternative for dysmenorrhea pain. Based on an initial survey conducted by the researcher on November 6, 2024, at SMP Negeri 2 Gebog, the total number of students was 858, comprising 406 female students, with 128 students in grade 7, 143 students in grade 8, and 135 students in grade 9. According to the principal's interview, approximately 8–10 female students visit the school clinic each month with complaints of menstrual pain. The school's response is to provide warm compresses and mild medications such as eucalyptus oil, Fresh Care, Promag, balm, and warm water for compresses if needed.

Literature Review and Hypothesis Development

Dysmenorrhea

Dysmenorrhea is abdominal pain that occurs at the onset of menstruation and may last for several hours or even several days during menstruation. Dysmenorrhea is the pain experienced by women during menstruation, which is caused by excessive uterine muscle contractions, leading to a decrease in oxygen levels in the myometrial cells, ultimately resulting in dysmenorrhea (Health *et al.,* 2024). Dysmenorrhea is one of the most common issues associated with menstruation. When accompanied by symptoms such as headaches, fatigue, nausea, vomiting, diarrhea, chills, and muscle cramps, it can impair the quality of life and social interactions of adolescent girls. Dysmenorrhea is the most commonly reported issue among women. Dysmenorrhea is generally not dangerous but often disrupts the activities of those who experience it, as some report that dysmenorrhea frequently interferes with daily activities (Kusumastuti *et al.,* 2021). Despite having a good prognosis, this condition still affects quality of life, with 3–33% of women experiencing severe pain lasting 1–3 days during each menstrual cycle. The negative impacts of dysmenorrhea also include reduced academic performance in adolescents, impaired sleep quality, adverse effects on mood, physical and psychological discomfort, and the onset of stress, anxiety, and depression (Pujiati, 2024).

Ginger extract

Ginger is one of the herbal supplements that has been used as medicine since ancient times and is known as a popular herbal remedy for treating pain (Siamben, 2023). Ginger (Zingiber officinale Rosc) is a spice plant native to South Asia and has spread widely throughout the world, including Indonesia. Ginger consists of three varieties: red ginger (Z. officinale var. rubrum), elephant ginger (Z. officinale var. officinarum), and bitter ginger (Z. officinale var. amarum). Red ginger, also known as sunti ginger, is the most widely used variety due to its high content of essential oils and gingerol, which gives it a spicy flavor. It is commonly used as an ingredient in traditional medicine and pharmaceuticals, as it is believed to be more effective in treating various types of illnesses (Sari & Nasuha, 2021).

The effect of ginger extract on reducing dysmenorrhea pain in adolescents

Based on research conducted by Rahayu & Nujulah, (2018), entitled "The Effectiveness of Ginger Extract on the Intensity of Dysmenorrhea in Midwifery Students at Sakinah Midwifery Academy, Pasuruan," it was found that there was a difference between the intensity of pain before and after intervention (p-value 0.000). This study employed a quasi-experimental design with a one-group pretest-posttest approach. Data collection was conducted using a pain scale assessment form before

OPEN ACCESS
e-ISSN: 2985-9808

and after the administration of red ginger extract. The study sample consisted of 33 female students at the Sakinah Midwifery Academy in Pasuruan who experienced dysmenorrhea. Dysmenorrhea was measured using a numerical scale ranging from 0 to 10. The research data were analyzed using a t-test. The administration of red ginger extract at a dose of 250 mg, taken three days before menstruation and on the first day of menstruation, was effective in reducing dysmenorrhea. Thus, red ginger extract can be considered as one of the non-pharmacological treatment options for managing dysmenorrhea pain.

Research Method

The population of this study consisted of 406 female students, comprising 128 students in grade 7, 143 students in grade 8, and 135 students in grade 9. The sample was a part of the population in terms of number and characteristics. The sample size was calculated using the Slovin technique, as described by Shell (2019). The Slovin formula for determining the sample size is as follows: After calculating the sample size using the Slovin formula, 80 respondents were obtained at SMP Negeri 2 Gebog. Inclusion criteria Respondents are female students at SMP Negeri 2 Gebog Female students who experience dysmenorrhea Female students who are willing to be respondents Female students who are menstruating on days 1-3 Exclusion criteria Respondents who withdrew Female students who did not participate in all stages of the study, Female students who have not yet menstruated, Female students who menstruate for > 3 days.

