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Effectiveness of Warm Water Compress With Lemon Aromatherapy and Lavender Aromatherapy Against Primary Dysmenorrhea Pain Levels

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ABSTRACT

Background: Primary dysmenorrhea is menstrual pain that occurs since menarche without the presence of pathology in the pelvis that causes disruption of daily activities and decreases the quality of life. Improved blood circulation and aromatic odors can reduce pain. in this study to find out the effectiveness of warm water compresses and lemon aromatherapy with lavender aromatherapy against the level of primary dysmenorrhea pain in young women.
Methods: Pre-Experiment with One Group Pre - Post-test design approach. The sampling technique of this study is accidental Sampling. The subjects of this study were 37 young women who suffered from dysmenorrhea and met the criteria. Data analysis using the Wilcoxon test and the Whitney Mann test.
Result: research shows Sig Value. (2-tailed) = 0.001. Then the value of Sig. (2-tailed) < 0.05 (0.00 < 0.05) then Ho is rejected and Ha is accepted which can mean that warm water compress and lemon aromatherapy with warm water compress and lavender aromatherapy are effective against decreased dysmenorrhea pain.
Conclusion: From the results of the study can be concluded warm water compress and aromatherapy lemon is more effective to reduce dysmenorrhea pain in young women

Keyword : Primary dysmenorrhea; warm compress; lemon; lavender

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Background. The human background is a creature that grows and develops one of the stages of growth and development in adolescence. Adolescence is a period of transition from childhood to adulthood, usually from the age of 10-19 years. Adolescence is a time when there are rapid changes in both growths, cognitive, and psychosocial processes. This growth and development include physical, mental, and activity (Andry, et al. 2013).

In adolescence, a person experiences primary and secondary sex changes. In young women will experience increased levels of hormones that can cause maturation of the breast, ovaries, uterus, and vagina, and young women begin to experience menstruation (Kumalasari et al., 2012).

Menstruation is a process in a woman's life that is a sign of changes in body function to be able to reproduce that begins with menarche or first menstruation when aged 10 to 17 years old (Aflaq &Jami, 2012). Menstruation is periodic uterine bleeding about 14 days after the occurrence of ovulation that lasts on average every 28 days but can also last more according to the cycle (Lowdermilk, Perry, &Cashion, 2013). Menstrual disorders faced by women are quite a lot, including pre-menstruation syndrome (PMS), amenorrhea, polymenorrhea, oligomenorrhea, and one of them is dysmenorrhea. This dysmenorrhea causes pain in the lower abdomen, which spreads to the lower back and limbs. Dysmenorrhea usually arises two to three years after menarche. Pain begins to arise shortly before or during menstruation (Manan, 2013).

Dysmenorrhea is categorized into two namely (1) primary dysmenorrhea related to menstrual pain that occurs without anatomical abnormalities of the genitals, while (2) secondary dysmenorrhea i.e. menstrual pain associated with obvious anatomical

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abnormalities or pathological problems in the pelvic cavity (Manuaba, 2010). Primary dysmenorrhea generally occurs after 1-3 years of menarche (Ningsih, 2011). Nationally the average age of menarche 13-14 years occurs in adolescents (Riskesdas, 2010). Dysmenorrhea will occur in teenagers aged 16-17 years so that teenagers at that age are in junior high school education and their equivalent (Ningsih, 2011). Dysmenorrhea can have an impact on the activities or activities of women, especially teenagers. If a student experiences dysmenorrhea, their learning activities at school are disrupted, and do not attend school. For example, a student with dysmenorrhea cannot concentrate on learning and motivation learning will decrease due to the dysmenorrhea felt in the teaching and learning process and sometimes some ask permission to go home because they can not stand the dysmenorrhea they feel (Cicilia et al., 2015). Regarding the problem of dysmenorrhea occurring in adolescents, the incidence of dysmenorrhea in the world is very large. On average more than 50% of women in each country experience dysmenorrhea. In America the presentation rate is around 60%, in Sweden it is about 72% and in the UK a study states that 10% of advanced school teenagers appear to be absent 1-3 days each month due to dysmenorrhea (Calis, 2013)

