

# Effectiveness of Yoga Movements in Reducing the Pain of Dysmenorrhea in Adolescent Women in SMAN 1 Tambang

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## ABSTRACT

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Menstrual pain or dysmenorrhea is defined as pain that occurs before or during a menstrual period, this pain may last from one to several days. Dysmenorrhea is menstrual pain that is often complained of by women, which is characterized by brief pain before or during menstruation (Lowdermilk et al., 2011). There are many ways to reduce dysmenorrhea pain, one of which is yoga. Yoga helps the body's endocrine glands function better, and when done for at least 30 seconds during your period, it can help relieve dysmenorrhea and facilitate menstruation. The purpose of this study was to analyze the effectiveness of yoga movements in reducing dysmenorrhea pain. The research design was pre-experimental designs, using one group pre-test and post-test. Samples are taken by technique purposive samplings many as 24 respondents. Data were analyzed univariately and bivariately using the Wilcoxon Signed Rank test. Univariate results before doing yoga results obtained most of the students experienced pain on average on a scale of 4, namely 11 respondents (45%) and on a pain scale of 3, namely 7 female students (29%). female students (62%). The bivariate results obtained that there was an effect of yoga movement on dysmenorrhea pain in young women at SMAN 1 Tambang with a p value of 0.000. It was concluded that there is effectiveness of yoga movements in relieving dysmenorrhea pain and there are significant differences between before and after doing yoga movements. It is recommended that young women do yoga regularly to relieve dysmenorrhea pain.

## I. Introduction

According to WHO, adolescents are people who are in a transitional period between childhood and adulthood. According to WHO, the age limit for youth is 12 to 24 years. Puberty, also called puberty, is the period between childhood and adulthood. Puberty is a key stage in the development of sexuality in the life cycle (28). Adolescents are individuals who from childhood to adulthood experience the development of secondary sex characteristics, psychology, and patterns of identification (12).

Adolescence is a period of transition from adolescence to adulthood, or the process of growth towards maturity, including mental, emotional, social and physical maturity. Puberty is one of the developmental stages marked by the maturation of the genitals and the attainment of fertility, and one of the characteristics of female puberty is the start of the first menstruation (menarche) (8). Every woman experiences increased levels of prostaglandins during menstruation, which are substances associated with, among other things, pain stimulation in the human body. Spasms in the uterine muscles during menstruation also cause severe pain, especially in the lower abdomen and back cramps (17). Menstruation is the shedding of the lining of the uterus (endometrium) accompanied by bleeding and occurs every month. Cramps





during menstruation often cause anxiety in women because of concerns about the effects of menstrual cramps on fertility and women's health in general. Irregular menstruation is a process of hormonal imbalance in the female reproductive system and the hormones estrogen and progesterone must be present in the right balance. The normal menstrual cycle occurs every 21 to 35 days.(10).

Some women experience mild to moderate to very severe menstrual disturbances during menstruation. For example, some women experience weakness from cramps, headaches, abdominal pain, and excruciating pain from contractions of the smooth muscles of the uterus. normal. Excessive pain in the lower abdomen that often occurs during menstruation is called dysmenorrhea. (18)

Adolescents with dysmenorrhea may find it difficult to focus on their studies and feel less motivated to study as a result of the pain they experience. Teenagers with dysmenorrhea must be able to find the best treatment, both pharmaceutical and non-pharmacological, to eliminate or reduce menstrual pain. (1)

According to data from the World Health Organization (WHO), the incidence of dysmenorrhea is very high worldwide, with more than 50% of women of working age in every country suffering from dysmenorrheal pain (Journal of Occupational and Environmental Medicine, 2018). Several international reports by Holder (2014) state that the prevalence of dysmenorrhea is very high, with at least 45-90% of women suffering from dysmenorrhea during their reproductive years. Holder also said that on average more than 50% of women in every country experience dysmenorrheal pain.

In contrast, in the United States the percentage is around 60%. Research data by Xu et al (2014) shows that the prevalence of dysmenorrhea in France has reached 20% to 90% (6). In Sweden, the prevalence of dysmenorrhea is 72% (20). In the United States, the figure is around 90%, with 10-15% having severe dysmenorrhea and being unable to carry out activities. In a Swedish longitudinal study, 72% of women under the age of 19 and 67% of women over the age of 24 reported dysmenorrhea. A survey in India found that women's awareness of dysmenorrhea was very low, only around 34.34% of 99 respondents used medical services to treat dysmenorrhea symptoms.

