

The Decrease In The Intensity Of Menstrual Pain Before And After The Application Of Yoga In Class VIII Students At SMPN 1 Tanjung Bintang

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ABSTRACT

Menstrual disorders that often occur in adolescents are menstrual pain or dysmenorrhea. Adolescents who experience menstrual pain will feel cramps in the lower abdomen and are usually accompanied by additional symptoms that interfere with daily activities. One effort that can be done to reduce it is to provide non-pharmacological therapy, namely yoga. The purpose of this study was to determine the difference in the decrease in the intensity of menstrual pain before and after the application of yoga. This research is an experimental study with a quasi-experimental design using the One Group Pretest Posttest design approach. The population in this study were all students of class VIII SMPN 1 Tanjung totaling 113 people with a total sample of 59 people. Data collection was carried out using questionnaires, observations, interviews, and literature. Data analysis using Paired T Test. The results showed the value of Sig. (2-tailed) of 0.000 so it can be concluded that there is a significant difference in the decrease in the intensity of menstrual pain before (pretest) and after (posttest) the application of yoga to class VIII students at SMPN 1 Tanjung Bintang. It is hoped that young women can take advantage of yoga therapy in dealing with menstrual pain and consult medical personnel if the pain becomes unbearable.

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1. INTRODUCTION

The adolescent period is a transition period from childhood to adulthood characterized by changes in physical, psychological, and psychosocial aspects. This period begins at the age of 12 years and ends around the age of 18 years. During adolescence, critical physiological changes will occur, which will bring individuals to physical and biological maturity [24]. According to the World Health Organization (WHO), adolescents are people in the age range of 10-19 years. According to the Population and Family Planning Agency (BKKBN) the age range of adolescents is 10-24 years old and unmarried.

Adolescence is the period from puberty to adulthood, which is at the age of 11-19 or 20 years. The first menstruation experienced by adolescent girls is called menarche and the time of occurrence varies for each adolescent. For example, there are adolescent girls who get their first menstruation at the age of 9-10 years, but there are also those at the age of 14 years. However, menstruation generally occurs at around 12 years of age (Adolescence, 2012).

Menstruation is a periodic and cyclic blood discharge event from the uterus (uterus) that occurs every month, accompanied by the discharge of the mucous membrane of the uterus or endometrium. Menstruation or menstruation is the biological maturity of a woman. Most teenagers will get their first period at the age of 10-12 years. At least 15 years old. If after the age of 16 years has not also menstruated is called primary amenorrhea, for this condition a thorough examination is needed starting from secondary sexual development such as breast growth, armpits and pubic hair [24].

Dysmenorrhea is pain that occurred during menstruation, usually accompanied by cramps that radiate from the abdomen to the lower back to the thighs. Usually, dysmenorrhea is also accompanied by nausea, vomiting, dizziness, and diarrhea. These complaints can vary from mild to severe. The pain

in question is pain that causes daily activities to be disrupted and causes women to be unable to continue their work and even have to see a doctor or take pain medication [24]. Menstrual pain disrupts women's activities, causing women to try to find ways to reduce the pain they experience. How to reduce menstrual pain can be done in two ways, namely pharmacological and nonpharmacological. Pharmacological ways by taking medication and non-pharmacological ways can be done with warm compresses or warm baths, massage, physical exercise, adequate sleep, distraction such as listening to music and relaxation such as yoga [27].

Pharmacological methods do have an instant effect and are more effective in reducing menstrual pain experienced by women than non-pharmacological methods, but if taking drugs in the long term will have a negative impact on health such as damage to the liver and kidneys. One of the non-pharmacological methods that can be used to reduce pain during menstruation and does not have a negative effect is Exercise [1]. Exercise is proven to reduce pain during menstruation, because it can help relieve pain, increase blood circulation in the spinal tissue, and relax muscles that are experiencing tension [15]. It has been hypothesized that exercise levels can increase endorphins which can improve mood and quality of life. Exercise can be used as an easy nonpharmacological method to treat primary dysmenorrhea. It can decrease the pain intensity and duration of primary dysmenorrhea, making it safe to use as a nonpharmacological method to relieve pain in primary dysmenorrhea [1].

