



THE EFFECT OF WARM COMPRESS WITH LAVENDER AROMATHERAPY ON REDUCING DYSMENORRHEA PAIN IN ADOLESCENT GIRLS

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ABSTRACT

Dysmenorrhea is a menstrual disorder that is felt in the form of pain or abdominal cramps. Dysmenorrhea can be reduced using pharmacological and non-pharmacological therapy. An example of non-conventional therapy in overcoming dysmenorrhea is by using warm compresses with lavender aromatherapy which provides a double effect, namely warm compresses and lavender aromatherapy which can reduce the level of dysmenorrhea. The purpose of this study was the effect of warm compresses with lavender aromatherapy on reducing dysmenorrhea pain in adolescent girls in the Sumber Deras Village Health Center Work Area. The research method used was experimental research with the One Group Pre-Test and Post-test Design approach. Sampling was carried out using purposive sampling technique with a total of 36 adolescent female respondents who experienced dysmenorrhea. The data analysis used was the Wilcoxon Test. The results of univariate analysis showed that from 36 respondents, most of the female adolescents before being given warm compresses and lavender aromatherapy experienced moderate pain as many as 29 people (80.6%), all female adolescents after being given warm compresses and lavender aromatherapy had no pain as many as 36 people (100%), there was an effect of warm compresses with lavender aromatherapy on reducing dysmenorrhea pain in female adolescents in the Working Area of the Sumber Deras Village Health Center with a p value = $0.000 < \alpha = 0.05$. It is expected that female adolescents can overcome dysmenorrhea pain with non-pharmacological efforts of warm compresses with lavender aromatherapy.

Keywords: adolescent girls; dysmenorrhea; lavender aromatherapy; warm compress

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INTRODUCTION

Most teenagers who have menstruated experience gynecological disorders and the most common one experienced by teenagers is the menstrual phase, namely menstrual pain. Menstrual pain is called dysmenorrhea. Dysmenorrhea is a disorder during menstruation that is felt in the form of pain or abdominal cramps. Pain is not only felt in the lower abdomen but also in other locations such as the suprapubic, lower back, thighs, sides of the abdomen and more than one location. Other symptoms that often accompany it are nausea, vomiting, headaches, dizziness, diarrhea and fatigue (Sumiati,Sakti, 2022). The incidence of menstrual pain in the world is very large. On average, more than 50% of women in each country experience menstrual pain. In America the percentage is around 60% and in Sweden around 72%. While in Indonesia the figure is estimated at 55% of women of productive age who are tormented by pain during menstruation. The incidence (prevalence) of menstrual pain ranges from 45-95% among women of productive age (Seenivasan et al., 2016)

The prevalence of dysmenorrhea in Indonesia occurs in 55% of women of reproductive age where 54.89% of dysmenorrhea that occurs is primary dysmenorrhea and the rest is secondary dysmenorrhea. The prevalence of dysmenorrhea is 90% in adolescent girls, primary dysmenorrhea is caused by the release of prostaglandins which trigger pain. Dysmenorrhea is

not a condition that directly threatens health but can cause a significant burden on the quality of life of adolescent girls (Kamalah, 2023). Based on initial data collection carried out in the Sumber Deras Village Health Center Work Area in 2023, the number of adolescent girls was 40 people and on average experienced dysmenorrhea during menstruation with complaints of pain in the abdominal area, headaches and dizziness. Menstrual pain can disrupt daily life activities. The results of a study in Sweden recorded that 80% of adolescents aged 19-21 years experienced menstrual pain, 15% limited daily activities during menstruation, and needed painkillers, 8-10% did not attend or attend school/college and almost 40% needed medical treatment (Nareza, 2021).

Dysmenorrhea can be reduced using pharmacological and non-pharmacological therapy. Non-pharmacological therapy is by using non-conventional therapy which is a form of treatment that comes from various systems, modalities and health service practices based on theory and belief (Ghifari, 2022). An example of non-conventional therapy in overcoming dysmenorrhea is by using a warm compress with lavender aromatherapy which provides a double effect, namely a warm compress and lavender aromatherapy which can reduce the level of dysmenorrhea (Larasati, T. A. & Alatas, 2016). Warm compresses aim to improve blood circulation, reduce pain and stimulate intestinal peristalsis, facilitate the release of inflammatory sap (exudate), provide a feeling of comfort/warmth and calm while lavender aromatherapy is included in the ester group, this group is fungicidal (kills fungus), sedative (calming), and very aromatic. Lavender oil is efficacious in providing calm, comfort and reducing stress (sedative), antispasmodic, analgesic, antiseptic (Critchley et al., 2020).