Results and Discussion

Analysis Result

Respondent Characteristics

Table 1. Age characteristics of respondents

No.	Age	Total	Percentage (%)
1.	12 Year	13	17,5%
2.	13 Year	16	26,3%
3.	14 Year	23	32,5%
4.	15 Year	12	16,3%
5.	16 Year	6	7,5%
	Total	**70**	**100%**

Based on Table 1, it shows that most respondents aged 12 years old were 13 respondents (17.5%), aged 13 years old were 16 respondents (26.3%), aged 14 years old were 23 respondents (32.5%), aged 15 years old were 12 respondents (16.3%), and six respondents (7.5%) aged 16 years.

Table 2. Characteristics of respondent classes

No.	Class	Total	Percentage (%)
1.	Class 7	30	45%
2.	Class 8	40	55%
	Total	**70**	**100%**

Table 2 shows that most respondents were from grade 7, with 30 respondents (45%), and grade 8, with 40 respondents (55%).

OPEN ACCESS
e-ISSN: 2985-9808

Analisis Univariat

Table 3. Pain Levels Before Ginger Extract Administration

No.	Pain Level	F	(%)
1.	Painless	0	0 %
2.	Mild pain	7	10.0 %
3.	Moderate pain	39	55.7 %
4.	Severe pain	24	34,3%
	Total	**70**	**100%**

Based on Table 3, respondents experienced moderate pain before receiving ginger extract, with 39 respondents (55.7%) reporting moderate pain, followed by 24 respondents (34.3%) reporting severe pain, and seven respondents (10.0%) reporting mild pain. No respondents reported no pain. This indicates that the majority of adolescents experience dysmenorrhea with moderate to severe intensity, necessitating effective interventions to alleviate the pain, one of which is through the administration of ginger extract.

Table 4. Pain Level After Administration of Ginger Extract

No.	Pain Level	f	(%)
1.	Painless	5	7.1%
2.	Mild pain	53	75.7%
3.	Moderate pain	11	15,7%
4.	Severe pain	1	1,4 %
	Total	**70**	**100%**

Based on Table 4, after being given ginger extract, most respondents experienced mild pain, with 53 people (75.7%) reporting this. Five respondents (7.1%) reported no pain at all, and only 11 respondents (15.7%) still experienced moderate pain. Meanwhile, only one respondent (1.3%) still experienced severe pain. These data indicate a significant reduction in pain levels after the intervention, with a dominant shift from the moderate and severe pain categories to mild or no pain.

Table 5. Distribution of respondents' answers

Variable	Median	±SD	Min	Max
Pain level before the ginger extract was administered	5.00	2.045	0	0
Pain level after administration of ginger extract	2.00	1.765	9	7

Based on the data in Table 5, the median value of dysmenorrhea pain before administration of the ginger extract drink was 5.00; the standard deviation of pain level was 2.045; the lowest pain level (minimum) was 0; and the highest pain level (maximum) was 9. Meanwhile, the median value of dysmenorrhea pain after administration of the ginger extract relaxation drink was 2.00; the standard deviation of pain levels was 1.765; the lowest pain level (minimum) was 0; and the highest pain level (maximum) was 7.

OPEN ACCESS
e-ISSN: 2985-9808

Analisis Bivariat

Normality Test

A normality test is conducted to determine whether the data is normally distributed or not. This test is a prerequisite for selecting the type of statistical test to be used in further analysis. If the data is usually distributed, parametric tests such as the t-test can be used. Conversely, if the data is not normally distributed, non-parametric tests will be used. In this study, statistical tests were performed using the Kolmogorov-Smirnov test, as the sample size exceeded 50, in accordance with the recommended use of this test.

