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p-ISSN: 2685-2020 ; e-ISSN: 2685-2012

Abdominal Streaching Exercise And Warm Compresses Of Ginger Decoction Affect The Reduction Of Primary Dysmenorrhea Pain

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ABSTRACT

Background: Dysmenorrhea is lower abdominal pain due to blood discharge from the uterus that generally bothers young women. The impact of dysmenorrhea makes it difficult for young women to move. One way to overcome dysmenorrhea is with non-pharmacological methods of giving abdominal stretching exercises and warm compresses of ginger decoction. This study aims to determine the effect of abdominal stretching exercises and warm compresses of ginger decoction on reducing primary dysmenorrhea pain in adolescent girls at SMA Negeri 1 Jamblang.
Research method: Type of experimental quasi-research with two groups pre and post-test design. The population of adolescent girls in grade XI science and social studies who experience dysmenorrhea is 74 samples. Data were collected using questionnaire observation sheets with the Numeric Rating Scale pain scale, and bivariate analysis using the Wilcoxon test and the Friedman test.
Results: The Friedman test obtained an average of dysmenorrhea pain after abdominal stretching exercise and warm compresses of ginger decoction in the intervention group and obtained an average post-treatment pain of 1.34. While in the control group given warm compress treatment ginger decoction obtained an average value of post-treatment pain of 1.66 with the highest decrease value on day 3 obtaining p value of 0.014 ($p < 0.05$).
Conclusions Giving abdominal stretching exercises and warm compresses of ginger decoction affects reducing the scale of primary dysmenorrhea pain in adolescent girls at SMA Negeri 1 Jamblang.

Keyword : Dysmenorrhea, abdominal stretching exercise, warm compress ginger decoction

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Received: September 15, 2023; Revised : March 26, 2024; Accepted: March 30, 2024

Background: Menstruation is bleeding that occurs periodically in the uterus, starting about 14 days after ovulation (Wahyuningsih, 2019). Menstruation is experienced by women who have experienced puberty, puberty is the process of transferring children into adults, the emergence of hormonal, physical, and psychological changes. characterized by the presence of secondary sex signs and ending maturity in sexual function (Astuti et al., 2022).

At the age of 17 to 18 years usually menstruation is regular with an interval of about 28 – 30 days, when menstruation occurs usually pain arises, the pain is called menstrual pain or dysmenorrhea. Dysmenorrhea itself is cyclic pain that usually occurs during menstruation and is the most common problem experienced by women every month (Minata and Afrika, 2020). According to the World Health Organization itself, there are about 75% of women in the world experience menstrual disorders, one of which most often occurs is dysmenorrhea (WHO, 2010). Dysmenorrhea increased in 2016 around 1,769,425 people or about 90% of women experienced dysmenorrhea, with 10-15% experiencing severe dysmenorrhea, on average more than 50% of women in each country experienced dysmenorrhea (Angrainy et al., 2020).

The country of Indonesia itself recorded quite a lot of adolescents who experienced menstrual problems around 64.25% or 107,673 adolescent girls in Indonesia experienced dysmenorrhea consisting of 59,671 people (54.89%) primary dysmenorrhea and 9,496

p-ISSN: 2685-2020 ; e-ISSN: 2685-2012

people (9.36%) secondary dysmenorrhea (Kementerian Kesehatan RI, 2016).

The impact of dysmenorrhea is very much, especially since this cannot be avoided by women every month, dysmenorrhea interferes especially in activities, such as school, work, and daily activities. Today's young women often ignore their menstrual pain, they tend to choose to endure the pain rather than reduce the pain. The pain arises due to increased secretion of prostaglandins in menstrual blood, thereby increasing contractions of the uterus, prostaglandin levels affect the contraction of the uterus and myometrial smooth muscle and uterine vascular contraction causing uterine hypoxia, causing increased pain during menstruation. Treatment to overcome dysmenorrhea can use pharmacological and non-pharmacological techniques (Wahyuningsih, 2019).

Pharmacological techniques can be given in the form of NSAID (Nonsteroidal Antiinflammatory Drugs) and analgetic drugs that can inhibit the pain process through suppression of cyclooxygenation enzymes that can reduce inflammation, prostaglandin drugs such as mefenamic acid, and mother profen. While non-pharmacological therapies that can be used such as giving herbs, exercise, body position, abdominal stretching exercise, yoga, warm compresses, relaxation, and ginger compresses (Windastiwi et al., 2017).

