Indonesian Journal of Global Health Research
Volume 5 Number 1, February 2023
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

THE INFLUENCE OF GYMNASTICS ON DISMINORE INADOLESCENT WOMEN

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ABSTRACT

Dysmenorrhea is a condition that occurs when menstruation can interfere with activity and require treatment. Handling of dysmenorrhea is divided into two pharmacologically can be handled with analgesic therapy while non-pharmacologically can be treated with relaxation techniques such as gymnastics. Gymnastics is one of the non-pharmacological methods to reduce dysminorea. Method Quasi experimental research design with one group pre-test - post test design without control group. The number of samples 33 people. Data collection using observation sheets by examining the scale of dysmenorrhea before and after given the exercise intervention. Results In this study using the Wilcoxon signed rank analysis method. . Z value = -4.893 and p value 0.000 ≤ 0.05 Ho is rejected Ha is accepted, which means that there is an effect of gymnastics on decreasing the disminore pain scale between before Gymnastics and after Gymnastics.

Keywords: dysmenorrhea; gymnastics; pain

First Received	Revised	Accepted
28 December 2022	02 January 2023	18 January 2023
Final Proof Received		**Published**
28 January 2023		08 February 2023

How to cite (in APA style)
Wulandari, P. (2023). The Influence of Gymnastics on Disminore Inadolescent Women. *Indonesian Journal of Global Health Research*, *5*(1), 11-18. https://doi.org/10.37287/ijghr.v5i1.1342.

INTRODUCTION

Dysmenorrhea is a gynecological problem that is often complained of. Many young women experience unpleasant things during menstruation. The term dysmenorrhea is used when pain can interfere with daily activities and requires treatment (Decherney, 2007; Titilayo, et al., 2009). The causes of dysmenorrhea experienced by women include endomaetriosis, pelvic infections (pelvic area), uterine tumors, appendicitis and disorders of the digestive organs (Ernawati, 2010). According to WHO, an incidence of 1,769,425 people (90%) experienced dysmenorrhea and 10-15% of them experienced severe dysmenorrhea. On average, more than 50% of women from every country experience pain during menstruation. In a study conducted by Bawadi (2005) in Egypt, it was found that 75% of young women had dysmenorrhea, with 55.3% experiencing mild dysmenorrhea, 30% of adolescents experiencing moderate dysmenorrhea and 14.8% experiencing severe dysmenorrhea.

The results of the 2010 Central Java Statistics Agency Census found that 11.78% were teenagers, out of a population of 32,458,687 people. Indonesia ranks 5th highest in the world in terms of population with teenagers making up most of the population. Central Java Province in 2010 had a population of 32,458,687 people with 2,761,577 young women aged 10-19 years. While those who experience dysmenorrhea in Central Java Province reach 1,518,876 people (Central Java Statistical Agency). Based on Haruyama's research (2011) doing sports or gymnastics, the body will produce endorphins. Endorphins are produced by the brain and spinal cord. This hormone acts as a natural calming muscle that is produced by the brain, causing a feeling of comfort. Someone who often exercises has a lower prevalence

of disability (Morgam, 2009). Research conducted by Istiqoah (2009) states that dysmenorrhoea exercise is very effective in reducing menstrual pain or dysmenorrhea in adolescents, namely around 73.3% of adolescents experience a decrease in pain from moderate to mild pain and 26.67% experience a decrease in pain from chronic pain. severe to moderate pain level.

METHOD

The method used in this study was an experiment with a one group pre test – post test design without control group research design, where the first observation (pre test) was carried out in this study so that the researcher could examine the changes that occurred after the treatment, but in In this design there is no control or comparison group (Riyanto, 2011).

RESULTS

Table 1
Frequency Distribution of Respondents Based on Age of Young Girls at SMP Negeri 31 Semarang (n= 33)

Age	f	%
12	10	30,3
13	12	36,4
14	11	33,3

Based on table 1, the age characteristics of young women at SMP Negeri 18 Semarang showed that there were 12 respondents (36.4%) at the age of 13, 11 respondents (33.3%) at 14 years of age, and 12 years of age there were 10 respondents (30.3%).