Table 6. Kolmogorov-Smirnov normality test results (N = 70)

Pain level rating	p-value
Before administration Ginger extract	0.000
After administration Ginger extract	0.003

Source: primary data 2025

This study conducted a normality test on the data, using the Kolmogorov-Smirnov test as recommended for a sample size of 70 respondents. The results showed that the p-value for pain levels before ginger extract administration was 0.000, and the p-value after ginger extract administration was 0.003. Both p-values were less than 0.05, indicating that the data were not normally distributed. Therefore, further data analysis was conducted using a non-parametric test, specifically the Wilcoxon test.

Wilcoxon test

The Wilcoxon test was conducted to determine the difference in pain levels before and after the administration of ginger extract in adolescents with dysmenorrhea. This test was used because the data were not normally distributed and were paired (i.e., pre-test and post-test data from the same respondents). The following are the results of the Wilcoxon test:

Table 7. Wilcoxon Test Results

Variable		N	Mean Rank	Sum of Ranks	P
Before administration Ginger extract After administration Ginger extract	Negative Ranks	70	35.50	2485.00	0.000
	Positive Ranks	0	.00	.00	
	Ties	0			
	Total	70			

Source: primary data 2025

Based on the data distribution in Table 7, it is evident that all 70 respondents (100%) experienced a decrease in pain levels after being given ginger extract (negative ranks). In contrast, no

OPEN ACCESS
e-ISSN: 2985-9808

respondents experienced an increase in pain (positive ranks), and no respondents reported the same level of pain before and after the intervention (ties). The results of the Wilcoxon test showed a p-value of 0.000 (<0.05), indicating a significant difference between pain levels before and after the administration of ginger extract. Therefore, it can be concluded that the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted, meaning that the administration of ginger extract is effective in reducing pain levels in dysmenorrhea among adolescents.

Discussion

Characteristics of Respondents Based on Age

The results of the study indicate that the majority of respondents aged 12 years old numbered 13 respondents (17.5%), aged 13 years old numbered 16 respondents (26.3%), aged 14 years old numbered 23 respondents (32.5%), aged 15 years old numbered 12 respondents (16.3%), and six respondents (7.5%) aged 16 years. This age range corresponds to early to mid-adolescence, a biologically and psychologically significant phase in the development of the reproductive system. According to Wijayanti et al. (2023), adolescents experience their first menstruation (menarche) between the ages of 12 and 16, with a menstrual cycle occurring every 21–35 days and lasting 2–7 days. This period brings about changes in behavior across various aspects, such as psychology and others. During this period, prostaglandin production increases, and the body often lacks the optimal ability to control uterine muscle contractions. This is why adolescents are more prone to primary dysmenorrhea, which is menstrual pain without any abnormalities in the genital organs. Based on these findings, researchers conclude that adolescents aged 13–14 years are the most suitable target group for herbal interventions, such as ginger extract. In addition to being a safe non-pharmacological alternative, ginger use may help alleviate the pain commonly experienced at the onset of the menstrual cycle. Thus, the age characteristics of the study participants support the relevance of the intervention conducted. Focusing on adolescents aged 12–16 years provides a realistic picture of the group most in need of effective and safe management for dysmenorrhea pain.

Respondent Characteristics Based on Class

The results of the study indicate that the majority of respondents were from grade 7, with 30 respondents (45%), and grade 8, with 40 respondents (55%). This composition shows that the involvement of grade 8 students was slightly higher than that of grade 7 students in this study. This difference can be attributed to the higher level of cognitive development and emotional maturity generally observed in eighth-grade students compared to seventh-grade students. This study is also consistent with the findings of Fitriyani et al. (2023), which showed that eighth-grade students experience more dysmenorrhea than seventh-grade students, possibly due to the more advanced reproductive system maturity at that age. Therefore, the higher proportion of respondents from grade 8 provides an advantage in obtaining more accurate data regarding dysmenorrhea pain experiences and the effectiveness of the interventions provided. Thus, the characteristics of the respondent class, which is predominantly composed of grade 8 students, are relevant and support the findings and conclusions of this study.