The prevalence of dysmenorrhea in Asia reports that 74.5% of girls who reach menarche experience dysmenorrhea, and 51.7% of these girls affect their ability to concentrate in class, 50.2% report having limited social activities, 21.5% resulting in absenteeism from school and 12.0%. suffering from dysmenorrhea. %, resulting in lower school enrollment (16).

Meanwhile, in Indonesia, (28) estimates that 55% of women of childbearing age experience pain during menstruation. This is generally harmless, but can be a nuisance for women. The incidence of primary dysmenorrhea in Indonesia was around 54.89% in 2014, while the rest were sufferers of the secondary type. (29)

Dysmenorrhea is pain that begins with the onset of menstruation and manifests as cramps in the lower abdomen and back and general discomfort. Additionally, it describes a collection of symptoms that may include: 2 nausea, vomiting, headache, fatigue, back pain, lower back cramps, bloating, breast tenderness, mood swings, and dizziness. These symptoms usually appear before 24 to 48 hours or during the first menstrual period. When pathogenic conditions or pathologies, such as endometriosis, pelvic inflammatory disease, irregular menstrual cycles, infertility problems, ovarian cysts, polyps, and cervical stenosis, affect a woman's menstrual cycle, secondary dysmenorrhea refers to cramps. Dysmenorrhea can have an impact on activities or exercise in adolescents, such as not being able to concentrate on studying and learning inspiration is reduced because of the suffering that is felt. Adolescents who experience dysmenorrhea must be able to find the right solution to kill or reduce menstrual pain, both pharmacologically and non-pharmacologically. (1).

One of the pharmacological treatments is taking non-steroidal anti-inflammatory drugs

(ibuprofen, naproxen, and corrosive mefenamate) (13). Efforts that are often made to overcome dysmenorrhea are taking over-the-counter drugs even though the use of these drugs often causes side effects to the body. Nonpharmacologically, aerobic exercise such as walking, cycling, swimming, adequate sleep before and during menstruation, compress heat or cold on the abdomen if pain occurs, and relaxation exercises to relieve pain can be managed with (18). Relaxation is part of non-pharmacological therapy, Complementary and Alternative Therapy (CAT). CATs are interventions to promote, maintain and maintain health, prevent disease and relieve symptoms experienced by individuals. Relaxation therapy is widely used for pain management because it has no side effects, is easy to implement, requires little time, and is relatively inexpensive (33).

One of the relaxation strategies prescribed to reduce dysmenorrhea pain is yoga (5). It is said that coordinated and well-maintained exercise can reduce dysmenorrhea pain and improve blood circulation throughout the body (4). Yoga is centered on muscle structure, breathing components, poses and mindfulness of the body (3). Yoga can soothe pain by relaxing endometrial muscles that experience fit and ischemia due to increased prostaglandins which cause vasodilation of blood vessels. When blood flow to the area increases, the pain you feel can decrease. Yoga relaxation techniques can also stimulate the body to release endorphins and enkephalins, which are pain relievers (32). In addition, regular yoga movements can improve blood circulation, so that the pain you experience can be relieved (35). Yoga is the choice of researchers because it can be easily done at any time because it only involves the muscles and the respiratory system without the need for other props.

Based on a preliminary study conducted on female students at SMA 1 Tambang. The results of interviews from 9 students who experienced dysmenorrhea, there were 6 students who could not participate in learning if they were experiencing excessive pain, 3 students could endure the pain and tried to keep participating in learning. When interviewed whether they had ever been given drugs, they answered never because they did not dare to buy drugs that are sold in pharmacies or take fast food which can reduce the level of dysmenorrhea pain. Based on the background above, the researcher is interested in conducting research with the title "Effectiveness of Yoga Movement on Reducing Dysmenorrhea Pain in Young Girls at SMAN 1 Tambang".