Abdominal stretching exercise is an exercise in reducing menstrual pain that serves to increase strength in the abdominal muscles, abdominal flexibility, and endurance in certain circumstances this exercise can also be useful for stretching the abdominal muscles and helping relax the uterine muscles and increase blood perfusion to the uterus so that blood flow around the uterus is smooth and pain is reduced. Another action that can be given to reduce dysmenorrhea pain besides abdominal stretching exercise is a warm compress of ginger decoction (Windastiwi et al., 2017).

Warm compress is a method of using warm water to dilate blood vessels and relieve ischemia by reducing uterine contractions so that blood circulation is smooth and pain can subside, warm compresses can reduce tension and increase feelings of well-being, increase menstrual blood flow and can relieve pelvic vasocongestion (Fatmawati et al., 2018). Ginger contains a substance called oleoresin, this substance which can provide a warm feeling effect (Mintarsih and Sugihartiningsih, 2018). Ginger rhizomes contain 1-3% essential oil with the main ingredients being Zingerberen and β - bisabolene, essential oils are useful as analgetics, essential oils also have anaesthetizing properties because of their distinctive smell and can be used as inhalation therapy and are calming. The spicy and sharp taste comes from phenolic compounds (Harmawati et al., 2018). The warm effect of ginger can vasodilate blood vessels and widen blood vessels, this makes the circulation of blood flow to the tissues smooth so that the distribution of acid and cell food is enlarged then the waste from the substance is repaired to reduce pain (Mintarsih and Sugihartiningsih, 2018).

Method: Type of experimental quasi-research with Two groups pre-post-post-post test design approach. The population conducted in this study was adolescent girls with primary dysmenorrhea from class XI at SMA Negeri 1 Jamblang totaling 281 students. The sampling technique uses probability sampling techniques, namely simple random sampling. The number of samples in the study used the Slovin formula so that the number of samples in the study was 74 respondents (Sumantri, 2015).

Result and Discussion

Table 1. Characteristic of Respondents by Age

Age	Sum	Percentage
16 year	12	16,2
17 year	34	45,9
18 year	21	28,4
19 year	7	9,5
Total	**74**	**100**

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p-ISSN: 2685-2020 ; e-ISSN: 2685-2012

Table 2. Pain characteristics of dysmenorrhea before and after treatment in the intervention group and control group

Variable	Measurement	Group			
		Intervention		Control	
		Mean	SD	Mean	SD
Primary Dysmenorrhea Pain	*Pre*	3,05	0,405	2,86	0,347
	Post pain 1	2,65	0,538	2,78	0,417
	Post pain 2	2,27	0,508	2,68	0,818
	Post pain 3	1,92	0,493	2,41	0,798

Table 3. Differences in mean measurements in the intervention group Post abdominal streaching exercise and warm compresses of ginger decoction

Variable	Measurement	Mean	SD	*P value*
Primary dysmenorrhea pain	Post 1-Post 2	2.65±2.27	0.538±0.508	*p 0.000*
	Post 1-Post 3	2, 65±1.92	0.538±0.493	*p 0.000*
	Post 2-Post 3	2.27±1.92	0.508±0.493	*p 0.000*

Table 4. Differences in average measurements in the control group post warm compresses of ginger decoction

Variable	Measurement	Mean	SD	*P value*
Primary dysmenorrhea pain	Post 1-Post 2	2.78±2.68	0.417±0.818	*p 0.394*
	Post 1-Post 3	2.78±2.41	0.417±0.798	*p 0.006*
	Post 2-Post 3	2.68±2.41	0.818±0.798	*p* 0.018

Table 5. Analysis of the effect of abdominal streaching exercise and warm compresses of ginger decoction of adolescent girls with primary dysmenorrhea from class XI at SMA Negeri 1 Jamblang

Variable	Group		Mean	*p value*
	Intervention	Control		
Primary Dysmenorrhea Pain	*Post* 1	*Post* 1	1.42±1.58	0,157
	Post 2	*Post* 2	1.35±1.65	0,022
	Post 3	*Post 3*	1.34± 1.66	0,014