Univariate Analysis

Pain Scale for Dysmenorrhea Before Administration of Ginger Extract

OPEN ACCESS
e-ISSN: 2985-9808

The results of the study of 70 respondents at SMP 2 Gebog, before being given ginger extract, it was found that the respondents experienced moderate pain before being given ginger extract, with 39 respondents (55.7%), followed by severe pain in 24 respondents (34.3%), and mild pain in 7 respondents (10.0%), with no respondents reporting no pain. These findings align with the study conducted by Jayanti & Winarni (2024), titled "The Effect of Ginger Extract on the Reduction of Menstrual Cramps in Adolescents," which descriptively stated that before receiving ginger extract, the majority experienced severe pain (60.86%). After receiving ginger extract, the majority experienced mild pain (56.52%) with a p-value of <0.001, which is less than 0.05, indicating a significant reduction in menstrual pain after the intervention.

The results of this study are supported by Awalia's (2023) research, which showed that the average intensity of menstrual pain in adolescent girls before taking red ginger powder was 5.80. After taking red ginger powder, the average intensity of menstrual pain decreased to 3.86. This indicates that red ginger powder (Zingiber officinale var. rubrum) has a significant effect on reducing the intensity of dysmenorrhea in female students at SMAN 1 Muncang, Lebak Banteng District, as evidenced by the substantial p-value ($p = 0.000$, $< \alpha\ 0.05$). These findings are further supported by the study conducted by Kostania & Kurniawati, (2016) titled "The Difference in the Efficacy of Ginger Extract and Turmeric Extract in Reducing Primary Dysmenorrhea Pain in Female Students at the Midwifery Dormitory of Surakarta Health Polytechnic," which showed that there was a difference in the efficacy of ginger extract and turmeric extract in reducing primary dysmenorrhea pain in female students at the Midwifery Dormitory of Surakarta Health Polytechnic ($p=0.04<0.05$), meaning that ginger extract is more effective in reducing menstrual pain than turmeric extract (t-calculated= 9.690>4.802).

Dysmenorrhea has a negative impact on adolescent girls, including fatigue, lower back pain, feelings of anxiety and tension, headaches, confusion, nausea and vomiting, diarrhea, abdominal cramps and pain, and disruption of daily activities. Additionally, dysmenorrhea in adolescent girls can disrupt educational activities, leading to difficulty concentrating, a tendency to sleep in class during lessons, and consequently affecting academic and non-academic performance (Hasanah *et al.,* 2023). The researchers assumed that before the administration of ginger extract, the pain levels were categorized as none, mild, moderate, and severe. Some students experienced mild pain, and some allowed the pain caused by dysmenorrhea to persist, which disrupted school activities such as studying. It is hoped that administering ginger extract will result in a reduction in dysmenorrhea pain.

Dysmenorrhea Pain Scale After Administration of Ginger Extract

The results of a study involving 70 respondents at SMP 2 Gebog, after being given ginger extract, showed that most respondents experienced mild pain, with 53 people (75.7%) reporting this. Five respondents (7.1%) reported no pain at all, and only 11 respondents (15.7%) still experienced moderate pain. Meanwhile, only one respondent (1.3%) still experienced severe pain. These data indicate a significant reduction in pain levels after the intervention, with a dominant shift from the moderate and severe pain categories to mild or no pain. The results of this study are consistent with those of Hasanah et al. (2023), who researched the differences in the effectiveness of ginger extract and turmeric extract in reducing the intensity of primary dysmenorrhea in adolescent girls. The study results showed a difference in the efficacy of ginger extract compared to turmeric extract in reducing the intensity of primary dysmenorrhea in teenage girls, as indicated by the paired t-test results ($p = 0.000$),

OPEN ACCESS
e-ISSN: 2985-9808

suggesting that ginger extract was more effective in reducing dysmenorrhea intensity than turmeric extract.