While in Indonesia the incidence of primary type dysmenorrhea is about 54.89% while the rest of patients with secondary dysmenorrhea. Dysmenorrhea occurs in adolescents with prevalence ranging from 43% to 93%, where approximately 74-80% of adolescents experience mild dysmenorrhea (Hestiantoro, A., 2012). The census results of the Central Java Statistics Agency in 2010, teenagers who experienced dysmenorrhea in the province of Central Java reached 1,518,867 people (Badan Pusat Statistik Jawa Tengah, 2010).

The problem of menstrual pain if not addressed immediately will affect the mental and physical function of the individual so it is urgent to immediately take action / therapy pharmacologically or non-pharmacologically. Pharmacological therapy is one of them with the administration of analgesic drugs. Nonsteroidal Antiinflammatory Drugs (NSAIDs) can relieve this pain by giving prostaglandins that cause pain and have harmful side effects to other body systems (gastric pain and the risk of kidney damage) (Cicilia et al., 2015).

Primary dysmenorrhea can be reduced non-pharmacologically. Non-pharmacological pain management is the act of lowering the response pain without the use of pharmacological agents (Hendrawan, 2013). Several ways can be done to overcome pain in a non-pharmacological manner such as massage therapy, elevated foot position of the body, exercise, dietary arrangements and the administration of warm water compresses. The administration of warm water compresses is one of the self-contained actions. The warm effect of the compress can cause vasodilation in the blood vessels which will later increase blood flow to the tissues of acidic and food distribution to the cells in the enlarge and disposal of zat repaired substances that can reduce the pain of primary menstruation caused by less blood supply to the endometrium, (Natali, 2013).

The administration of warm water compresses using the principle of heat delivery through conduction means is by attaching a bottle containing warm water to the stomach so that there will be a heat transfer from the bottle into the stomach so that it will reduce pain in women with primary dysmenorrhea because in women with dysmenorrhea is experiencing uterine contractions and smooth muscle contractions (Anugraheni &Wahyuningsih, 2013).

Another nonpharmacological technique is aromatherapy. Aromatherapy is one of the Complementary Alternative Medicine techniques that use essential oils derived from plants that can be obtained efficacy through topical application or inhalation (Hur, Song, Lee, &Lee, 2014). The aroma of inhaled oil will react to the olfactory nerve that will be delivered to the central nerve and influence the mind to achieve relaxation, while the application of the skin allows the oil to be absorbed from the pores into the blood vessels and provides a muscle relaxation effect (Hur, Song, Lee, &Lee, 2014).

Lemon aromatherapy is a type of aromatherapy that can be used to overcome pain and anxiety. Substances contained in lemon one of them is menthol which is useful to dilate blood vessels in the pain area increases blood flow, as well as stabilize the nervous system so that it can cause a calm effect for anyone who inhales it (wong, 2010).

In lavender aromatherapy, there is the main content of menthol and olive virgin oil. Menthol

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serves to loosen and relax the nervous system and muscles that experience moderate tension in olive virgin oil there is a compound called oleocanthal that is useful to prevent inflammation. Virgin olive oil can help the formation of prostaglandins which is one of the causes of pain. Lavender relaxes the body, antispasmodics, and is a pain reliever. Therefore lavender is useful to relieve pain (Medforth, et al, 2012).

There are several studies related to this problem including research conducted by Maidartati, Sri &Afifah 2018 on the effectiveness of warm compress therapy against the reduction of dysmenorrhea pain in adolescents in Bandung, stating that warm compresses can reduce menstrual pain (dysmenorrhea) with a significance level of ≤ 0.05. This is reinforced by research conducted by Hawa, Sri &Pertiwi 2018 on the effect of giving warm compresses to dysmenorrhea in young women at SMK Angkasa Singosari Malang flight showed that respondents experienced a decrease in menstrual pain after the administration of warm water compresses (P ≤ 0.05).