Identifying dysmenorrhea pain before and after abdominal stretching exercises and warm compresses of ginger decoction in the intervention group

The results of the analysis using the Wilcoxon test in this study obtained the difference in the average pain of primary dysmenorrhea before and after abdominal stretching exercise and warm compresses of ginger decoction showed the most pain reduction occurred on days 2 and 3 with a pre-value of 3.05 and a value of post-day 1 pain of 2.65 (p 0.000), post-day 2 pain of 2.27 (p 0.000) and post-day 3 pain of 1.92 (p 0.000). Dysmenorrhea begins due to an increase in prostaglandins in menstrual blood and the release of prostaglandins from the endometrium during menstruation, this results in an increase in the intensity of normal uterine contractions that cause pain (Kowalak et al., 2011). Abdominal stretching exercises can restore and dilate tense uterine muscles. This action is useful for training the flexibility of the uterine muscles, so that blood circulation that is blocked to the endometrium becomes smooth, tension decreases, and pain can be suppressed. Abdominal stretching exercise can also prevent the buildup of lactic acid, by doing this action lactic acid is the result of metabolic waste in the muscles that can cause muscle tension and uterine muscle cramps can be suppressed so that blood flow and oxygen to the endometrium smoothly.

The addition of warm compresses of ginger decoction also helps in accelerating the dilation of blood vessels and relaxing the muscles of the uterus, the distinctive ginger fragrance of essential oils and oleosin also helps in the relaxation process. The warm effect of compresses and ginger relaxes the abdominal muscles and uterine muscles and can provide a sense of comfort, endorphins will be released through relaxation of the body from warm compresses of ginger decoction so that natural analgesics from this hormone can suppress pain.

This research is supported by research conducted by Wendy Windastiwi (2017) on 48 respondents at SMP N 1 Wonoboyo, the study proved that abdominal stretching exercise can reduce dysmenorrhea pain with a p-value of 0.000 $p < 0.05$ because stretching is a form of relaxation technique that can reduce pain by relaxing muscles that spasm due to increased prostaglandins so that vasodilation occurs blood vessels and increase blood flow to

p-ISSN: 2685-2020 ; e-ISSN: 2685-2012

spasmed and ischemic areas (Windastiwi et al., 2017).

This study is in line with Sri Mintarsih's research on 15 respondents who were treated with warm compresses of ginger decoction where researchers stated that warm compresses of ginger decoction were able to reduce primary dysmenorrhea pain with a p-value of 0.000 (p <0.05). Giving warm compresses of ginger decoction with the principle of using local warm temperatures can cause physiological effects that relieve ischemia by reducing contractions and increasing circulation coupled with the content of ginger, namely oleoserin which is useful in inhibiting cyclooxygenase reactions to inhibit inflammation and reduce uterine contractions.

Identifying dysmenorrhea pain before and after applying warm compresses of ginger decoction in the control group

The results of the analysis using the Wilcoxon test in this study obtained the average difference in primary dysmenorrhea pain before and after giving warm compresses of ginger decoction showed the most pain reduction occurred on day 3 with a p-value of 0.002. The average value was obtained pre 2.86 and the value of post-day 1 pain was 2.78 (p 0.083), post-day 2 pain was 2.68 (p 0.162) and post-day 3 pain was 2.41 (p 0.002). Warm compresses help relax muscles and the nervous system's physiological response from giving warm compresses, namely dilation of blood vessels, the addition of ginger in compresses is an effort to reduce pain where ginger is believed to be a traditional medicine for menstrual pain, the content of ginger is an essential oil that has a hot and spicy effect can reduce pain and stiffness in blood vessels or muscles in the endometrium which usually stiffen during dysmenorrhea. Ginger is also believed to be a natural relaxation. When adolescent girls achieve full relaxation, pain perception is reduced and anxiety about pain becomes minimal (Harmawati et al., 2018). Warm compresses of ginger decoction can reduce the pain of primary dysmenorrhea because of the principle of warm compresses that can dilate blood vessels and reduce abdominal muscle tension and uterine muscles due to blood circulation that is not smooth. Ginger itself in reducing primary dysmenorrhea pain has almost the same principle as warm compresses, the content of essential oils and curcumin in ginger gives a warm effect so that the dilation of blood vessels can be accelerated and blood circulation to the endometrium becomes smooth and pain can be suppressed or reduced.

