Contents lists available at IOCS

Science Midwifery

journal homepage: www.midwifery.iocspublisher.org

Combination of Gymnastics and Warm Compresses for Reducing Menstrual Pain (Dysminore) in Young Girls at SMA 1 West Pasaman

Endang Sari[1], Elwitri Silvia[2], Welly Handayani
[1,2,3]Midwifery, University of West Sumatra, Padang, Indonesia

ARTICLE INFO

Article history:

Received Nov 9, 2022
Revised Nov 20, 2022
Accepted Dec 11, 2022

Keywords:

Menstrual Pain
Dysmenorrhea
Dysminore
Combination of Gymnastic
Warm Compresses

ABSTRACT

Menstrual pain or dysmenorrhea is a problem the most common reasons for a decrease in women's activity during menstruation, for example not going to school. According to data from the World Health Organization (WHO) 85% of women experience dysmenorrhea with 15-20% experiencing severe dysmenorrhea. Handling this problem in a non-pharmacological way needs to be developed, for example by exercising and warm compresses. The purpose of this study was to determine the effect of a combination of exercise and warm compresses on reducing dysmenorrhea in young women at SMA 1 Pasaman Barat. The type of research used was a pre-experimental design with one group pre and posttest. Samples were obtained based on inclusion criteria as many as 30 people. data acquisition through observation sheets in the form of a Numerical Rating Scale (NRS). Of the 30 respondents before being given treatment as much as 20 (67%) experienced moderate pain during menstruation and 6 respondents (20%) experienced mild pain during menstruation and after being given treatment as many as 18 respondents (60%) became painless and 6 respondents (20%) to mild pain. From the analysis of the data obtained value (p value = 0.0001). This p value indicates a relationship between a combination of exercise and warm compresses on reducing pain. Based on the results of this study it can be concluded that doing a combination of exercise and warm compresses has an effect on reducing menstrual pain in young women at SMA 1 Pasaman Barat

Corresponding Author:

Endang Sari,
Midwifery,
University of West Sumatra,
Jl. Kol Haji Anas Malik, Padusunan, Kota Pariaman, 25522, Indonesia,
Email: melatisari2310@gmail.com

INTRODUCTION

Adolescence is a dynamic developmental phase in one's life. This period is a period of transition from childhood to adulthood which is characterized by accelerated physical, mental, emotional and social development. Adolescence begins with puberty, which is a period of physical changes and physiological functions. Physical changes such as changes in body shape and body proportions, physiological changes such as the maturity of the sexual organs. One of the changes that occur in

young women is menarche (first menstruation) which usually occurs at an average age of 12 years (NMSD Lestari, 2013).

Menstruation is the process of shedding the uterine lining accompanied by bleeding that occurs repeatedly every month, except during pregnancy. The first day of menstruation is counted as the beginning of each menstrual cycle (day 1). Menstruation will occur 3-7 days. The last day of menstruation is the time it ends before the start of the next menstrual cycle. The average woman experiences a menstrual cycle for 21-40 days. Only about 15% of women experience menstrual cycles for 28 days (Icemi Sukarni & Wahyu, 2013)

Dysmenorrhea in Indonesian is menstrual pain, the nature and degree of this pain varies. Starting from light to heavy. Severe circumstances can interfere with daily activities, forcing sufferers to rest and leave work or daily life for several hours or several days. Almost all women experience discomfort in the lower abdomen during menstruation. The uterus or uterus consists of muscles that also contract and relax. Generally, uterine muscle contractions are not felt, but the contractions are intense and often cause blood flow to the uterus to be disrupted, causing pain (Larasati & Alatas, 2016).

Menstrual pain/dysmenorrhea is an imbalance of the hormone progesterone in the blood causing pain to arise, psychological factors also play a role in the occurrence of dysmenorrhea in some women. Women have experienced dysmenorrhea as much as 90%. This problem bothers at least 50% of women during their reproductive years and 60-85% in their teens, which results in many absences from school or work. In general, 50-60% of women need analgesic drugs to overcome this dysmenorrhea problem (Februanti, 2017).

According to (Ningsih et al., 2013) menstruation is periodic discharge of blood, mucus, and endometrial discharge in the uterus which begins about 14 days after ovulation. A woman's menstrual cycle is usually 21-35 days, the duration of menstruation is 3-5 days, and some are 7-8 days. The start of the first menstruation (menarche) is marked by bleeding due to endometrial necrosis.

