



## Implementation of Dysmenorrhea Exercises in the Morning Before Learning about Menstrual Pain in Female Students

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### ABSTRACT

Dysmenorrhea is one of the most common gynecological problems and can affect more than 50% of women causing the inability to perform daily activities for 1 to 3 days each month. Absenteeism in adolescents from school is one of the consequences of primary dysmenorrhea reaching approximately 25%. Dysmenorrhea is caused by increased prostaglandin hormones, increased prostaglandin hormones are caused by decreased estrogen and progesterone hormones causing the endometrium to swell and die because it is not fertilized. Increased prostaglandin hormones cause uterine muscles to contract and produce pain. The purpose of this study was to determine the effectiveness of morning dysmenorrhea exercises in treating menstrual pain in adolescent girls during menstruation at SMK TRIS Maros. This research method uses a quasi-experimental method with a one group pretest-posttest design. The population in this study were female students of SMK TRIS Maros with a sample of 20 respondents using a sampling technique of purposive sampling. The results of the study showed a difference before and after dysmenorrhea exercises in the morning of -3.804 and a difference before and after dysmenorrhea exercises in the afternoon of -5.239, thus dysmenorrhea exercises in the afternoon are more effective than dysmenorrhea exercises in the morning in reducing menstrual pain during menstruation with a p value of 0.000. It is expected that health workers will provide counseling or health promotion about women's reproductive health, especially the management of dysmenorrhea with dysmenorrhea exercises as a non-pharmacological therapy that does not have a negative impact on the body.





**Keyword** : Implementation, Dysmenorrhea Exercise, Morning, Before Learning, Menstrual Pain, Female Students, SMK TRIS Maros

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## 1. Introduction

Dysmenorrhea is caused by prostaglandin  $F2\alpha$ , which is a potent myometrial stimulant and Differences in the Effectiveness of Yoga and Hypno Eft (Emotional Freedom Technique). Increased prostaglandin levels are always found in women who experience dysmenorrhea and of course are closely related to the degree of pain caused. This increase in levels can reach 3 times starting from the proliferative phase to the luteal phase, and even increases during menstruation.

This increase in prostaglandin levels increases myometrial tone and excessive uterine contractions. This will cause vasoconstriction, thereby reducing blood flow to the uterus, which will eventually cause ischemic conditions and then reduce the pain threshold in the uterus. The hormone produced by the posterior pituitary is vasopressin, which is involved in reducing menstrual flow and the occurrence of dysmenorrhea. In addition, it is estimated that psychological factors and sleep patterns also influence the onset of dysmenorrhea (Karim, 2013).

During menstruation, almost all women experience discomfort during menstruation, such as flavor not good in the stomach part lower and usually also accompanied with nausea, dizziness, even fainting which is called menstrual pain or dysmenorrhea (Apriyanti, 2018).

The incidence of dysmenorrhea in the world is very high. On average, more than 50% of women in each country experience dysmenorrhea. In America, the percentage is around 60% and in Sweden around 72% (Proverawati, 2014). Gagua's research in Georgia in 2012 found that the prevalence of 7 cases of dysmenorrhea was 52.07% and as a result of the pain, it was reported that 69.78% of them did not attend school (Gagua, 2012). The prevalence of primary dysmenorrhea in the United States in 2012 experienced





by women aged 12-17 years was 59.7%, with a degree of pain of 49% mild dysmenorrhea, 37% moderate dysmenorrhea and 12% severe dysmenorrhea resulting in 23.6% of sufferers not attending school (Omidvar, 2012). In Indonesia, the incidence of primary dysmenorrhea reached 54.89% while secondary dysmenorrhea was 45.11% (Proverawati & Misaroh, 2009).

This dysmenorrhea usually occurs in adolescents under the age of 20, because the peak incidence of dysmenorrhea occurs in late adolescence and early 20s. While the incidence of dysmenorrhea in adolescents is said to be quite high, namely 92%. However, this incident will decrease as a woman gets older and births increase. The population of adolescents aged 12-17 years in the United States, adolescents who experience dysmenorrhea are 59.7% with complaints of pain. However, severe pain is felt by these adolescents by 12%, 37% experience moderate pain and 49% of adolescents experience mild pain. This study reported that as a result of dysmenorrhea, as many as 14% of adolescent girls are often absent from school (Anurogo, 2011).