One way of exercise or exercises to reduce the intensity of menstrual pain is by doing yoga. Yoga is a technique that teaches techniques such as relaxation, breathing, and body position to increase strength, balance, and reduce pain [25]. Yoga is believed to be able to cure menstruation and nourish the body as a whole. Yoga positions performed during menstruation should relax the body, do not interfere with the direction of blood circulation that must go down and out, do not take too long and do not cause hormonal disturbances [25]. The survey results of the Indonesian Family Planning Association (PKBI) Bandar Lampung branch in 2014, the first order of complaints that are often experienced by women is 65.3%. irregular menstrual cycle. The prevalence of irregular menstruation is higher in the adolescent group aged 10-20 years at 71.4% (PKBI Bandar Lampung, 2014).

The cause of menstrual pain/dysmenorrhea is not known for certain, but the etiology of primary dysmenorrhea is psychological factors (stress). While from the theory of several causes of primary dysmenorrhea, it is stated that myometrial contractions will cause ischemia in the uterus, causing pain [7]. Research by Nyna Puspita Ningrum, 2017, "The Effectiveness of Dysmenorrhea Gymnastics and Yoga to Reduce Dysmenorrhea" After conducting statistical tests on the cross tabulation above using the Chi-square test method, based on the χ^2 table : 3.841 and the amount of χ^2 count: 4.571; then χ^2 count 4.571 > χ^2 table 3.841. thus H_1 is accepted and H_0 is rejected, namely "yoga is more effective than dysmenorrhea exercises in reducing complaints of menstrual pain (dysmenorrhea) in midwifery study program students Unipa Surabaya".

Research by Manurung, M. F., & Rahmalia, H. D. 2015. "The effectiveness of yoga on dysmenorrhea pain in adolescents" which has been carried out, it can be concluded that the age of respondents who experience a lot of dysmenorrhea is adolescents aged 17-18, as many as 16 people (53.3%), while the ethnicity of respondents who experience frequent dysmenorrhea is Java as many as 14 people (46.7%). The average pain intensity after treatment in the experimental group was 4.20 with p value < α (0.05), so it can be concluded that there is a difference before treatment and after treatment in the experimental group. Based on data obtained from the Ministry of Education, SMP Negeri 1 Tanjung Bintang has the largest number of junior high school students in the Tanjung Bintang area, with a total of 655 people with 333 male students and 322 female students.

In this study, the research subjects to be taken were 8th grade students of SMPN 1 Tanjung Bintang, this is based on data that menstrual pain occurs 1-2 years after menarch (Adolescence, 2012). Based on a survey conducted on 8th grade students of SMPN 1 Tanjung Bintang aged between 13-14 years. which at that age began to experience menstrual pain. Based on a preliminary survey at SMP N 1 Tanjung Bintang, researchers have conducted interviews with UKS officers at SMP N 1 Tanjung Bintang. Due to the pandemic 2 years ago, the school had only conducted a one-month face-to-face meeting and there were no students coming to the UKS complaining about menstrual pain.

Then the researcher conducted interviews with 14 female students. The results obtained were that

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there were 3 female students who did not experience menstrual pain and 11 female students experienced menstrual pain, where 1 out of 11 students experienced mild pain, 8 out of 11 students experienced moderate pain and 2 out of 11 students experienced severe pain. In handling pain, 1 student did a warm compress in reducing pain, 1 student drank turmeric juice, 2 students took medicine to reduce pain and 7 students did not do anything during menstrual pain. 11 schoolgirls complained that the disorder interfered with their daily activities, including learning activities at home and school. This indicates that there is still a lack of knowledge about non-pharmacological treatments, namely students do not know that yoga can reduce the intensity of menstrual pain.

