



## Pain Reduction During Dysmenorrhea With Yoga Movement

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### Abstract

Dysmenorrhea is a menstrual disorder caused by an imbalance of the hormone progesterone in the blood. The incidence of dysmenorrhea 45-95% among women of childbearing age, occurs in adolescents who lack sports. The impact of dysmenorrhea is the percentage of attendance at college and not participating in learning. One way to deal with pain is yoga. This study aims to analyze the effect of yoga on dysmenorrhea. The study design was a quasi-experimental one-group pre-post test design. The sample in this study was 33 female students. The sampling technique was purposive sampling. The instrument used to measure the scale of pain during menstruation uses the Numeric Rating Scale (NRS). The collected data tested for normality data, and the data is normal, then the statistical test is done using repeated Anova test. The analysis showed that there were differences in pain scale before and after months 1 and 2 interventions with mean (sb) pain scale (5.8 (1.6) vs. 4.0 (1.7) vs. 2.7 (1.3) and  $P < 0.05$ ). The study concludes that yoga affects the decrease in pain scale during dysmenorrhea.

**Keywords:** Pain; Dysmenorrhea; Yoga

### INTRODUCTION

Adolescence is a period marked by rapid growth and development of physical, emotional, cognitive, and social. As a sign of the reproductive maturity of women is the arrival of menstruation. Menstruation is part of a process that is controlled by the interaction of hormones released by the hypothalamus, the pituitary gland, and ovaries. (Proverawati and S, 2009)

Dysmenorrhea is pain that arises when a woman experiences menstruation, and this is caused by excessive contraction of the myometrial muscles, which reduces blood flow, so that lack of oxygen in myometrial cells causes pain during menstruation, this pain causes the stomach to feel heartburn. (Lowdermik and Jensen, 2012)

The prevalence of dysmenorrhea events in the world reaches 90%. 2009 in Indonesia The results of a study of the Center for Information and Consensus on Adolescent Reproductive Health of the incidence of dysmenorrhea 45-95% among women of childbearing age. Supported by Murtiningsih's research in Cimahi in 2014, the incidence of primary dysmenorrhea in adolescents was 96.4%.

The main symptoms that felt during dysmenorrhea are pain or cramps of the lower abdomen and pelvis, often radiating to the thighs, upper and lower back, other complaints such as vomiting, headache, diarrhea, and dizziness. This discomfort will have an impact on daily activities, decreased academic achievement, and the quality of life of adolescents. Complaints of dysmenorrhea last an average of 1-3 days, 12-24 hours during

menstruation so that activity is interrupted at the time of dysmenorrhea (Osayande And Mehulic, 2014)

How to reduce dysmenorrhea can be done in two ways, namely the way of pharmacology and non-pharmacology. Non-pharmacological methods include warm compresses, listening to music, and relaxation with yoga movements.

Yoga is a sport that unites the mind, body, and soul through a series of exercises, stretches, meditation techniques, or breathing exercises. Yoga exercises/movements reduce pain because when doing gymnastics, the brain and spinal cord will produce endorphins, which are hormones that function as natural sedatives and cause a sense of comfort. Some yoga movements can change the pattern of pain acceptance to a more soothing phase (Sindhu and Pujiastuti, 2013)

The results of a preliminary study on 30 students of D3 Midwifery Study Program at STIKBA Jambi, 18 female students experienced dysmenorrhea where 25% of students treated dysmenorrhea by drinking supplement, drinking medicine, and paracetamol, 75% using eucalyptus oil, sleeping, presentation of the presence of students with dysmenorrhea 25% did not follow learning during college and 16.6% of students must attend the skills lab due to lack of understanding the skills

Supported by Yulinda's research on yoga practice can reduce anxiety levels in the menstrual cycle of young women in Bandung, saying that some young women often do not attend lectures and cannot attend lectures because of menstrual pain which results in reduced attendance presentations and impacts on mastery of subject topics. (Yulinda, Purwaningsih, and Sudarta, 2017)

Yoga is an alternative therapy or non-pharmacological therapy because yoga is easy to do, and does not require tools, can be done anytime or at any time. In connection with these problems,

researchers are interested in examining the effect of yoga on decreasing the intensity of pain during menstruation in college students. With the hope that students can apply to themselves in the management of dysmenorrhea and can apply to clients with dysmenorrhea, this exercise is also straightforward to do, does not incur costs and without side effects.

## **METHOD**

This type of research is a quasi-experimental design with one group pre-post test design that aims to determine the effect of yoga movements on the decrease in the pain scale. This research conduct in April - July 2019 in D III Midwifery Study Program STIKes Baiturrahim Jambi. The sample in this study was 33 students. Sampling techniques with purposive sampling according to inclusion criteria include: experiencing primary dysmenorrhea, not taking anti-pain medication during menstruation, willing to be a respondent.

