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The Implementation of Dysmenorrhea Exercises Influences the Level of Menstrual Pain in Adolescent Girls at State Senior High School 1, West Seram

Siti Rochmaedah[1]✉, Trysna Ayu Sukardi[1]

[1]STIKes Maluku Husada, Indonesia

✉Corresponding author: **Siti Rochmaedah**; email: siti.rochmaedah@gmail.com

Abstract

Background: Primary dysmenorrhea is a common menstrual disorder experienced by adolescent girls, characterized by pain in the lower abdomen or waist, cramps, headaches, and discomfort that can interfere with daily activities, including school participation. Despite its high prevalence, menstrual pain is often inadequately managed, leading to decreased quality of life and learning performance. Non-pharmacological interventions, such as dysmenorrhea exercises, are considered safe, simple, and potentially effective alternatives for managing menstrual pain. **Objective**: This study aimed to analyze the difference in menstrual pain levels before and after the application of dysmenorrhea exercises in adolescent girls. **Method**: This study employed a quasi-experimental design with a one-group pretest–posttest approach. The sample consisted of 15 adolescent girls who experienced dysmenorrhea, selected using a total sampling technique. Menstrual pain levels were measured before and after the intervention. Data analysis was conducted using the Wilcoxon test. The study was carried out with consideration of research ethics, including informed consent and participant confidentiality. **Results**: The results showed a significant difference in menstrual pain levels before and after the application of dysmenorrhea exercises, with a ρ value of 0.000 (<0.05). **Discussion**: The decrease in pain levels after dysmenorrhea exercises may be explained by physiological mechanisms such as improved blood circulation, muscle relaxation, and increased release of endorphins, which function as natural analgesics. These findings are consistent with existing theories and previous studies that support the effectiveness of physical exercise as a non-pharmacological management for menstrual pain. **Conclusion**: This study concludes that dysmenorrhea exercises are effective in reducing menstrual pain among adolescent girls. The application of these exercises can be considered an alternative non-pharmacological intervention to help adolescents manage dysmenorrhea and maintain daily activities, particularly in the school environment.

Keywords: adolescent girls, menstrual pain, dysmenorrhea exercises

INTRODUCTION

Adolescence is a stage of growth and development that begins at the age of 10 to 19 years [1]. At this stage, puberty or maturity of the reproductive organs occurs, where young women experience menarche, which is marked by the start of menstruation [2].

Menstruation is a physiological process experienced by every teenage girl, generally occurring at the age of 12-13 years where the endometrium layer is shed accompanied by

bleeding due to the absence of fertilization [3]. Not all teenage girls menstruate in good condition or without any accompanying problems.

A common menstrual disorder is primary dysmenorrhea, where women experience pain during menstruation and it is felt in the lower abdomen or waist, which can be like cramps, aches, or stabbing pain and headaches [4] and often impacts the activities of teenagers at school of all ages and races [5].

Based on surveys conducted in various countries, the prevalence of dysmenorrhea in Sweden is 90% "in women under 19 years old, while in India it reaches around 73.9% in women aged 10-19 years." The average incidence of menstrual pain in young adolescent girls is between 16.8 - 81% [6]. In England, 45 - 97% of women are recorded as having complaints of dysmenorrhea [7]. "The lowest incidence of dysmenorrhea is found in Bulgaria (8.8%) and the highest incidence in Finland (94%)" [8].

The prevalence of dysmenorrhea in Indonesia is 64.25%, consisting of 54.89% primary dysmenorrhea and 9.36% secondary dysmenorrhea [9]. Primary dysmenorrhea is experienced by 60-75% of adolescents, with three-quarters of these adolescents experiencing mild to moderate pain and another quarter experiencing severe pain [10]. Dysmenorrhea affects more than 50% of women and causes the inability to carry out activities for 1 to 3 days each month in approximately 10% of these women, requiring time to rest [11]. Dysmenorrhea can hinder adolescent activities which has an impact on decreasing adolescent achievement at school due to their absence from the learning process. Dysmenorrhea causes 14% of adolescents to frequently miss school [12].