Tabel 2.
Frequency Distribution of Respondents Based on Dysmenorrhea Before Gymnastics in Young Girls (n=33)

Pain	Mean	Std. Deviation	Minimum	Maximum
Pre	6,79	1,08	5	8

Table 2 the average frequency of menstrual pain for female adolescents before exercising was a mean of 6.79, a standard deviation of 1.538 and a minimum of 5. The highest frequency of menstrual pain was a maximum of 8 who experienced controlled severe pain.

Table 3.
Frequency Distribution of Respondents Based on Dysmenorrhea After Gymnastics in Young Girls (n=33)

Pain	Mean	Std. Deviation	Minimum	Maximum
Post	3,61	1,059	2	5

Table 3 illustrates that the mean frequency of menstrual pain after doing gymnastics is a mean of 3.61, a standard deviation of 1.06 and a minimum of 2. The highest frequency of menstrual pain is 5 who experience moderate pain.

Table 4.
The Effect of Gymnastics on Dysmenorrhea in Young Girls at SMP Negeri 31 Semarang (n = 33)

Parameter	Negative Ranks	Positive Ranks	Ties	Z	P value
menstrual pain	31	0	2	-4.893	0,000

Based on table 4 in the treatment of Dysmenorrhea Gymnastics, a negative ranks value of 31 was obtained, this indicated that the respondent experienced a decrease in the pain scale after being given the intervention, while the positive rank value was 0. This indicates that no respondent experienced an increase in the pain scale after the intervention, ties are worth These 2 things show that the respondent did not experience a decrease or increase in the pain scale. Z value = -4.893 and p value 0.000 ≤ 0.05 Ho is rejected Ha is accepted which means that there is an effect of gymnastics on reducing dysmenorrhea pain scale between before gymnastics and after gymnastics.

DISCUSSION

The results showed that the majority of young women who were respondents in the study were 13 years old (36.4%). Menarche or first menstruation is generally experienced by adolescents at the age of 13–14 years, but in some cases it can occur at the age of ≤ 12 years. Menarche at an earlier age, is the age when a girl begins to have menstruation which varies greatly. There is a tendency that currently children get their first menstruation at a younger age. There are those who are 12 years old who have had their first menstruation, those who are 8 years old have experienced it and there are also those who are 16 years old who have just experienced it.

Menarche at an earlier age causes the reproductive organs not to function optimally and are not ready to experience changes resulting in pain during menstruation. The age of fast menarche is <12 years which is a risk factor for primary dysmenorrhea (Gustina, 2015). The age of menarche varies for each individual and region of residence. Students who experience early menarche can be influenced by the economic status of their parents, because parents with high socio-economic backgrounds will try to meet the nutritional needs of their daughters. Various types of food intake with high nutritional value consumed will have an impact on the growth and development of children (Susanti, 2012). Whereas in children who are overweight there will be an increase in leptin secretion. The higher the leptin level, the faster menarche occurs. Nutrition greatly affects sexual maturity in adolescents who get their first menstruation earlier, they tend to be heavier and taller during their first menstruation compared to those who have not menstruated at the same age (Hariani, 2017). Meanwhile, adolescents with good nutritional status experience early puberty according to age compared to adolescents who are thin or who have below normal nutrition, therefore if their nutritional intake is improved and hormone function returns to normal and sexual maturity can take place (Soetjiningsih, 2010) .

Dysmenorrhea Scale Before Given Gymnastics

The results of this study indicate that most respondents experienced moderate pain on a scale of 6-8 in the category of moderate pain and controlled severe pain before dysmenorrhea exercise. Each respondent has a description of the pain that is felt, this shows that pain is subjective and only someone who experiences this condition can describe the amount of pain that is felt. These conditions will affect the decrease in the pain intensity score for each respondent when given the intervention.