Research conducted by Kristianti (2018) that there is an effect of warm lavender aromatherapy compresses on reducing primary dysmenorrhea in female adolescents at the Al-Ma'ruf Islamic boarding school in Bandar Lor Kediri with the results of the analysis using the Wilcoxon Match Pair Test obtained a Z result of -5.070 with a significance value (α) of 0.000 ($\alpha \leq 0.05$). Because the value of $\alpha \leq 0.05$, H_0 is rejected and H_1 is accepted. Research conducted by Esti Yunianingrum (2018) that the results of this study showed that the average primary dysmenorrhea pain before and after being given a warm compress was 6.05 ± 1.046 and 3.09 ± 1.335 with an average decrease of 2.96, meaning that there was an effect of giving a warm compress on reducing primary dysmenorrhea pain ($p = 0.000$). The average primary dysmenorrhea pain before and after being given lavender aromatherapy was 5.95 ± 1.214 and 4.77 ± 1.232 with an average decrease of 1.18, meaning that there was an effect of giving lavender aromatherapy on reducing primary dysmenorrhea pain ($p = 0.000$). The results of the Mann Whitney test obtained $p = 0.000$, meaning that there was a difference in reducing dysmenorrhea pain with warm compresses and lavender aromatherapy. Based on the description above, the researcher is interested in conducting a study entitled "The Effect of Lavender Aromatherapy Warm Compresses on Reducing Dysmenorrhea Pain in Adolescent Girls in the Work Area of the Sumber Deras Village Health Center", which aims to determine the Effect of Lavender Aromatherapy Warm Compresses on Dysmenorrhea Pain in Adolescent Girls.

METHOD

The type of research used in this study is quantitative research, using experimental research methods. The research design used is One Group Pre-Test and Post-test Design. The population in this study were all female adolescents who experienced dysmenorrhea in the Sumber Deras Village Health Center Working Area as many as 40 people and the sample in this study were female adolescents who experienced dysmenorrhea in the Sumber Deras Village Health Center Working Area as many as 36 people. The measuring instrument used in

this study was the Wong-Baker FACES Pain Rating Scale with a scale range of 0-10. Data analysis with statistical tests was carried out using the independent paired t-normal test and if the data was not normal, the Wilcoxon test was used.

RESULT

Table 1.

Frequency distribution of dysmenorrhea pain in adolescent girls before being given warm compresses and lavender aromatherapy to reduce pain

Dysmenorrhea pain in adolescent girls before being given warm compresses and lavender aromatherapy	f	%
No pain	0	0
Mild pain	5	13,9
Moderate pain	29	80,6
Severe pain	2	5,6

Based on table 1, it shows that of the 36 respondents, the majority of female adolescents before being given warm compresses and lavender aromatherapy experienced moderate pain, as many as 29 people (80.6%), mild pain, as many as 5 people (13.9%) and severe pain, as many as 2 people (5.6%).

Tabel 2.

Frequency distribution of dysmenorrhea pain in adolescent girls before being given warm compresses and lavender aromatherapy to reduce pain

Dysmenorrhea pain in adolescent girls after being given warm compresses and lavender aromatherapy	f	%
Tidak ada nyeri	36	100
Nyeri ringan	0	0
Nyeri sedang	0	0
Nyeri berat	0	0

Based on table 2, it shows that of the 36 respondents, all female adolescents after being given warm compresses and lavender aromatherapy, 36 people (100%) had no pain.

Table 3.

The effect of warm compresses with lavender aromatherapy on reducing dysmenorrhea pain

Test Statistics	Pretest-posttest
	-5.293 ^b
Asymp. Sig. (2-tailed)	.000

Table 3 shows that based on the Sig. (2-tailed) value of 0.000 <0.05, there is an effect of warm compresses with lavender aromatherapy on reducing dysmenorrhea pain in adolescent girls in the Sumber Deras Village Health Center Work Area. The Wilcoxon test results show a p value = 0.000 $\alpha = 0.05$, this means that Ho is rejected Ha is accepted, meaning that there is an effect of warm compresses with lavender aromatherapy on reducing dysmenorrhea pain in adolescent girls in the Sumber Deras Village Health Center Work Area.

Table 4.

Differences before and after being given warm compresses with lavender aromatherapy on reducing dysmenorrhea pain in adolescent girls

	f	Mean	Std. Deviation	Minimum	Maximum
Pretest	36	5.03	1.158	3	7
Posttest	36	1.31	.467	1	2

Table 4 shows that dysmenorrhea pain before and after warm compresses with lavender aromatherapy obtained an average pretest value of 5.03 and an average posttest value of 1.31 after warm compresses with lavender aromatherapy.