2. METHOD

A. Conceptual Framework

The conceptual framework is a representation of the main concepts or research variables in the form of graphs or narratives and these variables are considered related to each other [28]. In this study, the independent variable is yoga. While the dependent variable is the degree of menstrual pain before and after getting yoga intervention. Based on this description, the conceptual framework of the effectiveness of yoga on reducing the intensity of menstrual pain is as follows:

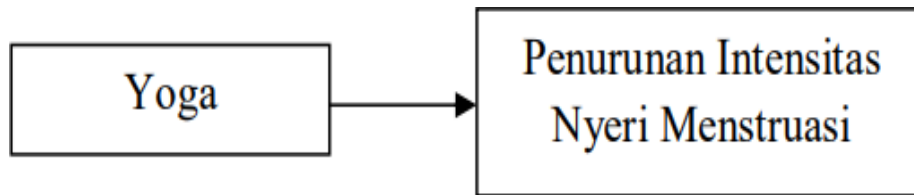


Figure 1. Conceptual Framework

B. Hypothesis

A hypothesis is a conjecture, assumption, idea, or belief about a phenomenon, relationship, or situation about an unknown reality [6]. From this explanation, the working hypothesis (H_a) in this study is:

H_a : There is a difference in reducing the intensity of menstrual pain before and after yoga in class VIII students of SMPN 1 Tanjung Bintang.

C. Research Design

This study used a One Group Pretest Posttest design approach, which is an experimental study conducted on only one group that was randomly selected and did not test the stability and clarity of the group's condition before being given treatment. The research design of one group pre test and post test design is measured by Yoga Decrease Menstrual Pain Intensity using a pre test conducted before treatment and a post test conducted after treatment for each learning series. Thus the treatment results can be known more accurately. To eliminate bias from the results of the study, the pre test and post test will be conducted in each learning series. The training program will be carried out for 2 weeks with the provision of Menstrual Pain Yoga before menstruation and the third day after menstruation with a duration of three days of intervention.

Table 1. Skema One Group Pre Test And Post Test Design

Pre Test	Treatment	Post Test
T_1	X	T_2

T_1 : Initial test (Pre Test) conducted before being given treatment

X : Treatment is given to students using the Interactive Demonstration approach.

T_2 : The final test (Post Test) is conducted after being given treatment

3. RESULTS AND DISCUSSION

A. Result

1. Univariate Test Results

Univariate analysis is an analysis conducted to describe or explain the characteristics of respondents. The number of respondents sampled was 59 respondents. This distribution data is described in tabular and narrative form, as follows:

Table 2. Frequency Distribution of Menstrual Pain Intensity Before the Application of Yoga

Pain Scale Before Yoga	F	%
0 (No Pain)	0	0
1-3 (Minor Pain)	20	34
4-6 (Medium Pain)	23	39
7-9 (Severe Pain)	16	27
10 (unbearable severe pain)	0	0
Total	59	100.0

Based on Table 2. it can be seen that the greatest frequency of menstrual pain intensity before yoga is moderate pain as many as 23 respondents with a percentage of 39%.

Table 3. Frequency Distribution of Menstrual Pain Intensity after the Application of Yoga

Pain Scale After Yoga	F	%
0 (No Pain)	7	12
1-3 (Minor Pain)	37	63
4-6 (Medium Pain)	15	25
7-9 (Severe Pain)	0	0
10 (unbearable severe pain)	0	0
Total	59	100.0

Source: Data Processing 2022

Based on Table 3. it can be seen that the greatest frequency of menstrual pain intensity after yoga is mild pain as many as 37 respondents with a percentage of 63%.