The menstrual cycle consists of three phases a). The menstrual phase is a phase characterized by bleeding and remnants of the endometrium from the vagina. There is a decrease in levels of progesterone and estrogen in the lining of the uterus, causing vasoconstriction of the endometrium. The decrease in O2 that occurs causes endometrial death and damage to blood vessels so that the inner lining of the uterus is released during menstruation. The prostaglandins produced stimulate mild rhythmic contractions of the uterine myometrium. These contractions will help expel blood and the rest of the endometrium from the uterine cavity out through the vagina as menstrual blood. Contractions that are too strong due to excess prostaglandins result in menstrual cramps (dysmenorrhea). Menstruation lasts for 5-7 days with the formation of new follicles in the ovaries under the influence of gonadotropic hormones whose levels increase. b). The proliferative phase occurs after 5-7 days, usually there is a decrease in gonadal hormone secretion thereby eliminating the influence of antibiotics from the hypothalamus and anterior pituitary so that the secretion of FSH (follicle stimulating hormone) and LH (luteinizing hormone) increases, and the newly developing follicles have produced enough estrogen to Promotes endometrial repair and growth. When the flow of menstrual blood stops, estrogen stimulates the proliferation of epithelial cells to thicken the endometrial lining, triggering a surge in LH that causes ovulation. c). The secretory or pregestational phase, after ovulation, when a new corpus luteum is formed, the corpus luteum produces progesterone and estrogen. During this phase, progesterone converts the thick, estrogen-prepared endometrium into vascular and glycogen-rich tissue. Thus, leading to the fertile endometrial lining. If fertilization does not occur, the corpus luteum degenerates and a new menstrual phase starts again (Juliana et al., 2019).

Dysmenorrhea is the symptom most often complained of by women of reproductive age. Cyclic pain or pain along with menstruation is often felt like cramps in the stomach starting to occur 24 hours before menstrual bleeding occurs up to 24-36 hours even though the severity only lasts for

the first 24 hours when menstrual bleeding occurs. These cramps can be accompanied by pain that radiates to the back or to the surface of the thighs, with nausea and vomiting, headaches or diarrhea (M. Lestari & Amal, 2019).

There are two ways to reduce menstrual pain, namely pharmacological and non-pharmacological. Several midwifery interventions to reduce pain include light exercise and warm water compresses. A warm compress is to give a warm feeling to the part of the body that needs it. The warm compress given can cause dilation of blood vessels and a decrease in muscle tension so that the menstrual pain that is felt will decrease or disappear (Sormin, 2014).

Light sports exercises are highly recommended to reduce dysmenorrhea. Exercise/gymnastics is a relaxation technique that can be used to reduce pain. This is because when doing sports/gymnastics the body will produce endorphins. Endorphins are produced in the brain and spinal cord. This hormone can function as a natural sedative that is produced by the brain, causing a feeling of comfort (Laili, 2012).

From the description above and considering the frequent occurrence of dysmenorrhea problems in adolescents which can interfere with teaching and learning activities, it is necessary to conduct research to find alternative therapies that are easy to do and do not require costs to prevent and overcome dysmenorrhea problems with dysmenorrhea exercises and warm water compresses in reducing or overcoming menstrual pain problem.

The specific objectives of this study were: To find out the decrease in pain before and after doing dysmenorrhea exercises and warm compresses for young women at SMA 1 Pasaman Barat. The benefit of this research is to be able to help adolescents who experience dysmenorrhea in reducing and preventing pain during menstruation so that they no longer need to take school holidays because of menstrual pain, as information for schools that gymnastics and warm compresses are alternative therapies to overcome and reduce students who experience dysmenorrhea so that they can concentrate more on following the learning process at school, can make alternative therapies in interventions applied by midwives in providing midwifery care services in dealing with menstrual pain in adolescents and provide new knowledge to researchers because they can find out the effectiveness of doing exercises and warm compresses directly and can apply the theory that has been obtained to deal with menstrual pain in their own family.

RESEARCH METHOD

This research was conducted using the Pre-Experimental method in one group (one group pre test – post test design). Sampling was carried out using a purposive sampling method with a sample of 30 young women aged 16-18 years (Rahayu, 2018). The sample criteria were female students/adolescents at SMA 1 Pasaman Barat, female adolescents who experienced dysmenorrhea, who had no history of using pharmacological therapy and experienced menstrual pain scale 1-10 and were willing to sign the research consent form.