DISCUSSION

Based on table 1, it shows that out of 36 respondents, most of the female adolescents before being given warm compresses and lavender aromatherapy experienced moderate pain as many as 29 people (80.6%), mild pain as many as 5 people (13.9%) and severe pain as many as 2 people (5.6%). Research conducted by Mira Astri Koniyo (2019) found that the intensity of pain before warm plaster compress therapy was obtained Pain scale 3 (mild) 7 respondents, Pain scale 4-6 (moderate) 18 respondents, Pain scale 7-8 (severe) 5 respondents. Menstrual disorders that often occur are menstrual pain (dysmenorrhea). This pain occurs in the days before or at the beginning of menstruation. Pain is usually felt in the lower or middle abdomen and sometimes even to the hips, thighs, and back. Menstrual pain or dysmenorrhea experienced by each woman is different, some are slightly disturbed but some are very disturbed to the point of being unable to carry out activities (Indrayani, 2021). Dysmenorrhea is pain in the lower abdomen, spreading to the waist and thighs. Dysmenorrhea is cramping pain (tension) in the abdominal area that begins 24 hours before menstrual bleeding occurs and can last for 24-36 hours although its severity only lasts for the first 24 hours. This pain occurs shortly before or together with the onset of menstruation and lasts for several hours, although some cases can last several days before, after and during menstruation (Ulfa & Handayani, 2018).

Most adolescents who have menstruated experience gynecological disorders and the most common one experienced by adolescents is the menstrual phase, namely menstrual pain. Menstrual pain is called dysmenorrhea. Dysmenorrhea is a disorder during menstruation that is felt in the form of pain or abdominal cramps. Pain is not only felt in the lower abdomen but also in other locations such as suprapubic, lower back, thighs, sides of the abdomen and more than one location. Other symptoms that often accompany are nausea, vomiting, headache, dizziness, diarrhea and fatigue (Sumiati, Sakti, 2022). The exact cause of dysmenorrhea is not yet known for sure, in primary dysmenorrhea pain occurs due to high levels of prostaglandins. While in secondary dysmenorrhea, the most common cause is endometriosis. The risk factors for primary dysmenorrhea are women who have never given birth, obesity, smokers, and have a family history of dysmenorrhea. While factors that can worsen the condition are a uterus that faces backwards, lack of exercise and psychological stress or social stress. The onset of pain during menstruation is usually caused by someone experiencing stress that can disrupt the endocrine system, so that it can cause irregular menstruation and cause pain during menstruation (Lestari, 2020).

Increased production of prostaglandins and their release (especially $\text{PGF}_2\alpha$) from the endometrium during menstruation causes uncoordinated and irregular uterine contractions, causing pain. During menstruation, women who have a history of dysmenorrhea have higher intrauterine pressure and have twice the levels of prostaglandins in the blood (menstruation) compared to women who do not experience pain. The uterus contracts more often and is uncoordinated or irregular. As a result of the abnormal increase in uterine activity, blood flow is reduced, resulting in uterine ischemia or hypoxia which causes pain. Other pain mechanisms are caused by prostaglandins and other hormones that make the pain sensory nerves in the uterus hypersensitive to the action of bradykinin and other physical and chemical pain stimuli (Sinaga, 2017). Based on table 2, it shows that out of 36 respondents, all female adolescents after being given warm compresses and lavender aromatherapy had no pain as many as 36 people (100%).

A study conducted by Mira Astri Koniyo (2019) after warm gel plaster compress therapy and lavender aromatherapy, there was a decrease in menstrual pain (dysmenorrhea), namely a

scale of 0 (no pain) 5 respondents, a scale of 1-3 (mild) 25 respondents. Dysmenorrhea is pain during menstruation to the point of disrupting daily activities. Pain can be colicky or continuous. Dysmenorrhea occurs due to dysrhythmic contractions of the myometrium layer which displays one or more symptoms ranging from mild to severe pain in the lower abdomen, buttocks and medial side of the thigh. Pain in the lower abdomen, radiating to the waist and thighs. Sometimes accompanied by nausea, vomiting, diarrhea, headaches and unstable emotions. Pain occurs before menstruation and gradually disappears after menstrual blood comes out (Ahmad, 2020b). The working principle of warm water compresses using hot water bottles can reduce muscle tension so that it will reduce pain during primary dysmenorrhea, because women with dysmenorrhea experience uterine contractions and smooth muscle contractions. Warm compresses are compresses that are done using hot water bottles wrapped in cloth, namely by conduction where heat is transferred from the bottle into the body so that it will cause blood vessels to dilate and muscle tension will decrease so that menstrual pain that is felt will decrease or disappear (Ahmad, 2020a)