Research conducted by Utari &Pawestri 2018 on the effectiveness of lemon aromatherapy to reduce menstrual pain (dysmenorrhea) in nursing students of Muhammadiyah University of Semarang, stated that lemon aromatherapy can reduce menstrual pain (dysmenorrhea) with a significant level of ≤ 0.05. As well as research conducted by Aril 2018 on the effect of lavender aromatherapy on the intensity of dysmenorrhea in D3 midwifery students in semester 2 at 'Aisyiyah University Yogyakarta shows that there is an influence of lavender aromatherapy on the intensity of dysmenorrhea (p<0.05).

A preliminary study conducted on October 5, 2019 to 105 young women at SMP Muhammadiyah Sempor obtained the results that 41 people (39 %) feel pain when the moon will come and when the moon comes. The condition interferes with teenagers in carrying out activities and teaching and learning processes in the classroom. Some of the actions taken by teenagers to overcome this are by taking painkillers. If no research is conducted on the treatment of dysmenorrhea on a nonpharmacological basis, it has an impact on the activities or activities of women, especially adolescents. Because nonpharmacological treatment of dysmenorrhea is an alternative treatment of dysmenorrhea that is simple and easy to do (Ribkha et al., 2017).

Based on this background, researchers will examine the application of non-pharmacological techniques in helping to reduce complaints of menstrual pain felt by young women by administering warm water compresses and aromatherapy. The provision of warm water compresses was the main reference in this study. Because according to Price &Wilson (2010) compress warm water as a very effective method to reduce pain or muscle spasms.

Methods. Pre-Experimental Research with One Group Pre – Post-test design approach. The sampling technique of this study is accidental Sampling. The subjects of this study were 37 young women who suffered from dysmenorrhea and met the criteria. Data analysis using Wilcoxon test and Whitney Mann test.

Result and Discussion.

Table 1. Distribution of Frequency of Dysmenorrhea Pain Levels Before and After Being Given Warm Water Compresses and Lemon Aromatherapy

Types of treatment	Disminorhea pain levels	f	Mean
Before warm compress and aromatherapy lemon	Mild pain	8	42.1
	Moderate pain	10	52.6
	Controlled severe pain	1	5,2
	Total	19	100
After warm compress and aroma therapy lemon	No pain	2	12.5
	Mild pain	16	84.2
	Moderate pain	1	5.2
	Total	19	100

Based on table 1 Showed that the average intensity of pain before the administration of warm water compresses and lemon aromatherapy was 3.89 and the average intensity of pain after the administration of warm water compresses and lemon aromatherapy dropped to 1.63. Based on a table of studies conducted on 19 young women respondents, before being given a warm water compress and lemon aromatherapy most of the respondents experienced moderate pain, namely 10 respondents (52.6%). After being given a warm water compress and lemon aromatherapy most of the respondents experienced mild pain, namely 16 respondents (84.2%).

http://ejournal.poltekkes-smg.ac.id/ojs/index.php/MANR

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Table 2. Distribution of Frequency of Dysmenorrhea Pain Before and After Being Given Warm Water Compress and Lavender Aromatherapy in Young Women

Types of treatment	Disminorhea pain levels	f	%	Mean
Before warm compress and aromatherapy lemon	Mild pain Moderate pain	6 12	33.3 66.6	3.83
	Total	18	100	
After warm compress and aroma therapy lemon	No pain Mild pain	17 1	94.4 5.5	2.33
	Total	19	100	

Based on table 2 Showed that the average intensity of pain before the administration of warm water compresses and lavender aromatherapy was 3.83 and the average intensity of pain after the administration of warm water compresses and lavender aromatherapy dropped to 2.33. Based on a table of studies conducted on 18 young women respondents, before being given a warm water compress and lavender aromatherapy most of the respondents experienced moderate pain, namely 12 respondents (66.6%). After being given a warm water compress and lavender aromatherapy most of the respondents experienced mild pain, namely 17 respondents (94.4%).