This research is supported by research conducted by Hernawati and Ningsih (2018) on 121 respondents of adolescent girls at SMP Negeri 12 Sungai Penuh, in their research researchers stated that there was an effect of giving warm compresses of ginger decoction on reducing menstrual pain with a p-value of 0.000 (p < 0.05) with an average value before treatment of 5.30 and after treatment of 3.80 (Harmawati et al., 2018).

Analyzing the effect of giving Abdominal Stretching Exercise and warm compresses of ginger decoction on reducing primary dysmenorrhea pain in adolescent girls at SMA Negeri 1 Jamblang

Based on statistical tests conducted in this study, it was found that there was an influence between the level of pain before and after abdominal stretching exercise and warm compresses of ginger decoction in the intervention group with an average value of pain reduction using the Friedman test obtained a value of post 1 pain obtained 1.42, post 2 pains obtained 1.35 and post 3 pain obtained an average value of 1.34. The results in this study of the control group given warm compress treatment of ginger decoction showed the average value of post-1 pain obtained 1.58, post-2 pain obtained 1.65 and post-3 pain obtained 1.66. This means that there is a difference in influence between 2 treatments in the intervention group and 1 treatment in the control group. Physiologically, abdominal stretching exercise can stretch the abdominal muscles help relax the uterine

p-ISSN: 2685-2020 ; e-ISSN: 2685-2012

muscles and increase blood perfusion to the uterus so that blood flow around the uterus becomes smooth and pain is reduced (Puspita and Anjarwati, 2019).

Warm compresses use the principle of heat delivery through conduction where heat is attached to the affected area to improve blood circulation and reduce muscle tension or relax smooth muscles that can block pain stimulus. The addition of ginger to warm compresses is used because ginger can relieve pain during menstruation in ginger there is curcumin, which is efficacious in helping relieve pain, and oleoserin compounds that can be useful as natural analgesics (Rohman, 2020).

The heat of essential oils can also relieve pain, stiffness, muscle spasms or the occurrence of vasodilation of blood vessels. The content of gingerol ginger oil is also anticoagulant, which can prevent blood clots and help in removing menstrual blood, ginger can also reduce the production of prostaglandins which are known to be the main cause of menstrual pain (Bachtiar et al., 2019).

The results of this study are supported by research conducted by Bachtiar (2019) on 20 adolescent female respondents at SMAN 10 Bulukumba, in the study it was found that Abdominal Stretching exercise also has an effect in reducing dysmenorrhea pain with a value of (p <0.05) or p (0.003) with a mean pre-test value of 5.90 and a post-test of 4.30 (Bachtiar et al., 2019). This research is in line with research conducted by Nikmah (2018) on 16 adolescent female respondents in Kediri who found that abdominal stretching exercise can reduce primary dysmenorrhea pain with a p-value (0.001). In the study, the average score of the degree of menstrual pain before and after abdominal stretching exercise was 56.2% of respondents who experienced moderate pain, 43.7% experienced mild pain before treatment and after treatment, 50.0% experienced mild pain and those who experienced moderate pain after treatment was 25.0% (Nikmah, 2019).

Conclusion and Suggestions. From the results of abdominal stretching exercise and warm compresses of ginger decoction consisting of the intervention group (abdominal stretching exercise and warm compresses of ginger decoction) and the control group (warm compresses of ginger decoction), it was found that both groups were able to reduce the pain of primary dysmenorrhea, however, in the intervention group there was a significant decrease in pain with the average value of the last day post obtained as much as 1.34 compared to the control group (compresses warm ginger decoction) with an average value of last day post of 1.66. This means that giving two treatments in the intervention group decreased primary dysmenorrhea pain faster than giving one treatment in the control group.

The measurement results from the comparison of the average value between the two groups showed the most pain reduction occurred on day 3 with a p-value of 0.014 (p < 0.05). Abdominal stretching exercises or warm compresses of ginger decoction can be applied as an independent action in health services to treat clients with complaints of dysmenorrhea in the health sector. People can do abdominal stretching exercises and warm compresses of ginger decoction to deal with dysmenorrhea pain at home for 3 days where abdominal stretching exercise is done for 15 minutes and warm compresses of ginger decoction for 20 minutes.

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