The variables in this study are yoga movements and pain scale, instruments or observation sheets used to measure dysmenorrhea pain scale before and after the intervention using the Numeric Rating Scale (NRS) with a scale between 1-10 with the following categories: 1-3 mild pain scale, 4-6 moderate pain and 7-10 severe pain

This research through the first few stages, namely the measurement of pain scale during dysmenorrhea before being given an intervention, the second stage is the provision of interventions in the form of yoga movements that are breathing exercises (pranayana) with breathing exhaled, followed by physical movements (asanas): Dandasana, Baddha konasana, malasana, adho savasana face, child's pose, uphavista konasana, supta baddha konasana, each movement is done for 2-5 minutes. Interventions give for one month (6 meetings), and students can do yoga movements independently. Then the third step is to measure the pain scale after an intervention given,

namely the measurement of the dysmenorrhea pain scale when the menstrual student observed for two months or two menstrual cycles. Yoga movements carried out every day three days before and the first day of menstruation.

The collected data were analyzed univariately and bivariate. The results of normality distribution test data are normal, and then the parametric test was used, namely the Repeated Anova test. Because of the data normal, the two groups are paired and measured twice. This study has received ethical approval from the health research ethics committee of the Faculty of

Nursing, the University of North Sumatra, with an ethics approval number: 1866 / IV / SP / 2019.

## RESULT AND DISCUSSION

**Table 1. Characteristics of respondents**

Characteristics	F	%
<b>Age</b>		
18 years	3	9,1
19 years	21	63,6
20 years	9	27,3
Total	33	100
<b>Menarche</b>		
10 years	2	6,1
11 years	1	3,0
12 years	12	36,4
13 years	10	30,3
14 years	6	18,2
15 years	2	6,1
Total	33	100
<b>Menstrual cycle</b>		
Regular	22	66,6
Iregular	11	33,3
Total	33	100
<b>Menstrual range</b>		
4-7 days	24	72,7
>7 days	9	27,3
Total	33	100

Based on table 1 above shows that the majority of respondents aged 19 years were 21 people (63.6%), the age of menarche respondents were mostly 12 years old (36.4%), regular menstrual cycles were 22 people (66.6%) and the

majority of respondents 24 people (72.7%)—menstrual period 4-7 days.

Characteristics of respondents by age, most of the respondents who experienced pain during menstruation were 19 years old as many as 21 people (63.6%). This is in line with the opinion of

Lowdermilk and Perry 2011 that Dysminore occurs at this age due to an optimization of uterine nerve function so that prostaglandin secretion increases, which can cause pain during menstruation. (Lowdermik and Jensen, 2012)

Dysmenorrhea generally occurs 2-3 years after the ideal menarche is 12-15 years, so that dysmenorrhea occurs more at the age of 17-19 years. At that age, secondary sex development occurs, and the body's hormones are unstable so that they can stimulate the prostaglandin hormone which causes uterine contractions. In this study, the majority of respondents who experienced age were 21 people (63.6%) aged 19 years. The researcher assumes that one of the dysmenorrhea factors is due to the food factor, which in this period, adolescents prefer fast food, which is one of the causes of dysmenorrhea is the nutritional factor. (Lowdermik and Jensen, 2012).

Menstrual order is a series of menstrual cycles that complexly influence each other and occur when periodic bleeding from the uterus that

begins 14 days after ovulation periodically due to the release of the endometrial lining of the uterus. The average menstrual cycle is the result of interaction between the hypothalamus, pituitary, and ovaries, and the ovary plays an essential role in this process because it is responsible for regulating menstrual cycle changes. (Prawirohardjo, 2009)

The longer the menstruation, the more frequently the uterus contracts, causing pain, according to Bobak's (2004) theory, the longer the menstruation is more than usual, causing an excessive uterine contraction so that more prostaglandins are released. Excessive prostaglandins can cause pain during menstruation. (Bobak 2004).

The results of this study were a mostly reasonable menstrual period of respondents ie, 4-7 days as many as 24 respondents (72.7%). In line with Pratiwi's theory (2011), menstruation plays a role in the lives of women because most of the life span of women (ages 4-49 years) is related to the period of menstruation that lasts for 3-7 days. (Pratiwi, 2011)

**Table 2. Frequency distribution of dysmenorrhea pain scale before and after giving yoga to female college students**

Pain Scale	Pre	%	Post 1	%	Post 2	%
Mild	3	9,1	15	45,5	27	81,8
Moderate	19	57,5	15	45,5	6	18,1
Severe	11	33,4	3	9	0	0
<b>Total</b>	<b>33</b>	<b>100</b>	<b>33</b>	<b>100</b>	<b>33</b>	<b>100</b>

Menstruation is bleeding from the uterus that lasts periodically and cyclic. This occurs due to release (desquamation) of the endometrium due to ovarian hormones (estrogen and progesterone) which experience changes in levels at the end of the ovarian cycle usually starting on day 14 after ovulation. Based on table 2 shows that before being

given an intervention most of the respondents during menstruation experienced moderate pain (19 VS 15 VS 6), decreased from 57.5% to 18.1% while respondents who experienced severe pain from (11 VS 3 VS 0) the number of respondents who experienced severe pain decreased pain scale

from 33.4% to 0% in the second month after the intervention.

