

Warm compresses to decrease dysmenorrhea among adolescents

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ABSTRACT

Dysmenorrhea is one of discomfort experienced by adolescent during menstruation. A Survey of 10 young women at University of Muhammadiyah Lamongan found 90% had dysmenorrhea. To reduce pain, they take pain relievers. However, the use of drugs can cause side effects, especially if long-term use can lead to addiction or dependence. Research design using Quasy Eksperiment (pretest-posttest). The study was conducted on adolescents who are experiencing dysmenorrhea. They were divided into two groups namely control and treatment groups. The study began by assessing pain levels in both groups. The treatment group was given warm compresses but the control group was not given any treatment, after that reassess the level of pain. The study analyzes changes in pain levels and compares pain change in the two groups. The results showed that in the control group most of the adolescents did not experience pain changes during dysmenorrhea (86.7%), whereas in the treatment group most of the adolescents experienced a decrease in pain (93.3%). Data analysis using the Mann Whitney test showed $p=0.000$ where $p<0.05$ so it can be concluded that there are differences in dysmenorrhea before and after treatment between the warm compress group and the control group. The results of this study are expected to be used as consideration in developing plans to reduce discomfort in the form of menstrual pain in a non-pharmacological manner.

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1. Introduction

Dysmenorrhea is discomfort that occurs during menstruation, in the form of pain in the stomach. This often happens but not all women experience it. The incidence of dysmenorrhea in adolescents is still high. According Gagua et. al (2013) the incidence of dysmenorrhea is between 20-90% in adolescent girls (Lghoul, Loukid and Hilali, 2020). Some adolescents who experience this discomfort cannot even carry out activities as usual. As many as 90% of adolescent girls are at all over the world experiencing problems during menstruation and more than 50% of menstrual women experience primary dysmenorrhea with 10-20% of them experiencing symptoms that are quite severe (Berkley, 2013). To overcome this problem, efforts are needed to handle it, there are pharmacological and non-pharmacological efforts. Most of adolescents overcome this problem by using drugs, but there are those who allow pain to occur even if they interfere with activity. In generally, the pain felt at the beginning of menstruation, but there are some women experience pain during menstruation.

Dysmenorrhea occurs due to uterine wall muscle contractions, these contractions cause pressure on the blood vessels that surround the uterus thereby stopping the supply of blood and oxygen to the uterus. This condition that causes pain.

Various efforts can be made to reduce dysmenorrhea, it is pharmacologically and non-pharmacologically. Pharmacologically is to use drugs for pain. The use of drugs can cause side effects. If the drugs are consumed in excess they can cause liver damage, bleeding, diarrhea, nausea, and gastric problem. It can even cause menstrual pain to get worse if not detected properly and overuse can also cause addiction and dependency. The dangerous long-term effect is to increase the risk of Alzheimer's.

Non-pharmacologically to reduce pain can use a compress. Compresses can reduce inflammation or swelling, reduce pain due to muscle and joint injuries, and increase blood flow. There are many kinds of compresses, one of which is warm compress. Warm compresses improve circulation and blood flow to the affected area, so that pain is relieved. Warm compresses can also restore the flexibility of injured muscles and body tissues. To compress certain parts of the body using a heating pad or bottle, but also for the whole body using a sauna or a warm bath.

2. Research Methods

The research method is quasi experiment using the nonequivalent control group design approach. This study divides the sample into two groups: the treatment and control groups. The population of the study was young women in Muhammadiyah University of Lamongan who experience primary dysmenorrhea. Adolescent who experience gynecological abnormalities were excluded. Sample sizes is 30, were divided into 15 samples in the control group and 15 samples in treatment group. Warm compresses using warm water (40-45°C) included in a glass bottle with lid, covered with cloth so as not to come in direct contact with the skin. The study began by assessing pain levels in both groups. In the control group no intervention was given. In the treatment group, adolescent were given warm compresses. The part of the body that is compressed is the part of the stomach that feels pain for 10 minutes. Pain was reassessed after being treated in both groups. Pain levels are measured using number 1-10, the higher the number, the higher the pain level. The study analyzes changes in pain levels and compares pain change in the two groups using Mann Whitney with $\alpha=0.05$.

3. Results and Discussion

This study divided the sample into two groups, 15 in the control group and 15 in the treatment group.

Table 1. Distribution of Adolescent According the Characteristics of Menstrual.

Variables	Intervention (Warm Compresses)		No Intervention (Control Group)	
	<i>f</i>	%	<i>f</i>	%
Age (years)				
≤ 20	15	100	15	100
>20	0	0	0	0
Time of Dysmenorrhea				
Cramps before period	12	80	13	86,7
During period	3	20	2	13,3
Menstrual Cycle				
Short	0	0	0	0
Normal	15	100	15	100
Long	0	0	0	0
Duration (days)				
≤ 7	15	100	15	100
>7	0	0	0	0

All adolescents in this study were less than 20 years old. According to research which shows adolescent who experience primary dysmenorrhea mostly occur at the age of less than 20 years old (Hu *et al.*, 2020). Both of groups, most dysmenorrhea occurs early in menstruation, but some adolescent feel pain during menstruation.

Based on the menstrual cycle, all adolescents in this study had a normal cycle of 21-35 days, none of them have long or short cycles. This result is supported by research in Maroco adolescents showed 78.2% of adolescents studied reported experiencing a normal menstrual cycle between 21-35 days (Lghoul, Loukid and Hilali, 2020). All adolescents in this study have menstruation duration ≤ 7 days, no one has a duration of > 7 days. The menstrual cycle of 200 nursing students at St Johns Nursing College averages 28-30 days, with a 3-5 day duration (Karanth and Liya, 2018).