## II. Methods

The type of research used in this study was a quasi-experimental design with a randomized pretest and posttest design (26). This research was conducted at SMA N 1 Tambang. The population in this study were all young women at SMA N 1 Tambang, totaling 68 people. The sampling technique used was purposive sampling. Then, the sampling technique used was simple random sampling, namely random sample selection (24). The research instrument used a questionnaire about yoga movements and pain scale sheets (Verbal Descriptor scale, VDS) (2). Secondary and primary data types. Data were analyzed univariately and bivariately by using test independent t test with an error rate of 0.05.

## III. Results and Discussion

Table 4.1 Frequency Distribution Average Pain Dysmenorrhea Before Yoga Movement

No	Pain Scale	f	%
1.	2	1	4,1
2.	3	7	29,1
3.	4	11	45,8
4	5	3	12,5
	<b>Amount</b>	<b>24</b>	<b>100</b>

The table above shows that before the yoga movement was carried out, the majority of the dysmenorrhea pain scale was on a scale of 4 (45.8%)

Table 4.2 Frequency Distribution Average Dysmenorrhea After Yoga Movement

No	Resources	f	%
1.	2	15	62.5
2.	3	5	20,8
3.	4	3	12.5
4.	5	1	4,1
	<b>Amount</b>	<b>24</b>	<b>100</b>

The table above shows that after doing yoga movements, the majority of dysmenorrhea pain scales are on a scale of 2 (62.5%)

Table 4.3 the Effectiveness of Yoga Movement in Reducing Dysmenorrhea Pain

Method	n	Means	P-value
<b>Yoga Movement</b>			
Pretest	24	3.82	
Posttest	24	2.58	0.000

The table above shows that the pretest mean value was 3.82 and the posttest mean value was 2.58. These results show a decrease from the pretest to the posttest value of 1.894. So it can be concluded that yoga movements reduce dysmenorrhea pain. The results of the Wilcoxon Sign Rank statistical test with the help of the SPSS 21 program at an error level of 5% were calculated to determine whether there was an influence between the variables, namely the independent variable and the dependent variable. The result of calculating the p value is  $0.000 < \alpha (0.05)$ . If the value  $< \alpha (0.05)$  means there is an effect of yoga on dysmenorrhea pain. This shows that 0.000 is smaller than 0.05. Thus  $H_0$  is rejected and  $H_1$  is accepted. In conclusion there is effectiveness of yoga movements on dysmenorrheal pain in young women was rejected and  $H_1$  received.

Based on the results obtained that dysmenorrhea pain before the Yoga movement was carried out in young women with a total of 24 respondents, it was found that the average respondent's pain scale was on a scale of 4, namely 11 respondents (45%) and pain scale 3, namely 7 respondents (29%).

Based on the results obtained after doing yoga movements, it shows that dysmenorrheal pain in young women at SMA 1 Tambang, most of them experience pain on a scale of 2, namely 15 respondents (62%).

In line with research conducted by Siahaan (32), regarding reducing the rate of dysmenorrhea in Unpad Faculty of Nursing students using yoga, a consideration of the level of dysmenorrhea before yoga was performed, 50% of respondents experienced dysmenorrhea in the moderate pain category and 10% were in the moderate to severe pain category. This is related to the release of prostaglandins which are influenced by the hormone progesterone in the luteal phase of the menstrual cycle and reach its peak in the middle of the monthly cycle. Menstrual torment experienced by adolescents before yoga due to increased production of prostaglandins causes uterine hyperactivity.

It is known that, dysmenorrhea can also be influenced by the age of the onset of menstruation or menarche of the respondent. Based on the results of the study, all respondents were at the early age of 11-13 years (7). Early menarche causes the reproductive organs not to function optimally and are not ready to face changes resulting in dysmenorrhea (19). The age of menarche can affect the pain experienced by respondents. This can happen because the earlier a person's menarche age, the more often that person is exposed to the pain that is felt so that a

person's experience of pain and one's experience in dealing with the pain that is felt is better and finally a person considers pain to be experienced(9).

