Jurnal Kesmas Prima Indonesia (JKPI)
Vol. 9 No. 2 July 2025 E-ISSN : 2721-110X

Red Ginger Reduced Pain Due to Primary Dysminorrhoea in Adolescent Girls

Ulfa Nur Hidayati[1], Nanik Susanti[2], Lilik Winarsih[3], Arti Wardani[4], An Nisa Fithri[5]*
[1,2,3,4,5]Sekolah Tinggi Ilmu Kesehatan Kendedes Malang
Correspondent email: ulfanurhidayati0306@gmail.com

ABSTRACT

Primary dysmenorrhea is common among adolescent girls and affects their quality of life and daily activities. Therefore, effective and safe treatments are needed. This study aims to evaluate the effectiveness of red ginger consumption in reducing the intensity of primary dysmenorrhea pain in adolescent girls. The research design used was a pre-experimental design with a one-group pretest-posttest design. The study was conducted at SMK "P" Batu City from September to December 2024, involving 32 adolescent female participants selected through a total sampling technique. The independent variable was the consumption of red ginger, 200 ml, twice daily (morning and evening), and the dependent variable was the intensity of dysmenorrhea pain. Pain levels were measured before and after the intervention using direct observation instruments. Data analysis was performed by calculating the frequency distribution and the Wilcoxon statistical test. The results showed that before the intervention, most respondents experienced moderate pain (59.4%) and severe pain (21.9%). After red ginger consumption, there was a significant decrease in pain intensity. On the first day of intervention, 68.6% had mild pain, and 25% had moderate pain. On the second day, 46.8% reported no pain, and 40.6% experienced only mild pain. Wilcoxon test results revealed a significant difference in pain intensity between the pre-intervention and post-intervention periods ($p < 0.001$). Thus, red ginger consumption is proven to be significantly effective in reducing primary dysmenorrhea pain intensity in adolescent girls.

Keywords: Pain, primary dysmenorrhea, adolescent girls, red ginger

INTRODUCTION

Adolescence causes physiological and hormonal changes. Menstruation is a sign of puberty in girls. Some adolescents experience dysmenorrhea, lower abdominal pain, during menstruation (Syafila et al., 2024). Adolescent girls frequently experience dysmenorrhea, which can impact their daily lives and academic performance (Islami, 2024), (Ghandour et al., 2024). The abdominal discomfort and cramps that occur during menstruation, or dysmenorrhea, affect most teenage girls worldwide (Dawood, 2006), (Harel, 2008).

It is estimated that between 16 and 91% of women of reproductive age worldwide suffer from dysmenorrhea, with 2 to 29% experiencing severe symptoms (Bajalan et al., 2019),(Wang et al., 2022). The very high prevalence of dysmenorrhea, along with the intensity of its symptoms, has a significant impact on adolescents' academic performance (Ortiz et al., 2022). Primary dysmenorrhea, the most common menstrual condition in

adolescents, causes significant school absenteeism (Donayeva et al., 2023). Most girls are unaware of the changes of puberty and menstrual health, and they get incorrect information from questionable sources. Girls often learn from their mothers, who are also poorly informed about this (Tehrani & Pourabbasi, 2019).

Herbal therapy has emerged as one of the most widely studied alternatives as interest in complementary medicine has increased. Ginger is one of the most well-known herbal remedies for dysmenorrhea. Previous studies reported variations in the severity of primary dysmenorrhea before and after the administration of carrot juice (p= 0.007) and red ginger juice (p= 0.005). Red ginger juice reduced primary dysmenorrhea better than carrot juice (Nurdahliana & Fitriani, 2021). The richer active substance content in red ginger makes it a potentially superior local herbal choice as a natural therapeutic solution. Therefore, this study aims to determine the effect of red ginger consumption on reducing pain caused by primary dysmenorrhea in female adolescents.