Providing warm compresses is very effective in reducing the level of dysmenorrhea. Warm compresses provide a warm feeling to the client by using fluids or tools that cause warmth to the parts of the body that need it. The goal is to improve blood circulation, reduce pain and stimulate intestinal peristalsis, facilitate the release of inflammatory fluid (exudate), provide a feeling of comfort/warmth and calm (Herman et al., 2022). The benefits of this warm compress are to help relax the muscles in the abdominal area so that it can reduce pain that occurs during menstruation. Warm compresses (hot packs) cause vasodilation of blood vessels, with the occurrence of vasodilation or widening of blood vessels, the blood flow supply will increase. With the smooth circulation of blood, it will be able to eliminate pain-causing products or substances such as histamine, bradykinin and prostaglandins. So that with the loss of these products, the pain will be reduced. In addition, the warmth of the hot pack can also relax the muscles in the stomach so that stiffness in the stomach will be reduced (Hidayah, 2019). Dysmenorrhea pain can be reduced with non-pharmacological therapy in the form of warm compresses, namely providing a sense of security with fluids or tools that cause a warm sensation in the body parts that need it. This results in heat transfer to the stomach so that the compressed stomach becomes warm, there is dilation of blood vessels in the painful area and increased blood flow in the area so that the dysmenorrhea pain felt will decrease or disappear (Novitasari et al., 2020)

The reduction in dysmenorrhea after being given a warm compress is due to the stimulation of impulses that block the perception of pain so that it does not reach the hypothalamus. In the gate-control theory, it is said that cutaneous stimuli activate sensory A-beta nerve fibers more and faster, thereby reducing pain transmission to nerve fibers C. Warm compresses function to overcome or reduce pain, where heat can relieve ischemia by reducing uterine contractions and smoothing blood vessels so that it can relieve pain with the duration of compression that is carried out, of course, it can further reduce tension and increase feelings of well-being, increase menstrual flow, and relieve pelvic vasocongestion (Sifa Altika, 2021). Giving a warm compress is one of the independent actions. The warm effect of the compress can cause vasodilation in the blood vessels which will later increase blood flow to the tissue, the distribution of acid and food substances to the cells is enlarged and the disposal of substances is improved which can reduce primary menstrual pain caused by insufficient blood supply to the endometrium. Giving a warm compress uses the principle of heat delivery through conduction, namely by attaching a bottle filled with warm water to the stomach so that heat will be transferred from the bottle into the stomach, so that it will reduce pain in women with primary dysmenorrhea, because in women with this dysmenorrhea experience uterine

contractions and smooth muscle contractions (Novitasari et al., 2020). The use of aromatherapy is an alternative treatment that uses odors or fragrances derived from aromatic compounds. The odor response produced by aromatherapy will stimulate the work of the brain's neurochemical cells. Therefore, a pleasant smell will stimulate the thalamus to release enkephalin which functions as a natural pain reliever and produces a feeling of calm. Lavender aromatherapy has benefits for relieving muscle pain and headaches, reducing tension, stress, improving health, muscle spasms, and is used for immunity (Ayuningtyas, 2019)

Lavender aromatherapy is useful for relaxing and relaxing the nervous and muscle systems that are experiencing tension, while linalool acts as a relaxant and sedative so that it can reduce menstrual pain. This is because lavender aromatherapy contains the main ingredients, namely linalyl acetate and linalool, where linalyl acetate (Yanti Sitorus et al., 2021) The mechanism of action of aromatherapy treatment in the human body takes place through two physiological systems, namely the body's circulatory system and the olfactory system. When drunk or applied to the surface of the skin, essential oils will be absorbed by the body, which will then be carried by the circulatory system, both blood circulation and lymphatic circulation through the digestive process and skin absorption by capillary vessels. Furthermore, the capillaries deliver it to the central nervous system and the brain will send a message to the organs of the body that are experiencing disorders or imbalances (Sumiati, Sakti, 2022). Table 3 shows that based on the Sig. (2-tailed) value of $0.000 < 0.05$, there is an effect of warm compresses with lavender aromatherapy on reducing dysmenorrhea pain in adolescent girls in the Sumber Deras Village Health Center Work Area. Table 3 shows that dysmenorrhea pain before and after warm compresses with lavender aromatherapy obtained an average pretest value of 5.03 and an average posttest value of 1.31 after warm compresses with lavender aromatherapy.