2. Bivariate Results

a. Normality Test Results

The normality test aims to test whether the confounding or residual variables have a normal distribution or not in the regression model. Normality testing in this study used the Kolmogorov-Smirnov (K-S) non-parametric test. In this Kolmogorov Smirnov (K-S) test, residuals are said to be normally distributed if the variable significance is greater than 0.05. The results of this normality test can be seen in Table 4. below:

Table 4. Normality Test Results One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		59
Normal Parameters ^a	Mean	.0000000
	Std. Deviation	1.58879480
Most Extreme Differences	Absolute	.115
	Positive	.088
	Negative	-.115
Kolmogorov-Smirnov Z		.880
Asymp. Sig. (2-tailed)		.421

a. Test distribution is Normal.

Based on the normality test results above, the Asymp. Sig (2-tailed) value obtained from the Kolmogorov Smirnov (K-S) test is 0.421. This shows that the level of significance obtained in this test is greater than 0.05 (>0.05) so it can be concluded that the residuals are normally distributed.

Table 5. Averages Before and After Yoga Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRETEST	6.1017	59	2.23371	.29080
	POSTTEST	3.8475	59	1.78899	.23291

From Table 5. Paired Samples Statistic above, it can be recognized that the average number of pretests is 6.1 with a standard deviation of 2.2. And the average number of posttests is 3.8 with a standard deviation of 1.78. The table of correlation results or the relationship between the two data or variables is as follows:

Table 6. Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 PRETEST & POSTTEST	59	.703	.000

Based on the results of Table 6. for the average before the application of yoga obtained an average of 2.23 and after the application of yoga obtained an average of 1.78. From the results of Paired Samples Correlation shows that the correlation between the two variables is 0.703 with a significance of 0.000, this shows that there is a significant difference between before (pretest) and after (posttest) yoga in female students who experience menstrual pain.

b. Paired Sample T-Test Results

The method used in this study is the paired sample t-test method. This method is used based on the nature of the sample, namely the paired sample, which means the same sample but has two data. In addition, because the data in this study is normally distributed. The following are the results obtained from the paired sample t-test test listed in Table 7.

Table 7. Paired Sample T-Test Results

Paired Differences	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 - POSTTEST	2.25424	1.60380	.20880	1.83628	2.67219	10.796	58	.000

Source: Data Processing 2022

Based on Table 7. it can be seen that the Sig. (2-tailed) of 0.000 so it can be concluded that there is a significant difference in reducing the intensity of menstrual pain before (pretest) and after (posttest) the application of yoga in class VIII students at SMPN 1 Tanjung Bintang.

B. Discussion

1. Menstrual Pain Intensity Before Yoga in Class VIII Students at SMPN 1 Tanjung Bintang

Based on the results of research before yoga on 59 class VIII students at SMPN 1 Tanjung Bintang who experienced menstrual pain, the highest frequency of menstrual pain intensity before yoga

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was moderate pain as many as 23 respondents with a percentage of 39%. Based on the theory of [21], menstrual pain/dysmenorrhea is a gynecological complaint due to an imbalance of progesterone hormone in the blood resulting in pain that most often occurs in women. Menstrual pain experienced by adolescents before yoga is caused by increased production of prostaglandin, causing uterine hyperactivity. Prostaglandins also stimulate mild rhythmic contractions of the uterine myometrium. These contractions help to expel blood through the vagina as menstrual blood. Too strong uterine contractions due to excessive production of prostaglandins cause menstrual cramps (dysmenorrhea) experienced by adolescents. Apart from the influence of prostaglandins, dysmenorrhea can also be caused by stress where the body will produce excessive adrenaline, estrogen, progesterone, and prostaglandins. Estrogen can cause an excessive increase in uterine contractions while progesterone inhibits contractions. The pain occurs shortly before or together with the onset of menstruation and lasts for several hours, although in some cases it can last several days. The nature of the pain is lower abdominal cramping, but can spread to the lumbar region and thighs. The pain is accompanied by nausea, vomiting, headache, diarrhea, and irritability [30].