The results of this study are supported by the research of Kusumastuti et al. (2021), which showed the results of the Wilcoxon test variable before and after the administration of red ginger in the intervention group with a p-value < 0.05, namely 0.000. This indicates that the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted, suggesting that there is a significant effect of red ginger administration on changes in dysmenorrhea pain scale scores among female students at Al Istiqomah Islamic Boarding School in Kudus. The findings of this study are further supported by the research conducted by Rahayu & Nujulah (2018) titled "The Effectiveness of Ginger Extract on the Intensity of Dysmenorrhea in Midwifery Students at Sakinah Midwifery Academy in Pasuruan." Descriptively, it was explained that the average menstrual pain score after intervention was 2.03, compared to 3.39 before intervention, with a p-value of 0.000, indicating that the pain decreased both before and after red ginger extract administration.

Dysmenorrhea can be managed with pharmacological and non-pharmacological therapies. Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), such as ibuprofen, mefenamic acid, and aspirin, are pharmacological treatments for dysmenorrhea. Non-pharmacological management of dysmenorrhea includes warm compresses, dietary modifications, consuming warm beverages, rest, adequate sleep, massage, and consuming herbs such as ginger. Ginger has warming, analgesic, antipyretic, and anti-inflammatory properties that are naturally found in ginger. Ginger contains high levels of essential oils, including gingerol and shogaol, as well as natural curcumin, which are effective in reducing dysmenorrhea pain (Winarni, 2024). Researchers assume that ginger significantly influences the reduction in dysmenorrhea pain among female students at SMP N 2 Gebog, as evidenced by a decrease in pain levels after being given ginger extract. The essential oils found in red ginger are potent compounds for alleviating pain due to their ability to block prostaglandins and stimulate blood circulation, thereby providing an effect that reduces dysmenorrhea pain.

The Effect of Ginger Extract on Reducing Dysmenorrhea Pain in Adolescents

Based on the data analysis results, it was found that out of 70 respondents, 69 people (98.75%) experienced a decrease in dysmenorrhea pain levels after receiving ginger extract. In contrast, only one person (1.25%) did not experience any changes. The Wilcoxon test results showed a p-value of 0.000, indicating a statistically significant difference between the before- and after-intervention periods. Therefore, the alternative hypothesis (Ha) is accepted, confirming that ginger extract significantly reduces dysmenorrhea pain. This study aligns with Winarni (2024), which showed that, out of 23 respondents, before receiving ginger extract, the majority experienced severe pain (60.86%), and after receiving ginger extract, the majority experienced mild pain (56.52%). The results of the Wilcoxon signed-rank test yielded a p-value <0.001, which is less than 0.05, indicating that there is an effect of ginger extract administration on reducing the intensity of dysmenorrhea in adolescents at Universitas Aisyiyah Surakarta.

This study aligns with the research conducted by Hasanah et al. (2023) titled "The Difference in the Effectiveness of Ginger Extract and Turmeric Extract in Reducing the Intensity of Primary Dysmenorrhea in Adolescent Girls." The average intensity of dysmenorrhea in the intervention group before receiving ginger extract was 6.80. It decreased to 2.90 after receiving ginger extract, while the average intensity in the intervention group before receiving turmeric extract was 6.80, and decreased

OPEN ACCESS
e-ISSN: 2985-9808

to 4.10 after receiving turmeric extract. Statistical analysis revealed a significant difference in the effectiveness of ginger extract compared to turmeric extract in reducing the intensity of primary dysmenorrhea in adolescent girls (p = 0.000), indicating that ginger extract is more effective in reducing dysmenorrhea intensity than turmeric extract.

This study aligns with research conducted by Armeika et al. (2023), which showed that the average dysmenorrhea pain scale before administering the red ginger drink was 4.76, and the average dysmenorrhea pain scale after administering the red ginger drink was 2.10. The Wilcoxon test results showed a significant p-value of 0.001 or <0.05, indicating that red ginger drink has an effect on the menstrual pain scale in eighth-grade female students at SMP Negeri 18 Surakarta. The results of this study are consistent with those of Awalia (2023), which showed that the average intensity of menstrual pain in adolescent girls before taking red ginger powder was 5.80. After taking red ginger powder, the average intensity of menstrual pain decreased to 3.86. This indicates that red ginger powder (Zingiber officinale var. rubrum) affects reducing menstrual pain intensity in female students at SMAN 1 Muncang, Lebak Banteng District, as evidenced by the significant p-value of p = 0.000 (< α 0.05).