Menstrual pain management can be done using pharmacological and non-pharmacological methods [13]. Non-pharmacological treatment is considered more efective and safe, one of which is dysmenorrhea exercises [1]. Dysmenorrhea exercises are physical activities that can be used to relieve abdominal cramps. When exercising, the body will produce endorphins. This hormone is a happiness hormone that can reduce pain, making a person more relaxed, and stimulates oxygen delivery to the muscles. This exercise is not expensive, easy to do, and does not cause harmful side effects for the body [13]. Women who exercise regularly usually experience less menstrual pain [14].

Dysmenorrhea exercises can reduce pain intensity by relaxing muscles that experience spasms caused by increased prostaglandins, resulting in vasodilation of blood vessels and increasing blood flow to areas experiencing spasms and ischemia [15]. A dysmenorrhea exercises are useful for increasing hormone secretion, especially estrogen, releasing beta endorphins (natural pain relievers) into the bloodstream, increasing the number and size of blood vessels so that they can reduce dysmenorrhea symptoms and increase blood volume flowing throughout the body, including the reproductive organs [16]. Complaints of dysmenorrhea in adolescent girls, if not handled properly, can interfere with the activities of adolescent girls, so scientific proof is needed for the application of dysmenorrhea exercises to reduce menstrual pain in adolescent girls at State Senior High School 1, West Seram.

METHOD

This study used a quasi-experimental design with a one-group pretest-posttest design, where the study aimed to reveal a causal relationship by involving one group of subjects, to see the level of menstrual pain before and after being given dysmenorrhea exercises. This study involved 15 female adolescents experiencing dysmenorrhea. Sampling used consecutive sampling that met the inclusion criteria, including female students who were at the location when the study was conducted and were willing to be respondents, female students who did not consume medication or herbal pain relievers. The instrument used was an observation sheet using a Numeric Rating Scale (NRS) assessment to identify the level of menstrual pain in female students, which will then be recorded in the observation sheet.

RESULTS AND DISCUSSION

The scale of menstrual pain before being given dysmenorrhea exercises was mostly moderate pain, with 13 (86.7%) respondents experiencing mild pain, and 2 (13.3%) respondents experiencing mild pain. After being given dysmenorrhea exercises, the scale of mild pain was 12 (80%) respondents and the scale of moderate pain was 3 (20%) (Table 1).

Table 1. Menstrual Pain Scale Before and After Exercises (n= 15)

Menstrual Pain Scale	Frequency (n)	Percentage (%)
Pre-Test		
Light	2	13.3
Currently	13	86.7
Post Test		
Light	12	80.0
Currently	3	20.0

The level of pain of female students who experienced menstrual pain before being given the application of dysmenorrhea exercises at pain level 3 was 1 (6.7%), pain level 5 was 6 (40%) and the majority at pain level 4 was 8 (53.3%). The level of pain after being given the application of dysmenorrhea exercises was mostly at pain level 3 as many as 8 (53.3%) respondents, and the least at pain level 1 was 1 (6.7%) respondent (Table 2).

Table 2. Pain Level Before and After Exercises (n= 15)

Pain Level	Pre-test		Post-test	
	n	%	n	%
1	0	0.0	1	6.7
2	0	0.0	4	26.7
3	1	6.7	8	53.3
4	8	53.3	2	13.3
5	6	40	0	0.0