Responses and perceptions Different individuals deal with pain in unexpected ways. It is influenced by individual environment and social variables. Individual variables within the framework of knowledge about pain and its causes, the meaning of pain, the level of anxiety and drive, and the level of vitality, while for social and environmental factors consist of intuition with other individuals, the reactions of other people (family and friends). additional pain, overload or sensory difficulties or stress. Differences in recognition are also influenced by a person's age figure which can influence how individuals will respond to pain. Perception of pain is subjective which is influenced by nociceptors and impulse transmission. Great sharpness will increase a person's tolerance for the pain he feels (15)

Dysmenorrhea is caused by uterine spasms, which normally occur in women who are menstruating, which are also influenced by physical and psychological factors such as stress, the hormonal influence of prostaglandins. The muscles of the uterus contract during dysmenorrhea, increased prostaglandins which cause ischemic vasospasm, uterine arterioles which cause endometrial collapse in the lower abdomen, bleeding and cramps stimulate pain during menstruation (25).

One of the relaxation techniques used to reduce pain is yoga (27). Yoga is a relaxation technique that is recommended to relieve dysmenorrhea pain. Targeted and continuous training is believed to be able to cure dysmenorrhea and nourish the body as a whole (5). Yoga is a relaxation technique that provides a distraction effect and can reduce dysmenorrhea. Exercises performed in yoga such as moving the pelvis, positioning the knees, straightening the chest and breathing exercises can be useful for reducing dysmenorrhea (20). When doing yoga exercises, the joints are optimally moved according to their range of motion so that they can re-function the cartilage that is rarely used and circulate oxygen and blood in that direction.

From the results obtained, yoga is effective in reducing the severity of dysmenorrhea pain because yoga produces endorphins in the body.

Brain and central nervous system. Endorphins are endogenous opioid polypeptide compounds produced by the pituitary and hypothalamus to create pain relief and assurance, acting as a natural pain reliever. Endorphins are found in more than 20 parts of the body, including the pituitary gland, brain, and nervous system. During menstruation, the pituitary gland releases pain and stress endorphins. Yoga also increases the release of endorphins. For the same reason yoga makes you feel good, Endorphins are the most abundant of the powerful endogenous peptide opioid neurotransmitters and are found in the neurons of the central and peripheral nervous system.(30).

Yoga is a relaxation technique that can be used to reduce dysmenorrhea. In this study, most of the respondents experienced changes in dysmenorrhea in the form of a decrease after yoga. This happened because the relaxation techniques taught in yoga in the form of breathing exercises made the interviewees more relaxed and reduced their perception of pain. In addition, yoga moves improve blood circulation, which can reduce pain(22).

Based on the results of bivariate analysis, the p value is  $0.000 < \alpha (0.05)$ . If the value  $< \alpha (0.05)$  means that there is an influence of yoga movement on dysmenorrhea pain in young women. This shows that 0.000 is smaller than 0.05. Thus  $H_0$  yesg statedno effect of yoga movement on dysmenorrheal pain in young women was rejected and  $H_1$  received. So in conclusion there is the influence of movementyoga against dysmenorrheal pain in female adolescents.

The results of Gumangsari's research on the Effect of Yoga on Reducing Menstrual Pain (Dysmenorrhea) in Young Girls at SMAN 1 Ungaran Semarang showed that before doing Yoga some teenagers experienced severe pain and reduced to moderate pain after doing yoga.

The results of the Wilcoxon sign rank test  $\alpha = 0.05$  showed  $p = 0.001$  so that  $p < 0.05$  means that there is an effect of Yoga on reducing the intensity of dysmenorrhea pain (14).

The movements performed in yoga during menstruation are positions that can relax the organs in the abdomen, including the genitals, so yoga is a good therapy for treating pain during menstruation. Because yoga can be practiced every day by teenagers, there is no need to take pain relievers during menstruation or when dysmenorrheal pain occurs. This helps young women avoid addiction to menstrual pain medications (11).

#### IV. Conclusion

1. Dysmenorrhea pain before doing the yoga movement on the young women of SMAN 1 Tambang, most of the respondents experienced pain before doing the yoga movement on an average on a scale of 4, namely 11 respondents (45%) and a pain scale of 3, namely 7 respondents (29%).
2. Dysmenorrhea pain after doing yoga movements for young women, most of the respondents experienced pain after doing yoga movements on average on a scale of 2, namely 15 respondents (62%).
3. There is an effect of yoga movement on dysmenorrhea pain in young women at SMAN 1 Tambang with a p value of 0.000.

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