METHODS

This study uses a pre-experimental design with a one-group pretest-posttest design (Trisnadewi et al., 2021). This research was conducted at SMK "P" in Batu City. The research period was from September to December 2024. The study population consisted of all 32 female adolescents at SMK "P" in Batu City, selected using a total sampling technique. Inclusion criteria were (1) female adolescents aged 15-17 years, (2) regular menstrual cycles, and (3) experiencing dysmenorrhea. Exclusion criteria were (1) female adolescents who could not be included as research subjects due to illness or unwillingness to participate, (2) subjects who consumed pain relievers during the study, and (3) those who did not regularly consume the herbal remedy according to the researcher's instructions and withdrew as respondents.

The dependent variable of this study is the intensity of primary dysmenorrhea pain. The independent variable is the consumption of 200 ml of red ginger, taken twice daily (morning and evening). The intervention in this study was the administration of red ginger. The pretest and posttest, which involved measuring pain levels, were conducted before and after the intervention, which was the consumption of red ginger. Data was collected directly by observing the pain level before and after consuming the red ginger concoction. The data analysis stage begins by calculating the frequency distribution of pain levels before and after the intervention. Data analysis using the Wilcoxon t-test (V. T. Hulu & Sinaga, 2019),(V. Hulu & Kurniawan, 2021).

RESULTS

Table 1 shows that the majority of adolescent girls aged 16-17 years are 78%. As many as 34.4% of teenage girls have a menstrual duration of 5 days, and 9.4% have a menstrual duration of 8 days. As many as 31.2% of adolescent girls experience lower back pain, 28.1% experience dizziness, and 25% experience lower abdominal pain. Based on self-care actions for primary dysmenorrhea, 43.8% of adolescent girls took pain medication, 15.6% used warm compresses, and 12.5% drank warm water.

Table 1. Characteristics of Respondents (n= 32)

Variable	n	%
Age		
14-15 years old	1	3.2
16-17 years old	25	78.0
18-19 years old	6	18.8
Duration of menstruation		
5 days	11	34.4
6 days	8	25.0
7 days	10	31.2
8 days	3	9.4%
Menstrual complaints		
Lower abdominal pain	8	25.0
Dizziness	9	28.1

Variable	n	%
Low back pain	10	31.2
Fever	4	12.5
Nausea	1	3.2
Self-management of primary dysmenorrhoea		
No action	3	9.4
Warm compress	5	15.6
Drink warm water	4	12.5
Take medicine (anti-pain)	14	43.8
Compress and drink warm water	3	9.4
Take medicine and drink warm water	1	3.1
Warm compress and take medicine	1	3.1
Minimal medicine, drink warm water	1	3.1

Table 2 shows that before consuming red ginger, 59.4% of female adolescents experienced moderate pain and 21.9% experienced severe pain. After consuming red ginger on the first day, 68.6% of female adolescents experienced mild pain, and 25% experienced moderate pain. After consuming red ginger on the second day, 46.8% of female adolescents did not experience pain, and 40.6% experienced mild pain.

Table 2: Frequency distribution of pain levels (n= 32)

Pain level	Variable	n	%
Pain level before treatment	No pain	0	0.0
	Mild	6	18.7
	Moderate	19	59.4
	Severe	7	21.9
Pain level after day 1 treatment	No pain	1	3.2
	Mild	22	68.6
	Moderate	8	25.0
	Severe	1	3.2
Pain level after day 2 treatment	No pain	15	46.8
	Mild	13	40.6
	Moderate	3	9.4
	Severe	1	3.2

Table 3 shows a difference in pain due to dysmenorrhea before and after consuming red ginger on the first day ($p = <0.001$). There is a difference in pain due to dysmenorrhea before and after consuming red ginger on the second day ($p = <0.001$).