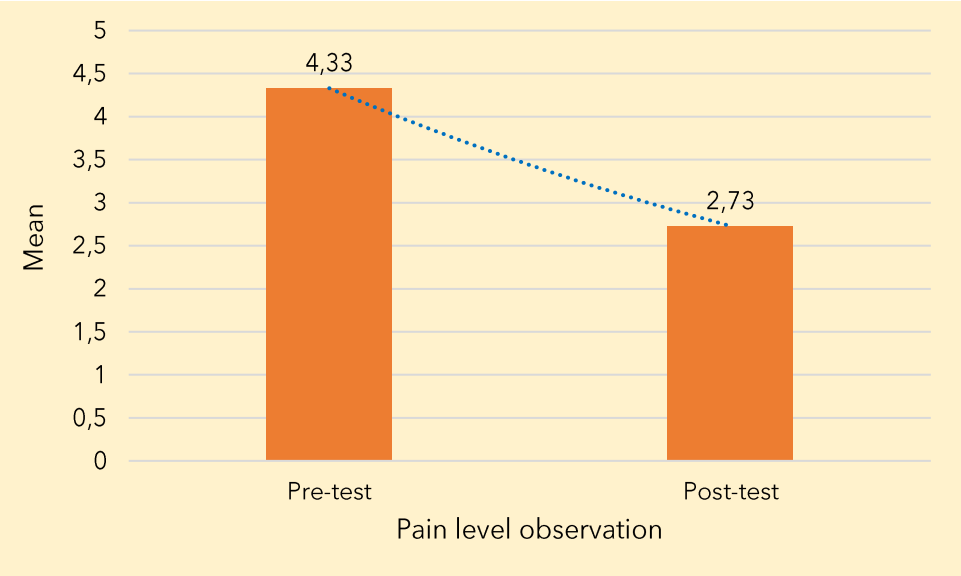

Figure 1. Mean of menstrual pain level before and after exercise

The average level of pain before being given dysmenorrhea exercises is 4.33, standard deviation 0.617, minimum value 3 and maximum value 5, while the pain level after being given dysmenorrhea exercises is 2.73, standard deviation 0.799, minimum value 1 and maximum value is 4 (Figure 1).

The Wilcoxon statistical test shown that the level of menstrual pain in all female students decreased after being given dysmenorrhea exercises. It is known that the ρ value is 0.000 or <0.05, which means that Ho is rejected and Ha is accepted, so it can be concluded that statistically there is an effect of dysmenorrhea gymnastics on the level of menstrual pain in female adolescents at State Senior High School 1, West Seram.

The results of the study showed that there was an effect of implementing dysmenorrhea exercises on pain levels in adolescent girls at State Senior High School 1, West. This is because the dysmenorrhea exercise movements aim to stretch the abdominal, pelvic, and waist muscles, which makes blood circulation in the body smoother and can reduce pain [17]. Women who experience dysmenorrhea produce 10 times more prostaglandins than women who do not have dysmenorrhea [18]. Prostaglandins cause increased uterine contractions, and at excessive levels will activate the large intestine [19].

Exercise is a relaxation technique that can be used to reduce pain because it stimulates the body to produce endorphins. These hormones act as natural sedatives produced by the brain and spinal cord, creating a feeling of well- being and reducing pain during dysmenorrhea [20].

Exercise or exercise is a relaxation technique that can be used to reduce pain because it stimulates the body to produce endorphins. Endorphins are neuropeptides produced by the body when it is relaxed or calm [21]. Endorphins are produced in the brain and spinal

cord. This hormone can function as a natural sedative produced by the brain to promote a sense of well-being and reduce pain during contractions [22].

Dysmenorrhea exercises are useful for increasing hormone secretion, especially estrogen, can release beta endorphins (natural pain relievers) into the bloodstream so that they can reduce pain, can increase the number and size of blood vessels, which channel blood throughout the body including the reproductive organs so that blood flow becomes smooth and this can reduce the symptoms of dysmenorrhea and increase the volume of blood flowing throughout the body including the reproductive organs [23] .

This research is supported by [24], which found that dysmenorrhea exercises can reduce anxiety that arises during menstruation. Light exercise is highly recommended to reduce dysmenorrhea. This is because exercise stimulates the brain and spinal cord, producing endorphins, hormones that act as natural sedatives and promote a sense of well-being.

According to research conducted by [25], exercise produces endorphins, which are released throughout the body. This promotes smooth and unobstructed blood circulation to the pelvis, which can reduce ischemic pain during menstruation.

CONCLUSION

The level of menstrual pain before the application of dysmenorrhea exercises in female adolescents at State Senior High School 1, West Seram, the majority experienced moderate pain, and after the application of dysmenorrhea exercises, the majority experienced mild pain. There is an effect of the application of dysmenorrhea exercises on the level of pain in female adolescents at State Senior High School 1, West Seram.

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