Physiologically, ginger contains gingerol and shogaol compounds with anti-inflammatory properties that inhibit prostaglandins, compounds that trigger menstrual pain (Mila & Winarni, 2024). Additionally, red ginger can inhibit uterine contractions that cause pain during menstruation (Wijayanti *et al.,* 2023). The administration of red ginger extract is effective in reducing dysmenorrhea. Thus, red ginger extract can be an alternative non-pharmacological treatment for dysmenorrhea. This is evident in the study results, which showed that before receiving the ginger extract, many female students were in the moderate pain category. After receiving the ginger extract, there was a significant decrease in the number of students in the moderate pain category, with most falling into the 0 (no pain) category. The administration of ginger extract is highly effective in reducing dysmenorrhea pain as it does not require significant costs, prolonged time, or strenuous physical labor. However, caution is necessary as excessive consumption of ginger extract may irritate the oral cavity. According to the researchers' assumptions, the results of the Wilcoxon test, with a p-value of 0.000, indicate a significant difference between the results before and after the administration of ginger extract.

Conclusion

This study shows that ginger extract significantly reduces the level of dysmenorrhea pain in adolescent girls at SMP Negeri 2 Gebog. The results of the Wilcoxon test showed a p-value of 0.000 (<0.05), indicating a significant difference between pain levels before and after the intervention. Out of 70 respondents, the majority initially experienced moderate to severe pain, but after consuming ginger extract, most moved to the mild pain category or even reported no pain at all. These findings align with previous studies that confirm the effectiveness of ginger as a non-pharmacological therapy in reducing menstrual pain through its anti-inflammatory compounds, gingerol and shogaol.

The results of this study have important implications for adolescent health, particularly in the management of dysmenorrhea in school settings. Ginger extract can serve as an effective, safe, affordable, and easily accessible non-pharmacological alternative to chemical analgesics. This intervention can help improve the quality of life for adolescent girls, reduce disruptions to academic activities, and support optimal academic and psychosocial outcomes. The application of ginger extract in managing menstrual pain also holds potential for development as part of school health programs through nutrition education and the use of traditional herbal remedies, supported by scientific evidence.

OPEN ACCESS
e-ISSN: 2985-9808

This study has several limitations, including the use of a one-group pretest-posttest design without a control group, which prevents a comprehensive comparison of ginger's effectiveness with other methods. Additionally, the study was conducted on a limited sample in a single school with a relatively small number of respondents, so the results cannot be generalized to a broader population. For future research, it is recommended to employ an experimental design with a control group, involving a larger and more diverse sample, and to test different doses, frequencies, and forms of ginger preparation. Further research could also examine the long-term effects of ginger consumption on the menstrual cycle and its impact on the psychological aspects of adolescents.

References

Awalia, L. (2023). Efek Serbuk Jahe Merah (Zingiber Officinale Var Rubrum) Terhadap Penurunan Intensitas Dismenore Pada Siswi SMAN 1 Muncang Kabupaten Lebak Banten. Indonesian Scholar Journal of Nursing and Midwifery Science (ISJNMS), 3(04), 1193–1198. https://doi.org/10.54402/isjnms.v3i04.408

Dewi, R. A., Hanifa, F., & Ciptiasrini, U. (2024). Pengaruh Terapi Relaksasi Benson dan Pemberian Ekstrak Jahe Pada Penurunan Skala Nyeri Dismenorhea Primer Pada Remaja Di TPMB R Kabupaten Cianjur Tahun 2024. Innovative: Journal Of Social Science Research, 4(3), 906–916. https://doi.org/10.31004/innovative.v4i3.10542

Fitriyani, N., Wulandari, R., & Widyastutik, D. (2023). Pengaruh Edukasi Kesehatan Dengan Video Dismenore Terhadap Pengetahuan Dan Sikap Remaja Putri Dalam Menangani Dismenore Pada Siswi Kelas Viii Di Smp N 2 Gondangrejo Karanganyar. 22, 1–10.