Table 3. Wilcoxon test results in warm water compress treatment and lemon aromatherapy

	N	Sig (2 tailed)	α
Increased Decreased	0 19	0.001	0.05
Remain	0		

Based on table 3 indicates that the value of Sig. (2- tailed) = 0.001. The results of this study show the value of Sig. (2-tailed) < 0.05 (0.00 < 0.05) then Ho is rejected and Ha is accepted which can mean that warm water compresses and lemon aromatherapy are effective against the reduction of dysmenorrhea pain

Table 4. Wilcoxon test results in warm water compress treatment and lavender aromatherapy.

	N	Sig (2 tailed)	α
Increased Decreased	0 18	0.001	0.05
Remain	0		

Based on table 4 shows that the value of Sig. (2-tailed) = 0.001. The results of this study show the value of Sig. (2-tailed) < 0.05 (0.00 < 0.05) then Ho is rejected and Ha is accepted which can mean that warm water compresses and lavender aromatherapy are effective against the reduction of dysmenorrhea pain.

Table 5. Mann-Whitney Test Results

	N	Mean	Sig (2 tailed)	α
warm water compress and lemon therapy aroma	19	22.97	0.014	0.05
warm water compress and lavender therapy aroma	18	14.81		
Total	37			

Based on table 8 suggests that the average decrease in pain in the group of warm water compresses and lemon aromatherapy is as large as 22.97 and the average decrease in pain in the warm water compress and lavender aromatherapy group was 14.81, meaning that warm water compresses and lemon aromatherapy were more effective at lowering dysmenorrhoea pain in young women

Based on the results of the study showed that the average intensity of pain before administration of warm water compresses and lemon aromatherapy was 3.89 and the average intensity of pain after administration of warm water compresses and lemon aromatherapy dropped to 1.63. The study was conducted on 19 young women respondents, before being given warm water compresses and lemon aromatherapy most of the respondents experienced moderate pain, namely 10 respondents (52.6%). After being given a warm water compress and lemon aromatherapy most of the respondents experienced mild pain, namely 16 respondents (84.2%).

That the value of Sig. (2-tailed) = 0.001. The results of this study show the value of Sig. (2-tailed) < 0.05 (0.00 < 0.05) then Ho is rejected and Ha is accepted which can mean that warm water compresses and lemon aromatherapy are effective against the reduction of dysmenorrhea pain. It can be concluded that there is a decrease in pain between before and after being given a warm water compress and lemon aromatherapy. The results of this study are in line with research conducted by Amrina (2012) which states that there is a significant difference between the level of pain before and after being given a warm compress. Eka's research (2018) is also in line with research

http://ejournal.poltekkes-smg.ac.id/ojs/index.php/MANR

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conducted by Amrina (2012), Eka's research (2018) stated that warm compresses can reduce primary dysmenorrhea pain. Rima research (2018) states that the administration of warm compresses can reduce dysmenorrhea pain because the administration of heat will cause the dilation of blood vessels so as to improve blood circulation relieves ischemia in myometrium cells, decreases smooth muscle contractions myometrium, and improve muscle relaxation and reduce pain due to spasm or stiffness.

This is in accordance with research conducted by Maidartati, Sri &Afifah 2018 on the effectiveness of warm compress therapy against the reduction of dysmenorrhea pain in adolescents in Bandung, stating that warm compresses can reduce menstrual pain (dysmenorrhea) with a significance level of ≤ 0.05. This is reinforced by research conducted by Hawa, Sri &Pertiwi 2018 on the effect of giving warm compresses to dysmenorrhea in young women at SMK Angkasa Singosari Malang flight showed that respondents experienced a decrease in menstrual pain after the administration of warm water compresses (P ≤ 0.05).

According to Uliyah &Hidayat (2010), Warm water compress is done by using hot buli wrapped in cloth that is conduction where there is a transfer of heat from the buli-buli into the body so that it will cause dilation of blood vessels and there will be a decrease in muscle tension so that perceived menstrual pain will be reduced or lost. The following are the temperatures recommended for warm water compresses.