The independent variable in this study was giving a combination of gymnastics and warm compresses. The dependent variable in this study was a decrease in menstrual pain. Data collection was carried out by doing light exercise for about 10 minutes and then followed by giving warm compresses to young women at SMA 1 Pasaman Barat aged 16-18 years using a plastic bottle filled with warm water with a temperature of 40-45°C (measured using a water thermometer). which is wrapped with a cloth measuring 19x13 cm with a thickness of 0.1 cm, then placed on the painful area for 10 minutes. For the pain scale using a numerical rating scale (Numerical Rating Scale, NRS) a scale of 0-10, where in determining the pain of dysmenorrhea used a classification scale of 0 (no pain), 1-3 (mild pain scale), 4-6 (moderate pain scale) , 7-9 (severe pain), 10 (severe pain scale) (Oktaviana & Imron, 2016).

During the research process, the researcher uses the ethical principle of 1). Respect for the dignity of the research subject (respect for human dignity). 2). Respect for confidentiality and privacy of research subjects (respect for privacy and confidentiality), 3). Respect for justice and inclusiveness

(respect for justice inclusiveness), 4). Benefits and disadvantages of research (balancing harm and benefits)

RESULTS AND DISCUSSIONS

After conducting research by conducting interviews and filling in data into questionnaires to young women at SMA 1 West Pasaman a number of 30 people who have an age range of 16 to 18 years regarding combinations of gymnastics and warm compresses on reducing menstrual pain in adolescents, the following data are obtained: Univariate analysis is an analysis carried out on each variable of the study, in general this analysis only produces the distribution of frequencies and percentages of each variable.

Table 1. Frequency distribution of pain intensity for female adolescents in SMA 1 West Pasaman before intervention

Menstrual Pain	Frequency (f)	Percentage (%)
No pain	0	0
Mild pain	6	20%
Moderate pain	20	67%
Severe pain	4	13%
Intolerable pain	0	0
Total	**30**	**100%**

Based on table 1 it can be seen that the menstrual pain experienced by respondents before the intervention was mostly in the moderate pain category, namely 20 respondents (67%).

Table 2. Frequency distribution of pain intensity for female adolescents in SMA 1 West Pasaman after intervention

Menstrual Pain	Frequency (f)	Percentage (%)
No pain	18	60%
Mild pain	6	20%
Moderate pain	5	77%
Severe pain	1	3%
Intolerable pain	0	0
Total	**30**	**100%**

Based on table 2 it can be seen that the menstrual pain experienced by respondents after the intervention was mostly in the non-painful category, namely 18 respondents (60%).

Table 3. Frequency distribution of pain intensity for female adolescents at SMA 1 West Pasaman before and after intervention

Menstrual Pain	Before		After	
	f	%	F	%
No pain	0	0	18	60
Mild pain	6	20	6	20
Moderate pain	20	67	5	17
Severe pain	4	13	1	3
Unbearable pain	0	0	0	0

Based on table 3. it is known that before the intervention, some respondents experienced moderate menstrual pain, namely as many as 20 people (67%), then after the intervention, most of the respondents did not experience menstrual pain, namely as many as 18 people (60%). The results showed that there was an increase in the decrease in menstrual pain with the criteria of moderate pain to no pain after the respondent did a combination of exercise and warm compresses and the pain scale was measured again after 1 hour after exercising and warm compresses.

Bivariate analysis is an analysis conducted on two variables that are suspected to be related or correlated. The next test was bivariate analysis, the aim of which was to determine whether there was an effect before or after a combination of exercise and warm compresses on reducing dysmenorrhea pain in young women at SMA 1 Pasaman Barat.

Table 4. Effect of a combination of exercise and warm compresses on reducing menstrual pain in young women at SMA 1 West Pasaman

Pain Scale	Mean	Standard Deviation	p Value
Pre-intervention	1.85	0.578	0.0001
Post-intervention	1.00	0.937	

Based on table 4, it can be concluded that from the results of calculations using a paired T-test, namely by comparing menstrual pain experienced by respondents before the intervention and after the intervention, it shows that there is an effect of a combination of exercise and warm compresses on reducing menstrual pain as indicated by the P value = 0, 0001 which means < α 0.05. This causes Ha to be accepted and Ho rejected, that is, there is an effect of a combination of gymnastics and warm compresses on reducing menstrual pain in young women.