Gardenia, M. S. (2024). Linda Rofiasari 1 *, Tika Lubis 2, Dewi Nurlaela Sari 3, Meli Sandra Gardenia 4.

Hasanah, J., Sriyono, G. H., & Supriyadi, B. (2023a). Perbedaan Efektivitas Ekstrak Jahe dengan Ekstrak Kunyit dalam Mengurangi Nyeri Dismenorhea Primer pada Remaja. Jurnal Penelitian Perawat Profesional, 5(3), 1249–1254. https://doi.org/10.37287/jppp.v5i3.1761

Hasanah, J., Sriyono, G. H., & Supriyadi, B. (2023b). Perbedaan Efektivitas Ekstrak Jahe dengan Ekstrak Kunyit dalam Mengurangi Nyeri Dismenorhea Primer pada Remajahttps://jurnal.globalhealthsciencegroup.com/index.php/JPPP/article/view/1761. Jurnal Penelitian Perawat Profesional, 5(3), 1249–1254.

I Nurdianawati. (2021). Uji Instrumen. Metodologi Penelitian Kuantitatif, 1(69), 5–24.

Indah, F., & Susilowati, T. (2022). Gambaran Dismenorea Saat Aktivitas Belajar Diruang Kelas Pada Siswi Sma Muhammadiyah 1 Sragen. Jurnal Locus Penelitian Dan Pengabdian, 1(6), 459–465. https://doi.org/10.58344/locus.v1i6.143

Kesehatan, J. I., Prasetyowati, U., & Triani, Y. (2024). Pengaruh Air Rebusan Jahe Merah Terhadap Penurunan Intensitas Nyeri Dismenorea Pada Remaja Di Desa Semangau. 5(2), 25–31. https://doi.org/10.5455/mnj.v1i2.644xa

Kostania, G., & Kurniawati, A. (2016). Perbedaan Efektivitas Ekstrak Jahe Dengan Ekstrak Kunyit Dalam Mengurangi Nyeri Dismenorhea Primer Pada Mahasiswi Di Asrama Jurusan Kebidanan Poltekkes Surakarta. Interest: Jurnal Ilmu Kesehatan, 5(2), 136–143. https://doi.org/10.37341/interest.v5i2.44

Kusumastuti, D. A., Hartinah. D, & Prabandari. D. W. (2021). Pengaruh Pemberian Jahe Merah Terhadap Perubahan Nyeri Disminorhea. Jurnal Ilmu Keperawatan Dan Kebidanan, 12(1), 171–178.

Maulida, Saputra, M., & Ayuni, R. (2023). Pengaruh Pemberian Jahe Merah Terhadap Penurunan Nyeri Dismenore Pada Remaja. Jurnal Asuhan Ibu Dan Anak, 8(2), 73–80.

Mila Dwi Jayanti, & Winarni Winarni. (2024). Pengaruh Pemberian Ekstrak Jahe terhadap Penurunan Intensitas Dismenore pada Remaja. Jurnal Medika Nusantara, 2(3), 263–273. https://doi.org/10.59680/medika.v2i3.1312

OPEN ACCESS
e-ISSN: 2985-9808

Pratitis, M. P., Firmansyah, G., Rahmawaty, A., Griyaningtyas, A. E., Anjarsari, A. R., Zaskia, F. N., Fariza, I. Al, Auza, L. Z., & Sulistyani, L. A. (2024). Kebiasaan Minum Jamu Kunyit Asem Atasi Nyeri Menstruasi Pada Remaja. Muria Pengabdian Masyarakat, 01(02), 137–142.