Table 3. Wilcoxon test

	Total	*P* value
Pain levels before and after treatment day 1	32	<0.001
Pain levels after treatment day 2	32	<0.001

DISCUSSION

Table 1 shows that the majority of adolescent girls aged 16-17 years old are 78%. This finding indicates that at the age of 16-17 years, they are in mid-adolescence, where physiologically and hormonally, the body is still adapting to the menstrual cycle, which is beginning to become regular. A total of 34.4% of adolescent girls experienced menstrual periods lasting 5 days, while 9.4% had periods lasting 8 days. This indicates that differences in menstrual duration can impact the severity and duration of pain experienced due to primary dysmenorrhea.

A total of 31.2% of female adolescents reported lower back pain, 28.1% reported headaches, and 25% reported lower abdominal pain. This study found that the symptoms of primary dysmenorrhea in adolescent girls are interconnected. This finding underscores the importance of education on menstrual pain management, particularly non-pharmacological approaches. Interventions such as regular exercise, stress management, and adequate nutrition have the potential to reduce pain intensity and improve the quality of life for adolescent girls.

Based on self-care actions for managing primary dysmenorrhea, 43.8% of adolescent girls took pain medication, 15.6% used warm compresses, and 12.5% drank warm water. These findings indicate that most teenage girls tend to manage their menstrual pain on their own using simple methods, both with and without medication. However, the low use of non-medicinal methods suggests that understanding of safer and more sustainable alternatives for managing menstrual pain is still lacking. Therefore, comprehensive reproductive health education becomes essential. This education can be provided through schools or family

support. The aim is to increase adolescents' knowledge about various options for managing dysmenorrhea, the potential side effects of long-term medication use, and when menstrual pain requires medical attention.

This study indicates a difference in pain due to dysmenorrhea before and after consuming red ginger on the first day (p = <0.001). There is a difference in pain due to dysmenorrhea before and after consuming red ginger on the second day (p = <0.001). This study is consistent with previous studies that reported that giving red ginger decoction significantly reduces dysmenorrhea pain, with a p-value of <0.001 compared to the control group. The average pain scale in the group receiving red ginger intervention was recorded as 3.41, while in the control group, it was 4.67 (Rini et al., 2025). Another study reported that administering red ginger decoction showed a significant effect in reducing the intensity of dysmenorrhea pain in female students (Betty & Ayamah, 2021).

Ginger, turmeric, and tamarind drinks have different effects in relieving dysmenorrhea in adolescent girls (Nurhartati et al., 2024). Female adolescents who experience dysmenorrhea during learning activities may experience disruptions in the learning process, such as decreased enthusiasm, reduced focus, and difficulty concentrating, which ultimately leads to suboptimal understanding of the subject matter. Red ginger is effectively used to minimize dysmenorrhea pain (Ayuni, 2023). Other studies indicate that red ginger water has been proven effective in reducing dysmenorrhea complaints (Karomah & Yuliani, 2022). Dysmenorrhea occurs due to an excessive increase in prostaglandin hormones during menstruation. If left untreated, dysmenorrhea complaints in adolescents can cause discomfort that impacts daily activities and schoolwork. Ginger extract has been proven effective in reducing the intensity of dysmenorrhea in adolescents (Jayanti & Winarni, 2024).

CONCLUSION

The effectiveness of red ginger consumption can alleviate dysmenorrhea pain in adolescent girls. Before the intervention, the majority of participants experienced moderate to severe pain. After consuming red ginger, pain intensity was significantly reduced ($p < 0.001$), both on the first and second days of consumption. On the second day, almost half of the participants reported no pain, and most of the remaining participants experienced only mild pain. These results indicate that red ginger has the potential to be an effective complementary therapy for managing dysmenorrhea pain.

LIMITATION

This study has limitations regarding an unspecified sample size and a design without a control group, which may limit generalizability and internal validity. Subjective pain measurement and the short duration of the intervention only provide a picture of short-term effects. Additionally, the dosage of red ginger is not specific, and potential confounding factors are not explained as having been controlled.

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