According to Boby & Hotma (2014) in Sarifah (2015), menstrual pain or dysmenorrhea is divided into two, namely primary dysmenorrhea due to excessive prostaglandin hormones, thus increasing the amplitude and frequency of uterine contractions, and secondary dysmenorrhea due to uterine abnormalities or pathology, usually occurs after 20 years. Primary dysmenorrhea is menstrual pain without obvious abnormalities in the genitals. Primary dysmenorrhea occurs some time after the first menstruation ( *Menarche* ) usually after 12 months or more until less than 20 years of age. Menstrual pain occurs on the first or second day of menstruation. Primary dysmenorrhea is menstrual pain due to uterine activity, without any pathological conditions of the pelvis. Several factors cause primary dysmenorrhea, including psychological factors, constitutional factors, cervical canal obstruction factors (Wiknjastro, 2009 in Deharnita, 2014). While secondary dysmenorrhea occurs due to abnormalities in the organs in the pelvic cavity. Another cause of secondary dysmenorrhea is due to the use of IUD ( *Intra Uteri Device* ) contraception, secondary





dysmenorrhea is less common in adolescents, usually occurring at the age of 25 years (Wiknjastro, 2009 in Deharnita, 2014).

One of the causes of menstrual pain is the first menstruation ( *Menarche* ) at an early age, namely under 12 years old, causing the reproductive organs not to function optimally and not ready to experience changes and there is still narrowing of the cervix so that pain occurs during menstruation (Widjanarko, 2006 in Kristianingsih, 2016). In the first year or two of the menstrual period, there is usually no ovulation. Dysmenorrhea is more common in women who ovulate than those who do not ovulate (Proverawati and Misaroh, 2009).

According to WHO ( *World Health Organization* ) in 2014 it is estimated that the adolescent group numbered 1.2 billion or 18% of the population (Sari, 2019). According to BPS (Central Statistics Agency) in 2015 the population based on the age group 10-19 years was 44,447,583 people. The population of Riau Province based on age (10-19 years) in 2016 was 1,238,185 people (BPS, 2017 in Sari, 2019).

The incidence of menstrual pain in the world is quite large. In the United States, the prevalence of dysmenorrhea in 2012 in women aged 12-17 years was 59.7% with a degree of pain of 49% mild dysmenorrhea, 37% moderate dysmenorrhea, and 12% severe dysmenorrhea resulting in 23.6% of sufferers not attending school (Angel, Armini & Pradanie, 2015 in Apriyanti, 2018). According to data from WHO ( *World Health Organization* ) in 2013, the incidence of dysmenorrhea was 1,769,425 people (90%) of women who experienced dysmenorrhea with 10-15% experiencing severe dysmenorrhea. The incidence of dysmenorrhea in the world is very large, on average almost more than 50% of women experience it (Apriyanti, 2018).

The incidence of dysmenorrhea in Indonesia is also no less high compared to other countries in the world. Almost all women have experienced dysmenorrhea as much as 90%, this problem at least disturbs 50% of women in reproductive age and 60-85% in adolescence, which results in many absences from school and office (Annathayakheisha, 2009 in Puji, 2009). According to Proverawati & Misaroh (2012), in Indonesia the incidence of dysmenorrhea consists of 72.89% primary dysmenorrhea and 21.11%





secondary dysmenorrhea and the incidence of dysmenorrhea ranges from 45-95% among women of productive age (Apriyanti, 2018). According to WHO ( *World Health Organization* ) data in Fahmi (2014), in Indonesia the incidence of dysmenorrhea is 55% among productive age, where 15% of them complain of limited activities due to dysmenorrhea (Putri, 2017). According to the Indonesian Ministry of Health in 2016, the prevalence of adolescent girls in Indonesia who experienced menstrual pain was around 55%. From the results of research in Indonesia, the incidence of dysmenorrhea was 64.25% consisting of 54.89% primary dysmenorrhea and 9.36% secondary dysmenorrhea (Susanti, 2018).

In general, adolescent girls who experience dysmenorrhea during menstruation tend to ignore the pain they feel and consider it trivial and a normal thing to experience, which can only be treated by resting. And some dysmenorrhea sufferers tend to use their own medication without consulting or getting a prescription from a doctor to reduce the pain, but pharmacological therapy should be minimized because drugs can cause dependency and are also contraindicated (Arifin, 2008 in Solihatunisa, 2012).