Table 1 shows that the menstrual pain experienced by respondents before the intervention was mostly in the category of moderate pain, namely as many as 20 respondents (67%), mild pain 6 respondents (20%) and no one respondent who was in a state of no pain (0) . In table 2 it shows that the menstrual pain experienced by respondents after the intervention was mostly painless as much as 18 respondents (60%). This shows a decrease in menstrual pain scale after being given a combination of exercise and warm compresses. This research is in line with the research of Rosi Kurnia S (2020) which shows that there are differences in pain scales after being given a combination of exercise and warm compresses. Exercise can increase the number and size of blood vessels that carry blood throughout the body. So exercise is important for young women who experience dysmenorrhea because moderate and regular exercise will increase the release of beta endorphins (natural pain relievers) into the bloodstream, thereby reducing menstrual pain or dysmenorrhea (Novadela et al., 2019).

In a study (Novayelinda, 2015) entitled the effectiveness of relaxation techniques for efforts to treat dysmenorrhea in STiKes PKU Muhammadiyah Surakarta female students, it was stated that there was a significant difference in pain scale between before and after the progressive relaxation technique was carried out where there was a decrease in the pain scale from moderate pain to mild pain. This decrease in pain scale occurs because therapy with relaxation techniques gives individuals self-control when discomfort or pain occurs, physical and emotional stress on pain. This activity creates a sensation of releasing discomfort and stress. Gradually, the client can relax the muscles without having to tense up first When the client achieves full relaxation, the perception of pain is reduced and anxiety about experiencing pain is minimized.

The use of warm water compresses can improve blood circulation, smooth vascularization and vasodilation occurs which relaxes the muscles because the muscles get excess nutrients brought by the muscles. blood so that muscle contraction decreases (Tyas E et al, 2018). Warm compresses cause vasodilation in the symphysis pubis area which can open up blood flow making blood circulation smooth again resulting in relaxation and decreased muscle contractions. After the pain intensity gradually decreased, the respondent's responses felt more relaxed, could carry out minimal activities, improved quality of life and psychological responses could be more controlled so they did not get angry easily. Warm compress serves to dilate blood vessels stimulate stiffness. In addition, warm compresses also function to relieve the sensation of pain. This shows that warm compresses have an effect on reducing the intensity of pain during menstruation (Novayelinda, 2015).

This research is also in line with research conducted by Susanti, D et al (2018) where warm compresses using a bottle wrapped in cloth will cause heat transfer (conduction) from the hot bottle into the stomach which can improve blood circulation and reduce muscle tension so that it will reduce pain. in women with dysmenorrhea, because women with dysmenorrhea experience uterine contractions and smooth muscle contractions.

The reduction in menstrual pain after being given a warm compress is due to the stimulation of impulses which block the perception of pain so it does not reach the hypothalamus.stimulus

activates A-beta sensory nerve fibers larger and faster thereby reducing pain transmission to nerve fibers (Ningsih et al., 2013).

cutaneousthe P value is 0.001 which means < α 0.05 which concludes that Ha is accepted and Ho is rejected. This shows that there is an effect of a combination of exercise and warm compresses on reducing menstrual pain in adolescents. The results of this study are also in accordance with research (Munawar et al., 2013) entitled the effect of aerobics on reducing the pain of dysmenorrhea which states that there are differences in pain using the NRS (numeric rating scale) measurement scale with a p-value (0,00).

Currently, the pathophysiology of dysmenorrhea is still unclear because of the many factors that influence the occurrence of dysmenorrhea in young women. The results of the study are in line with the theory which says that dysmeorhea is believed to be true, namely the theory of prostaglandins and leukotrienes. The decrease in the postovulatory hormones progesterone and estrogen in nonfertilization causes menstruation which results in the activation of the prostaglandin and leukotriene cycles in the uterus. The inflammatory response due to the prostaglandin cycle in the uterus will result in hypertonicity and vasoconstriction in the myometrium. Ultimately, ischemia and pain occur in primary dysmenorrhea. The specific substance that causes this is prostaglandin (PG) F2-alpha. Prostaglandin F2 alpha is one of the strong stimulants of myometrial smooth muscle contraction and uterine blood vessel constriction (Handayani et al., 2016).