Research conducted by Utari &Pawestri 2018 and on the effectiveness of lemon aromatherapy to reduce menstrual pain (dysmenorrhea) in nursing students of Muhammadiyah University of Semarang, stated that lemon aromatherapy can reduce menstrual pain (dysmenorrhea) with a significant level of ≤ 0.05.

Lemon aromatherapy is a type of aromatherapy that can be used to overcome pain and anxiety. The substance contained in lemon one of them is Menthol which is useful to stabilize the nervous system so that it can cause a calm effect for anyone who inhales it (Wong, 2010).

The way aromatherapy works with inhalation is when aromatherapy is inhaled then various neuron cells interpret the smell and deliver it to the limbic system which will then be sent to the hypothalamus for processing. Volatile molecules will carry the aromatic elements contained in the oil content to the top of the nose then will produce a return message that is delivered throughout the body through the circulatory system. Messages delivered throughout the body will be converted into an action with the release of neurochemical substances in the form of feelings of pleasure, relaxation, calm or aroused. Therefore, lemon aromatherapy can be used to reduce menstrual pain (Suwanti, Wahyuningsih, and Liliana 2018).

Based on table 5 shows that the average intensity of pain before administration of warm water compresses and lavender aromatherapy is 3.83 and the average intensity of pain after administration of warm water compresses and lavender aromatherapy drops to 2.33.

Based on a table of research conducted on 18 young women respondents, before being given warm water compresses and lavender aromatherapy most of the respondents experienced moderate pain, namely 12 respondents (66.6%). After being given a warm water compress and lavender aromatherapy most of the respondents experienced mild pain, namely 17 respondents (94.4%). that the value of Sig. (2-tailed) = 0.001. The results of this study show the value of Sig. (2-tailed) < 0.05 (0.00 < 0.05) then Ho is rejected and Ha is accepted which can mean that the compress is warm water and aromatherapy lavender is effective against the reduction of dysmenorrhoea pain.

So it can be concluded that there is a decrease in pain between before and after being given a warm water compress and lavender aromatherapy. The results of this study are in line with research conducted by Amrina (2012) which states that there is a significant difference between the level of pain before and after being given a warm compress. Eka's research (2018) is also in line with research conducted by Amrina (2012), Eka's research (2018) stated that warm compresses can reduce primary dysmenorrhea pain. Rima research (2018) states that the administration of warm compresses can reduce dysmenorrhea pain because the administration of heat will cause the dilation of blood vessels to improve blood circulation relieves ischemia in myometrium cells, decreases smooth muscle contractions myometrium, and improve

http://ejournal.poltekkes-smg.ac.id/ojs/index.php/MANR

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muscle relaxation and reduce pain due to spasm or stiffness. Ribkha Itha at all (2019)

This is by research conducted by Maidartati, Sri &Afifah 2018 on the effectiveness of warm compress therapy against the reduction of dysmenorrhea pain in adolescents in Bandung, states that a warm compress can lower menstrual pain (dysmenorrhea) with a significance level of ≤ 0.05. This is reinforced by research conducted by Hawa, Sri &Pertiwi 2018 on the effect of giving warm compresses to dysmenorrhea in young women at SMK Angkasa Singosari Malang flight showed that respondents experienced a decrease in menstrual pain after the administration of warm water compresses (P ≤ 0.05).

According to Uliyah &Hidayat (2010), Warm water compress is done by using hot buli wrapped in cloth that is conduction where there is a transfer of heat from the buli-buli into the body so that it will cause dilation of blood vessels and there will be a decrease in muscle tension so that perceived menstrual pain will be reduced or lost. The following are the recommended temperatures for warm water compresses.

Research conducted by Aril 2018 on the effect of lavender aromatherapy on the intensity of dysmenorrhea in D3 midwifery students in semester 2 at 'Aisyiyah University Yogyakarta shows that there is an influence of lavender aromatherapy on the intensity of dysmenorrhea (p<0.05).