The results of the Wilcoxon test showed a p value = $0.000 < \alpha = 0.05$, this means that H_0 is rejected H_a is accepted, meaning that there is an effect of warm compresses with lavender aromatherapy on reducing dysmenorrhea pain in adolescent girls in the Sumber Deras Village Health Center Work Area. Dysmenorrhea can be reduced using pharmacological and non-pharmacological therapy. Non-pharmacological therapy is by using non-conventional therapy which is a form of treatment that comes from various systems, modalities and health service practices based on theory and belief (Ghifari, 2022). An example of non-conventional therapy in overcoming dysmenorrhea is by using warm lavender aromatherapy compresses which provide a double effect, namely warm compresses and lavender aromatherapy which can reduce the level of dysmenorrhea (Larasati, T. A. & Alatas, 2016). Dysmenorrhea pain can be reduced with non-pharmacological therapy in the form of warm compresses, namely providing a sense of security with fluids or tools that cause a warm sensation in the body parts that need it. This results in the transfer of heat to the stomach so that the compressed stomach becomes warm, there is dilation of blood vessels in the painful part and increased blood flow in the area so that the dysmenorrhea pain felt will decrease or disappear (Asmarani, 2020)

Warm compresses aim to improve blood circulation, reduce pain and stimulate intestinal peristalsis, facilitate the release of inflammatory sap (exudate), provide a feeling of comfort/warmth and calm while lavender aromatherapy is included in the ester group, this group is fungicidal (kills fungus), sedative (calming), and very aromatic. Lavender oil is efficacious in providing calm, comfort and reducing stress (sedative), antispasmodic, analgesic, antiseptic. The reduction in dysmenorrhea after being given a warm compress is due to the stimulation of impulses that block the perception of pain so that it does not reach

the hypothalamus. In the gate-control theory, it is said that cutaneous stimuli activate A-beta sensory nerve fibers more and faster, thereby reducing pain transmission to C nerve fibers. Warm compresses function to overcome or reduce pain, where heat can relieve ischemia by reducing uterine contractions and smoothing blood vessels so that it can relieve pain with the duration of compression that is done, of course, it can further reduce tension and increase feelings of well-being, increase menstrual flow, and relieve pelvic vasocongestion (Kusmiran, 2012). Lavender aromatherapy has main components, namely linalol and linaly acetate which can increase alpha waves in the brain and these waves are what encourage the release of endorphin hormones so as to create a relaxed or calming state, can overcome sleep disorders and depression, lavender essential oil can trigger allergies and can even be toxic if the patient has a history of allergies to lavender flowers (Hidayah, 2019).

Research conducted by Kristianti (2018) that there is an effect of warm lavender aromatherapy compresses on reducing primary dysmenorrhea in adolescent girls at the pondok Al-Ma'rif Islamic Boarding School Bandar Lor Kediri with the results of the analysis using the Wilcoxon Match Pair Test obtained a Z result of -5.070 with a significance value (α) of 0.000 ($\alpha \leq 0.05$). Because the value of $\alpha \leq 0.05$, H_0 is rejected and H_1 is accepted. Research conducted by Esti Yunianingrum (2018) that the results of this study showed that the average primary dysmenorrhea pain before and after being given a warm compress was 6.05 ± 1.046 and 3.09 ± 1.335 with an average decrease of 2.96, meaning that there is an effect of giving warm compresses on reducing primary dysmenorrhea pain ($p = 0.000$). The average primary dysmenorrhea pain before and after being given lavender aromatherapy was 5.95 ± 1.214 and 4.77 ± 1.232 with an average decrease of 1.18, meaning that there was an effect of giving lavender aromatherapy on reducing primary dysmenorrhea pain ($p = 0.000$). The results of the Mann Whitney test obtained $p = 0.000$, meaning that there was a difference in reducing dysmenorrhea pain with warm compresses and lavender aromatherapy

CONCLUSION

Based on the results of the research that has been carried out, the following conclusions can be drawn: Most of the young women before being given warm compresses and lavender aromatherapy experienced moderate pain as many as 29 people (80.6%), all young women after being given warm compresses and lavender aromatherapy had no pain as many as 36 people (100%), there was an effect of warm compresses with lavender aromatherapy on reducing dysmenorrhea pain in young women in the Working Area of the Sumber Deras Village Health Center with a p value = $0.000 < \alpha = 0.05$.

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