Table 2. Distribution of Dysmenorrhea Change

Change of Dysmenorrhea	Intervention (Warm Compresses)		No Intervention		p - value
	f	%	f	%	
Increase	0	0	2	13,3	0,000
No Change	1	6,7	13	86,7	
Decrease	14	93,3	0	0	

Dysmenorrhea is a state of severe pain and can interfere with daily activities that occur during menstruat. Dysmenorrhea is a state of severe pain and can interfere with daily activities that occur during menstruation. Pain that occurs includes abdominal pain, cramps, and back pain (Eny, 2011). Menstrual pain occurs because of the increase in the amount of prostaglandins in the blood resulting in an increase in myometrial contractions. Increased myometrial contractions cause blood flow to be disrupted and the uterine wall to become ischemic. Ischemia in the uterine wall stimulates painful nerve fibers in the uterus (Potter and Perry, 2010). Dysmenorrhea varies from mild to severe. Every menstruation is always accompanied by heartburn or pain. But what is meant by dysmenorrhea is severe menstrual pain that causes a woman to come to the doctor or treat herself (Norwitz E, Schorge J., 2013). In accordance with research conducted in Surabaya which showed that the prevalence of primary dysmenorrhea was still quite high (71.2%) (Hewitt, 2020).

Many choices of efforts that can be done to reduce dysmenorrhea, both pharmacologically and non-pharmacologically. (Kim, 2020) investigated several alternative therapies for dysmenorrhea. It is acupuncture, acupressure, aromatherapy, Chinese medicine, exercise, ginger, herbal medicine, homeopathy, massage, infrared, static magnet, transdermal glyceryl trinitrate, and yoga. All alternative therapies do not show danger if used as therapy to treat dysmenorrhea.

One of the non-pharmacological efforts used is to use warm compresses. In this study shows that there are differences in menstrual pain (dysmenorrhea) between groups of warm compresses and without warm compresses. Indication of heat or warm therapy is to relieve dysmenorrhea pain. With this application, the body will produce physiological responses that have therapeutic properties. The body will reach thermal equilibrium within 30 minutes and further warming will not provide benefits. Physiological effects that occur are pain relief through the gate control mechanism, reducing the activity of C-fiber which is not bermielin and inhibits nociceptive signals in the spinal cord. Women will feel a decrease in the degree of pain, the pain will subside, the onset of pain relief is faster (Karen W, 2015).

Heat can also cause vasodilation (enlargement of blood vessels), increase blood flow to certain areas thereby increasing the delivery of oxygen, nutrients, and various blood cells to body tissues. The application of heat plays a role in relieving local pain, stiffness, or pain, especially in muscles and joints (Lilis, T., & Lyn. L, 2010).

Research that has been done shows that after warm compresses, most of them experience mild pain, so warm compresses are effective in reducing menstrual pain in adolescents aged 13-15 years (Harith Kh. Al-Qazaz1, Raghad O. Al-Dabbagh, 2020). In this study using a bottle filled with water with a temperature of 40-45°C within 10 minutes wrapped in a cloth so that heat transfer occurs from the bottle to the stomach which results in smooth blood circulation and reduced muscle tension so that pain is reduced. This technique provides warmth to the client by using fluids or tools that cause warmth in the body parts that need it. A review of the database, all of which were Randomized Controlled Trials (RCTs), showed two studies that had a beneficial effect on the use of heat therapy for menstrual pain compared with no heat therapy (Jo and Lee, 2018). When applying warm compresses to the client, care must be taken to maintain the temperature of the compress itself for the effectiveness of the compress in reducing pain and avoiding injury to the skin due to overheating (Potter and Perry, 2010).

In addition to warm compresses, cold compresses can be given to reduce pain. However, between warm and cold compresses did not show a significant difference in reducing pain. Both are equally able to reduce menstrual pain (dos-Santos, Silva and Alfieri, 2020). The same study conducted by comparing between warm and cold compresses shows that cold compresses are more effective in reducing pain because the transfer of pain in cold compresses is more dominant than in warm compresses (Maimunah, Sari and Prabowo, 2017).

The use of warm compresses not only for menstrual pain, but also can reduce joint pain osteoarthritis. Research shows that there is an effect of giving warm compresses to joint pain in the elderly. Compress is given by using a bladder or hot water bag (Mukhoirotin, Kurniawati, Diah Ayu Fatmawati, 2020).

Dysmenorrhea can also be reduced by exercise. Exercise can increase blood flow to the pelvic and increase the hormone endorphins so that there is a decrease in pain (Anisa, 2015). The endorphin hormone is produced by the pituitary gland and produces analgesics by binding to opioid receptors in both pre and post synaptic nerve terminals. At the time of bonding, interactions occur that cause inhibition of tachykinin release, especially the substance P which is involved in pain transmission. As a result of these inhibitions cause an increase in dopamine production associated with pleasure (Blum *et al.*, 2010). But some choose to sleep to reduce or eliminate pain and some choose to massage and refresh. Pharmacological treatment with drugs is also still used, both traditional medicines and finished drugs. Traditional medicines consumed are betel leaf, turmeric, and papaya leaves (Hanife, D., Semra, E., and Türkan, A, 2020).

4. Conclusion

Based on the data and research results it can be concluded that there is a difference in the decrease in dysmenorrhea in the group given warm compress and without warm compress.

5. Recommendation

This research may be used by teenagers to help reduce menstrual pain. Future studies are expected to examine efforts to reduce dysmenorrhea pain in other ways and involve a greater number of respondents with various age levels.

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