Apriza's research (2015) stated that the smell response resulting from lavender aromatherapy will stimulate the work of brain neurochemical cells so that the brain's neurochemical cells stimulate the thalamus to secrete enfeebling which serves as a natural painkiller and produces a feeling of calm. The results of this study are in line with sulistyawati research (2014)

That the application of warm compresses is more effective in reducing primary dysmenorrhea pain than aromatherapy. This happens because the application of warm compresses and applications of heat will cause the widening of blood vessels so that it can increase blood circulation, relieve ischemia in myometrial cells, reduce smooth muscle contraction. myometrium, and promote muscle relaxation, thereby reducing pain due to spasm or straining. Giving a warm compress affects the activity of nerve fibers with a large and small diameter. Pain effects are delivered by small-diameter nerve fibers that open the gates of the spinal cord, which are then conveyed to the brainstem pharmacology and then sent to the thalamus or cortex to be interpreted as pain. Ribkha at all (2020)

Giving a warm compress will stimulate large-diameter nerve fibers, where the large-diameter nerve fibers and small-diameter nerve fibers run parallel. The stimulation of these large-diameter nerve fibers will cause the spinal cord gates to close so that the pain implant cannot enter the spinal cord and is not passed on to cortex awareness to be interpreted as pain. Therefore, warm compresses are effective in reducing menstrual pain (Sulistyawati, 2014)

Based on table 8, the average decrease in pain in the group of warm water compresses and lemon aromatherapy is 22.97 and the average decrease in pain in the group of warm water compresses and lavender aromatherapy is 14.81, meaning that warm water compresses and lemon aromatherapy are more effective at lowering dysmenorrhea pain in young women.

So it can be concluded that warm water compresses and lemon aromatherapy are more effective at lowering dysmenorrhoea pain in young women than warm water compresses and lavender aromatherapy. Both are depressants because of the content of the compounds it has. Both provide a comfortable effect to lower the intensity of the pain felt.

Judging from the type of composition between lavender aromatherapy and lemon aromatherapy is different, where lavender aromatherapy is made of a type of flower with the main components linalool and linalyl acetate that gives a comfortable, calm, and relaxing effect. It is different from lemon aromatherapy which contains limonene compounds. This compound is a major component in citrus chemical compounds that can inhibit the work of prostaglandins to reduce pain (Sulistyawati, 2014).

Judging from the aroma produced, lavender oil has a sweet smell, floral, very herbal, and has additional smells such as balm (Koensoemardiyah, 2009). In contrast to lemon essential oil, the resulting aroma is fresher so there is a difference in the administration of lavender aromatherapy with lemon aromatherapy against the level of dysmenorrhea pain in young women

Conclusion and Suggestions. Hot compresses and lemon aromatherapy is

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effective to reduce dysmenorrhea pain in young women Based on research conducted on 19 female teenage respondents, before being given warm water compresses and lemon aromatherapy, most of the respondents experienced moderate pain, namely 10 respondents (52.6%). After being given warm water compresses and lemon aromatherapy, most of the respondents experienced mild pain, namely 16 respondents (84.2%).

Warm water compresses and lavender aromatherapy are effective in reducing dysmenorrhea pain in young women. Based on the table of research conducted on 18 female teenage respondents, before being given warm water compresses and lavender aromatherapy, most of the respondents experienced moderate pain, namely 12 respondents (66.6%). After being given warm water compresses and lavender aromatherapy, most of the respondents experienced mild pain, namely 17 respondents (94.4%).

Warm water compresses and lemon aromatherapy is more effective than warm water compresses and lavender aromatherapy to reduce dysmenorrhea pain in young women. Based on the research, it shows that the average reduction in pain in the warm water compress and lemon aromatherapy group is 22.97, and an average The reduction in pain in the warm water compress and lavender aromatherapy group was 14.81, meaning that warm water compresses and lemon aromatherapy were more effective in reducing dysmenorrhea pain in adolescent girls.

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