Pujiati, E. (2024). Tingkat Stres Terhadap Intensitas Dismenore Primer Pada Remaja Putri: Studi - Cross Sectional. Jurnal Ilmu Keperawatan Dan Kebidanan, 15(1), 110–118. https://doi.org/10.26751/jikk.v15i1.2190

Putri, N. E., Wilson, & Putri, E. A. (2020). Hubungan Regulasi Emosi Terhadap Intensitas Nyeri Haid (Dismenore) Pada Siswi Sekolah Menengah Pertama Negeri 8 Pontianak. Jurnal Nasional Ilmu Kesehatan, 3(2), 51–61.

Rahayu, K. D., & Nujulah, L. (2018). Efektifitas Pemberian Ekstrak Jahe Terhadap Intensitas Dismenore Pada Mahasiswi Akademi Kebidanan Sakinah Pasuruan. Embrio, 10(2), 70–75. https://doi.org/10.36456/embrio.vol10.no2.a1642

Rosaliya Katili, Agust A. Laya, & Kristine Dareda. (2023). Pengaruh Rebusan Jahe Merah Terhadap Dismenore Pada Remaja Putri di SMK Assalaam Manado. Corona: Jurnal Ilmu Kesehatan Umum, Psikolog, Keperawatan Dan Kebidanan, 1(4), 115–123. https://doi.org/10.61132/corona.v1i4.90

SARI, D., & NASUHA, A. (2021). Kandungan Zat Gizi, Fitokimia, dan Aktivitas Farmakologis pada Jahe (Zingiber officinale Rosc.): Review. Tropical Bioscience: Journal of Biological Science, 1(2), 11–18. https://doi.org/10.32678/tropicalbiosci.v1i2.5246

Sari, T. M., Suprida, Amalia, R., & Yunola, S. (2023). Faktor - Faktor yang Berhubungan dengan Dismenore Pada Remaja Putri. Jurnal 'Aisyiyah Medika, 8, 219–231.

Shelemo, A. A. (2023). Nucl. Phys., 13(1), 104–116.

Shell, A. (2019). Metode penelitian. 1–23.

Siamben, A. L. (2023). Pengaruh pemberian ramuan jahe terhadap nyeri haid pada wanita usia subur di dusun koa batusura tana toraja. Jurnal Ilmiah Kesehatan Promotif, 1(1), 2926.

Sinta, P. A. (2017). Efektivitas Pemberian Ekstrak Jahe Terhadap Penurunan Tingkat Skor Nyeri Menstruasi Pada Remaja, Studi : Literature Review. 1–13.

Syapitri, H., Amila, & Aritonang, J. (2021). Buku Ajar Metodologi Penelitian Kesehatan Masyarakat. In Bahan Ajar Keperawatan Gigi (Issue June).

Widyanthi, N. M., Resiyanthi, N. K. A., & Prihatiningsih, D. (2021). Gambaran Penanganan Dismenorea Secara Non Farmakologi Pada Remaja Kelas X Di Sma Dwijendra Denpasar. Jurnal Inovasi Penelitian, 2(6), 1745–1756.

Wijayanti, armeika putri, Priambodo, G., & Saelan. (2023). Pengaruh Minuman Jahe Merah Terhadap Skala Nyeri Menstruasi Pada Siswi Kelas VIII Di SMP Negeri 18 Surakarta. Penambahan Natrium Benzoat Dan Kalium Sorbat (Antiinversi) Dan Kecepatan Pengadukan Sebagai Upaya Penghambatan Reaksi Inversi Pada Nira Tebu, 31.

Wijayanti, W., Meilani Ikhsaputri, I., & Eka Widyastuti, D. (2023). Efektivitas Pemberian Edan Jarah (Wedang Jahe Merah) Terhadap Penurunan Nyeri Menstruasi Pada Remaja Putri Di Asrama Putri Man 1 Surakarta. Jurnal Kesehatan Kusuma Husada, 14(2), 26–33. https://doi.org/10.34035/jk.v14i2.1003

Corresponding author

Diah Andriani Kusumastuti can be contacted at: diahandriani@umkudus.ac.id