Most of the respondents had never exercised before menstruation took place. This is in line with previous research, namely by Viky (2012), regarding menstrual pain which stated that before treatment as many as 20 respondents (100%) experienced menstrual pain. Adolescents experience changes in three aspects, namely psychosocial development, cognitive development and physical changes. Physical changes are marked by accelerated growth in adolescents accompanied by hormonal changes in the body. Hormonal changes in adolescents

result in estrogen secretion which can cause thickening and differentiation of the endometrium, an increase in the number of actinomysin cells, creatine phosphokinase from ATP from the myometrium, then in preparation for early menstruation (menarche) and birth (Deswita, 2006).

The severity of the pain that is felt is probably caused by the age factor. The higher the pain experienced, the more visible changes in the respondent's vital signs. In addition, the level of anxiety about pain also affects changes in vital signs. Pain is an individual and complex experience (Smith, et.al, 2011). The difference in the intensity of dysmenorrhea pain felt by each respondent can be caused by the difference in the start of menstruation and the different perceptions of the pain experienced. A person's pain experience is influenced by several factors which can then increase or decrease the perception of pain, including: tolerance or individual response to pain, namely previous pain experiences, culture, anxiety, gender, age and expectations of efforts to relieve pain (Butar-butar, et al. .al, 2015).

Pain will cause the body's response to include physiological and psychological aspects, stimulate autonomic responses and sympathetic responses, thus increasing blood pressure, pulse, breathing, increasing muscle tension, pupil dilation, pale face and diaphoresis. Stress, emotions such as fear and anxiety and the perception of intense pain will increase the pulse rate and strength of the heartbeat in response to increased adrenaline levels. Whereas in severe pain, the pain that occurs will result in a decrease in heart rate and pulse (Salbiah, 2015).

Factors that can relieve pain, for example by movement, exertion, rest and anything that someone believes can help overcome the pain. According to Ramadina's research (2014) menstrual pain or dysmenorrhea is caused by excessive release of prostaglandin F2 alpha (PGF2 α) which increases the amplitude and frequency of uterine contractions and causes uterine arteriolar vasospasm, resulting in ischemia and cyclic lower abdominal cramps. Dysmenorrhea is also influenced by several other factors including fatigue which will cause the pain to intensify (Rohman, 2018). One that can be used to treat dysmenorrhea can be done with pharmacological and non-pharmacological therapy. Pharmacological therapy includes administration of analgesic drugs, hormonal therapy, non-steroidal prostaglandin drugs, and dilatation of the cervical canal (Sawitri, 2014).

Analysis from the author, teenagers who often experience physical discomfort or feel tormented before or during menstruation, one of the physical discomforts during menstruation is menstrual pain. that the respondents who were at SMP Negeri 18 Semarang mostly experienced moderate menstrual pain, if not treated it would have a negative effect on adolescents. Moderate menstrual pain can be overcome by using dysmenorrhea exercises, done at least 3 days before menstruation.

Dysmenorrhea Scale After Gymnastics

The results of this study showed that after doing dysmenorrhea exercises, the respondents' pain scores decreased on a scale of 2-5 in the categories of mild pain and moderate pain. These different results indicate that there are differences in the level of dysmenorrhea before and after exercise. Respondents who did the exercise 3x, it can be seen that at the time before doing the exercise no one experienced mild pain, but after doing the exercise there were 15 respondents who experienced mild pain. Before doing the exercises, those who experienced moderate pain increased to 54.5% after doing the exercises, while those who experienced severe pain after doing the exercises no longer experienced severe pain.

The results of this study are in line with the research of Sarifah, et.al (2015) where the results found that there were significant differences before and after dysmenorrhea exercises in reducing menstrual pain. The average menstrual pain before the intervention (pretest) was 4.55 and after the menstrual pain intervention increased to (posttest) 3.05. Gymnastics is one of the safer non-pharmacological methods to use because it goes through a physiological process. This research is supported by the opinion (Ningsih, et.al, 2013), where one way to relieve dysmenorrhea is to do gymnastics. Effect of exercise in overcoming primary dysmenorrhea through the mechanism of endorphin release during exercise.