The research is in accordance with previous research by Manurung in 2015 on "The effectiveness of yoga on dysmenorrhea pain in teenagers" which has been carried out, it can be concluded that the age of respondents who experienced a lot of dysmenorrhea before doing yoga was adolescents aged 17-18, namely as many as 16 people (53.3%). Rati Yulina, Indrawati, Neneng Fitria Ningsi, 2020, The Effectiveness of Yoga Gymnastics on Decreasing Dysmenorrhea Pain in College Students at Pahlawan Tuanku Tambusai University in 2020 Research on "The effectiveness of yoga on dysmenorrhea pain in adolescents". The sample in this study were S1 Nursing Semester IV students who experienced dysmenorrhea with a total of 18 people. Then testing before yoga on the number of respondents found the results of students experiencing menstrual pain so it is necessary to do yoga to find out the average decrease to determine the effectiveness of yoga.

Based on the results of research before the application of yoga, it was found that most of the respondents' menstrual pain levels before doing yoga exercises were 59 respondents with a percentage of 100%, it can be concluded that as many as 59 female students experienced pain where the pain felt by respondents interfered with learning activities to daily activities. Adolescents who experience menstrual pain will feel cramps in the lower abdomen accompanied by additional symptoms that result in disruption of daily activities [13]. So that efforts are needed to reduce it, one of which is to provide non-pharmacological therapy, namely yoga.

2. Menstrual Pain Intensity After Yoga in Class VIII Students at SMPN 1 Tanjung Bintang

Based on the results of research after yoga was done on 59 class VIII students at SMPN 1 Tanjung Bintang who experienced menstrual pain, the greatest frequency of menstrual pain intensity after yoga was mild pain as many as 37 respondents with a percentage of 63%. Dysmenorrhea must be treated to avoid worse effects, such as nausea, vomiting, diarrhea, dizziness, headache, and sometimes fainting. This is related to the release of prostaglandins influenced by the hormone progesterone during the luteal phase of the menstrual cycle and reaches its peak during menstruation [19]. Ways that can be given to reduce menstrual pain are not only using drugs but can use methods such as yoga or meditation where yoga can control the nervous system which can ultimately reduce pain [23].

Yoga exercise during dysmenorrhea is an exercise consisting of physical movements, deep breathing, and meditation to relieve menstrual pain [30]. Doing yoga regularly can increase the amount and size of blood, which channels blood throughout the body including reproductive organs so that blood flow becomes smooth and this can reduce symptoms of dysmenorrhea. [12]. Melda Friska Manurung, 2015 "The effectiveness of yoga on dysmenorrhea pain in adolescents" The analysis used was univariate and bivariate analysis using Mann Whitney and Wilcoxon. The study found a decrease in the intensity of dysmenorrhea pain in the experimental group after being given yoga (p value 0.000 <0.05) The results of this study recommend that yoga can be used for adolescent girls, especially women who experience dysmenorrhea to reduce the intensity of dysmenorrhea pain.

Then yoga was performed to determine the level of menstrual pain and effective results were obtained during the implementation of yoga. Research conducted by Rati Yulina, Indrawati, Neneng

Fitria Ningsi, 2020 The Effectiveness of Yoga Gymnastics on Decreasing Dysminorrhea Pain in Female Students at Pahlawan Tuanku Tambusai University in 2020 The average pain intensity after treatment in the experimental group was 4.20 with a p value $< \alpha$ (0.05), so it can be concluded that there is a difference before treatment and after treatment in the experimental group. yoga gymnastics is effective in reducing dysminorrhea pain in 2020 Hero University students with a p value of 0.000. The results of other people's research do not yet exist. Based on the results of this study, the number of female students who experienced menstrual pain after yoga was 52 students, it can be concluded that doing yoga exercises can reduce the intensity of pain experienced by adolescents. This can occur because through relaxation techniques taught in yoga in the form of exercises make respondents become more relaxed so that the perception of pain is reduced. In addition, the movements performed in yoga can improve blood circulation so that the pain felt can be reduced.