The results of this study are also in accordance with the results of research conducted by Marlinda (2013) who conducted research on the effect of dysmenorrhoea exercise on reducing dysmenorrhea. in young women obtained the result that there was an effect of gymnastics on dysmenorrhea experienced by adolescents. To overcome the discomfort caused by menstrual pain, there are several ways you can do to overcome this. One of them is gymnastics. The purpose of gymnastics is to increase the tension of the muscles and blood vessels which can rarely reduce high blood pressure. By applying warm compresses to increase the volume of blood flowing throughout the body, including the reproductive organs. With regular exercise or gymnastics, there is an increase in the volume of blood flowing throughout the body, including the reproductive organs, thus facilitating the supply of oxygen to blood vessels that experience vasoconstriction, so that menstrual pain can be reduced.

CONCLUSION

Respondents experienced a decrease in the pain scale, namely at the time of pre there was moderate pain with a percentage of 67%, while in the post measurement some respondents experienced a decrease in menstrual pain to no pain with a percentage of 60%. statistical test results Paired T test showed that the P value was 0.0001, which means that this study obtained the results that there were differences in the reduction of pre and post menstrual pain in young women at SMA 1 Pasaman Barat who experienced dysmenorrhea with a combination of exercise and warm compresses for 10 minutes exercise and followed by 10 minutes of warm compresses with a water temperature of 45°C. So that combination therapy with exercise and warm compresses can be an effective and easy way to reduce menstrual pain.

References

Februanti, S. (2017). Knowledge of young women about handling dysmenorrhea at SMPN 9 Tasikmalaya. Bakti Tunas Husada Journal of Health: Journal of Nursing Sciences, Health Analyst and Pharmacy, 17(1), 157–165.

Handayani, H., Gamayanti, IL, & Julia, M. (2016). Dysmenorrhea and Anxiety in Adolescents. Sari Pediatrics, 15(1), 27–31.

Icemi Sukarni, K., & Wahyu, P. (2013). Maternity Nursing Textbook complete with Askep Examples. Yogyakarta: Nuha Medika.

Juliana, I., Rompas, S., & Onibala, F. (2019). The relationship of dysmenorrhea with menstrual cycle disorders

in adolescents at SMA N 1 Manado. Nursing Journal, 7(1).
Laili, N. (2012). Differences in the level of menstrual pain (dysmenorrhea) before and after dysmenorrhea exercise in young women at SMA 2 Jember.
Larasati, TA, & Alatas, F. (2016). Primary dysmenorrhea and risk factors for primary dysmenorrhea in adolescents. Majority Journal, 5(3), 79–84.
Lestari, M., & Amal, F. (2019). Factors Associated with Irregular Menstrual Cycles in Midwifery Students at the Jayapura Ministry of Health Polytechnic. Independent Healthy Journal, 14(2), 57–63.
Lestari, NMSD (2013). The effect of dysmenorrhea on adolescents. Proceedings of the MIPA National Seminar.
Munawar, M., Nurjannah, N., & Nurviana, F. (2013). The Effect of aerobics on reducing the pain of dysmenorrhea. 3rd Syiah Kuala University Annual International Conference 2013.
Ningsih, R., Setyowati, S., & Rahmah, H. (2013). Effectiveness of pain relief packages in adolescents with dysmenorrhea. Indonesian Journal of Nursing, 16(2), 67–76.
Novadela, NIT, Rosmadewi, R., & Wahyuni, E. (2019). The Effect of Dysmenorrhea Exercise on the Level of Dysmenorrhea in Young Women. Metro Sai Wawai Journal of Health, 10(1).
Novayelinda, R. (2015). The Effectiveness of Dysmenorrhea Exercise in the Management of Primary Menstrual Pain in Adolescents. Riau University.
Oktaviana, A., & Imron, R. (2016). Reducing dysmenorrhea pain with warm compresses. Sai Betik Scientific Journal of Nursing, 8(2), 137–141.
Rahayu, EP (2018). THE INFLUENCE OF YOGA EXERCISE ON MENTAL PAIN IN ADOLESCENT WOMEN CLASS X MAN 2 PROBOLINGGO CITY. STIKES Medic Scholars of Jombang.
Sormin, NM (2014). The effectiveness of dysmenorrhea gymnastics in reducing dysmenorrhea in young women at SMP Negeri 2 Siantan, Pontianak Regency. Journal of ProNers, 2(1).