The results of this study indicate that there is a decrease in the pain scale during menstruation because while doing yoga respondents feel relaxed so that the body secretes the hormone endorphin which can reduce uterine contractions and abdominal cramps this is consistent with the theory that the relaxing effect causes an increase in parasympathetic nerve response resulting in vasodilation effects of vessels uterine blood so that uterine blood flow increases and uterine contractions decrease.

However, in this study, there were still four people who did not experience a decrease in pain scale in the first month after doing yoga, but in the third month, all respondents experienced a decrease in pain scale. Yoga affects the decrease in the scale of dysmenorrhea pain because when the respondent moves, the skeletal muscles that experience spasms become relaxed. By the theory of yoga is a sport that unites the mind, body, and soul through a series of exercises, stretching, meditation techniques, or breathing exercises. Yoga exercises/movements reduce pain because when

doing yoga movements, the brain, and spinal cord will produce endorphins, hormones that function as natural sedatives and cause a sense of comfort.

The results of this study are in line with Dewi Kartika Sari's (2016) research on stretching paint as an effort to reduce menstrual pain in young women in Sukoharjo, concluding that there is a significant decrease in pain scale between before and after intervention and the stretching paint technique significantly influences in reducing menstrual pain in adolescents (Sari, Wulandari and Rahmasari, 2016) Supported also by Andi Saifah's 2018 study on the effect of abdominal motion on the intensity of dysmenorrhea in early adolescents stated that abdominal stretching exercises significantly reduced the intensity of dysmenorrhea pain both on the day before menstruation and on the first and second days of menstruation. (Saifah, 2018). Severe pain occurs on the first day of menstruation due to excessive production of prostaglandins by the endometrium, increasing uterine muscle contraction, contraction of uterine blood vessels resulting in ischemia, increasing pain receptor sensitivity (Sherwood and Lauralee, 2011).

**Table 3 Effects of yoga on menstrual pain in college students**

Variable	mean (n)	Nilai P*
Before Interventions	5,8 (1,6)	<0,001
Month 1	4,0 (1,7)	
Month 2	2,7 (1,3)	

Table 3. shows that there was a decrease in mean pain scale before the intervention and after the intervention (5.8 Vs. 4.0 Vs. 2.7), and statistically, there was an influence of yoga movements on decreasing dysmenorrhea ( $P < 0.05$ ). The movement of yoga can reduce the scale of pain during menstruation because yoga can improve the

functioning of the endocrine (hormonal) glands in the body, increase blood circulation to all body cells and the brain. They are removing toxins from the body (detoxification, reducing body tension, mind and mental increase the number and size of blood vessels that deliver blood throughout the body, increasing blood volume so that oxygen can

be channeled into blood vessels in the reproductive organs which during dysmenorrhea vasoconstriction occurs (Shindu P, 2009).

or yoga is done at least two weeks before the menstrual cycle arrives to be able to see the expected results. (Shindu P, 2009)

The results of this study are supported by Remilda A about pain relief during dysmenorrhea with yoga exercises and distraction techniques (classical Mozart music) stating that yoga exercises are more effective than distraction techniques (listening to mozart classical music) in reducing pain during menstruation in female students of SMAN 4 Pekalongan. (Vianti and S, 2018)

Rakhshae proved the decrease in the dysmenorrhea pain scale in monitoring during two menstrual cycles from a mean of 1.50 to 1.26 asanas yoga techniques are very beneficial for women as research states that the application of asanas yoga techniques to a maximum of 45 minutes can be applied and can reduce pain from monitoring one month 4, 16 to 2.38 in the second-month assessment (Rakhshae, 2011)

Supported by Melda Friska Manurung's research (2015) on the effectiveness of yoga on dysmenorrhea pain in adolescents states that there are differences in pain scale before and after yoga, and yoga exercises are effective in reducing pain during menstruation. And Puji Lestari's research (2018) on the effect of yoga therapy on pain intensity in adolescent girls who experience primary dysmenorrhea concludes that there are differences in pain levels during menstruation in the intervention and control groups (Puji Lestari, 2018)

Reysha Indrawijaya (2012) in her research on the Effect of Janusirsasana Yoga Movement on Pain Levels during Menstruation in Adolescent Girls in Al-Musdaryah High School, concludes that yoga movements affect the decrease in pain

levels during menstruation during menstrual hormone prostaglandin which is useful for making Al-Musdaryah High School. Contraction of smooth muscles in the myometrium so that it will decay the endometrium layer, and then the menstrual process occurs. At the time of yoga movements, the body requires adequate oxygen intake to burn glucose into ATP and burn fat in the body, at that time the hormone endorphins appear to provide pain relief and relaxed muscles. (Reysha Indrawijaya, Ida Maryati, 2012)

## CONCLUSION

Based on the results of this study, it can conclude that there is a change in the scale of dysmenorrhea pain in D III Midwifery study program students before and after the intervention, and yoga affects decreasing the pain scale of dysmenorrhea. For recommendations that further researchers can add to the variables studied or combine non-pharmacological therapies to determine the effectiveness of non-pharmacological therapies to overcome menstrual pain.

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