3. Menstrual Pain Intensity Before and After Yoga in Class VIII Students at SMPN 1 Tanjung Bintang

To determine the effect of yoga on changes in menstrual pain scale, researchers used the Paired Sample T Test method with the condition that the data must be normally distributed. After analysis based on the results of the study, it is known that the pain scale during menstruation before doing yoga is 1.83%, the pain scale after doing yoga is 2.67%, the difference before and after the intervention is 0.000 so it can be concluded that there is a significant difference in reducing the intensity of menstrual pain before and after the application of yoga in class VIII students of SMPN 1 Tanjung Bintang. Yoga therapy is given with a few simple movements that are not stomping or strong, but with relaxed breathing and can be added with harmonious music that makes us calm when we hear it. This yoga can have a positive effect on blood circulation, and change yourself for the better in controlling thoughts, emotions and problems [21].

According to [25], yoga exercises have been shown to increase blood bendorphin levels by up to five times. The more you exercise, the higher the level of b-endorphin. When a person does calisthenics, bendorphins are released and captured by receptors in the hypothalamus and limbic system that function to regulate emotions. Increased bendorphins have been shown to be closely linked to decreased pain, improved memory, increased appetite, sexual performance, blood pressure and breathing. Menstrual pain experienced by adolescents before yoga is due to an increase in porstaglandin production, causing uterine hyperactivity. Prostaglandins also stimulate mild rhythmic contractions of the uterine myometrium. These contractions help to expel blood through the vagina as menstrual blood. Too strong uterine contractions due to excessive production of prostaglandins cause menstrual cramps (dysmenorrhea) experienced by adolescents. Apart from the influence of prostaglandins, dysmenorrhea can also be caused by stress where the body will produce excessive hormones adrenaline, estrogen, progesterone, and prostaglandins. Estrogen can cause excessive increase in uterine contraction while progesterone inhibits the contraction. This excessive increase in contractions causes pain [21].

Melda Friska Manurung, 2015 "The effectiveness of yoga on dysmenorrhea pain in adolescents" The analysis used was univariate and bivariate analysis using Mann Whitney and Wilcoxon. The study found a decrease in the intensity of dysmenorrhea pain in the experimental group after being given yoga (p value 0.000 < 0.05) The average pain intensity after treatment in the experimental group was 4.20 with p value $< \alpha$ (0.05), so it can be concluded that there is a difference before treatment and after treatment in the experimental group. The results of this study recommend that yoga can be used for adolescent girls, especially women who experience dysmenorrhea to reduce the intensity of dysmenorrhea pain. Nyna Puspita Ningrum, 2017 The Effectiveness of Dysmenorrhea Gymnastics and Yoga to Reduce Dysmenorrhea After conducting statistical tests on the cross tabulation above using the Chi-square test method, based on the χ^2 table: 3.841 and the amount of χ^2 count: 4.571; then χ^2 count 4.571 $>$ χ^2 table 3.841. thus H_1 is accepted and H_0 is rejected, namely yoga is more effective than dysmenorrhea exercises in reducing complaints of menstrual pain (dysmenorrhea) in midwifery study program students Unipa Surabaya ". Based on the results of research before and after the application of yoga, the Sig. (2-tailed) of 0.000 so it can be concluded that there is a significant difference in reducing the intensity of menstrual pain before (pretest) and after (posttest) the application of yoga in class VIII

students at SMPN 1 Tanjung Bintang. So that yoga can be applied as an alternative in overcoming menstrual pain. Doing yoga regularly can increase the amount and size of blood, which channels blood throughout the body including reproductive organs so that blood flow becomes smooth and this can reduce symptoms of dysmenorrhea [13].

4. CONCLUSION

Most of the respondents' menstrual pain levels before doing yoga exercises were 59 respondents (100%). Most of the respondents' menstrual pain levels after doing yoga exercises were 59 respondents (88%). There is a difference in reducing the intensity of menstrual pain before and after yoga in class VIII students at SMPN 1 Tanjung Bintang with a Sig value.(2-tailed) of 0.000 which means that yoga has an effect on reducing the intensity of menstrual pain.

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