Dysmenorrhea gymnastics is a form of exercise which is a series of dynamic movements performed to reduce complaints of pain during menstruation. Movement consisting of warm-up movements, core movements, cool-down movements, and can be done independently, in groups or with assistance from an instructor. The purpose of dysmenorrhea exercise is to help reduce complaints of pain during menstruation and help young women to relax in reducing menstrual pain. (Abbaspour, 2006).

Effect of Gymnastics on Dysmenorrhea Pain Levels

The results of data analysis showed that 31 respondents experienced a decrease in dysmenorrhea with dysmenorrhea exercise and there were 2 respondents who experienced a decrease in dysmenorrhea but were still in the same vulnerability or the same pain scale because these respondents did not do the exercise correctly. which may be caused by stress factors due to too many assignments at school. After doing dysmenorrhea exercises, most of the respondents experienced a decrease in pain. According to research by Sarifah, et.al (2015) in which almost all respondents in the intervention group experienced a decrease in pain levels after being treated with dysmenorrhea exercise 5 times. The results obtained were average before doing dysmenorrhea gymnastics for an average degree of pain showing 5.55 and after doing dysmenorrhea gymnastics it dropped to 3.05. This shows that there was a decrease in pain due to giving dysmenorrhea exercises at least 3 days before menstruation, carried out for 3 times with a duration of 20 minutes can reduce menstrual pain, and make you relax.

Stretching muscles can help increase oxygenation in the cells, produce endorphins, and stimulate the flow of drainage in the lymph system so that it can increase muscle flexibility by returning the muscles to their original state and maintaining their function, improving the elasticity or flexibility of body tissues and reducing muscle cramps. Menstrual pain is also caused by muscle spasms or uterine muscle tension, so Dysmenorrhea Exercise can relax muscles that are experiencing spasm caused by an increase in prostaglandins so that vasodilation of blood vessels occurs and will increase blood flow to areas experiencing spasm. Muscle spasms can cause pain during menstruation. The pain is caused by the effect of muscle spasm which compresses the blood vessels and causes ischemia. Pain due to tissue ischemia occurs when blood flow to the tissue is obstructed. This occurs due to the accumulation of large amounts of lactic acid in the tissues which is formed as a result of anaerobic metabolism, there may also be other chemicals such as bradykinin, prostaglandins and proteolytic enzymes which are formed in the tissues due to cell damage. These ingredients and lactic acid will stimulate pain nerve endings (Salbiah, 2015).

According to the research results of Cahyaningtyas (2017) with correct and regular exercise can reduce the degree of dysmenorrhea pain. Decreased blood flow to the uterus can cause dysmenorrhea, but some women suffer from reduced blood flow in uterine hyperactivity. It is thought that uterine contractions alone may be responsible for the characteristic colic pain of

dysmenorrhea, while the prolonged episodes of reduced uterine blood flow seen in some women cause continuous aches of varying intensity. So dysmenorrhea is caused by uterine ischemia where uterine hyperactivity is the cause, but in people who regularly exercise properly with a frequency of 3-5 times a week, the duration of each exercise is 15-60 minutes, and the intensity is sweating and deep breathing and no complaints such as pain arise. and dizziness, it will get benefits, namely the dilatation of blood vessels and increased blood flow to all organs including the uterus which causes reduced dysmenorrhea pain.

CONCLUSION

The results showed that dysmenorrhea before exercise in young women at SMP Negeri 31 Semarang had an average dysmenorrhea scale of 6.79 with a minimum of 5 and a maximum of 8 with controlled severe dysmenorrhea. The results showed that pain after exercise in young women at SMP Negeri 31 Semarang had an average dysmenorrhea scale of 3.61, with a minimum of 2 and a maximum of 5 with a moderate degree of dysmenorrhea. Based on the results of the research above, it was found that the p value of 0.000 was smaller than α (0.000 <0.05), then Ho was rejected, Ha was accepted so that there was an effect of gymnastics on the level of dysmenorrhea in young women at SMP Negeri 31 Semarang.

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