Side effects of menstrual painkillers if consumed excessively or without supervision can cause liver damage, bleeding, diarrhea and nausea as well as gastric problems and even hypertension. Painkillers can make menstrual pain worse if the cause is not diagnosed properly. If consumed too often, it can cause addiction or dependence on using it every month in overcome menstrual pain. And the most dangerous long-term effect is that it can increase risk caught disease Alzheimer (disease This with characteristics typically confusion, disorientation, memory loss, speech disorders, and dementia ). Therefore, non-pharmacological measures are needed as an alternative method for treating menstrual pain (Solihatunisa, 2012). To overcome dysmenorrhea, pharmacological and non-pharmacological therapy can be done. Pharmacological therapy includes: administration of analgesic drugs, therapy hormonal, drug nonsteroid prostaglandins, And dilation canal cervical (Prawirohardjo, 2008 in Fajaryati, 2011). Non-pharmacological therapies include: warm compresses, exercise, Mozart therapy, and relaxation (Fajaryati, 2011).





The incidence of dysmenorrhea will increase with lack of exercise, this can cause decreased blood and oxygen circulation. The impact on the uterus is that blood flow and oxygen circulation are reduced and cause menstrual pain. Exercise can increase the production of endorphins (the body's natural pain killer) and increase serotonin levels (Ristiani et al., 2012 in Kristianingsih, 2016).

Health sports can improve health levels, according to Giriwijoyo (2013) the concept of health sports is dense movement, stress-free, short (enough 10-30 minutes non-stop), mass, easy, cheap, cheerful and physiological (beneficial and safe) and held 3-5 times/week. Sports training is very beneficial because it can reduce pain and can alleviate or treat dysmenorrhea (Deharnita, 2014). One of the health sports that can help overcome menstrual pain is dysmenorrhea gymnastics (Amalia, 2016). So dysmenorrhea gymnastics is an alternative for treating menstrual pain (Solihatunisa, 2012).

Gymnastics is one of the relaxation techniques that can be used to deal with menstrual pain that occurs (Harry, 2007 in Solihatunisa, 2012). Ramaiah (2006) in Solihatunisa (2012) also stated that one of the effective ways to deal with menstrual pain is exercise, one of the sports that can be done is gymnastics. "From the results of the study, it was found that dysmenorrhea occurred less in female athletes compared to women who did not do sports/gymnastics" (Sumudarsono, 1998 in Puji, 2009). According to Dito Anurogo (2011) in Amalia (2016) in doing sports regularly Regularly exercising for 30 minutes every day can improve blood flow to the muscles around the uterus, which can relieve pain during menstruation.

One way to overcome dysmenorrhea is to do special exercises, namely dysmenorrhea exercises which focus on helping to stretch the muscles around the stomach, pelvis and waist, besides that these exercises can provide a gradual relaxing sensation and reduce painful If done in a way regular (Badriyah & Dear, 2004 in Ismarozi, 2015).

Dysmenorrhea exercise is a physical activity in the form of movements that can be used to reduce pain during menstruation (Sugani & Priandarini, 2010 in Ismarozi, 2015). According to the Ministry of Health of the Republic of Indonesia, physical activity is





considered sufficient if done for 30 minutes every day or 3-5 days in one week (Tristiana, 2017). This exercise movement is not aerobic, so it can be done alone at home (Nur Najmi, 2011 in Rahmawati et al., 2015).

## 2. Research Methods

This research design uses a quasi-experimental method with a one group pretest-posttest design. This design does not have a comparison group (control), the design is carried out by conducting observations 4 times, namely the scale of pain during menstruation before morning and evening dysmenorrhea gymnastics then the scale of pain during menstruation after morning and evening dysmenorrhea gymnastics is given treatment or action (Notoatmodjo, 2010). This research was conducted at SMK TRIS Maros City. The population is all research subjects to be studied (Notoatmodjo, 2005 in Laili, 2012).

A sample is a portion of the entire object being studied and is considered to represent the entire population (Notoatmodjo, 2005 in Laili, 2012). The sample used in this study was a portion of 20 female students of SMK TRIS Maros SMK TRIS Maros City who were menstruating on the 2nd day and experiencing menstrual pain during menstruation. The sampling technique used in this study was purposive sampling, a technique for determining samples with certain considerations based on inclusion and exclusion sample criteria (Setiadi, 2007 in Laili, 2012). Bivariate analysis was used to see the relationship between independent variables and dependent variables. The bivariate analysis in this study used the chi-square test ( $X^2$ ) using a 95% confidence level using a computerized system.

## 3. Results and Discussion

### a. Results

#### 1. Univariate Analysis

Univariate analysis was conducted to see the distribution of respondent characteristics such as menstrual pain before dysmenorrhea exercises in the morning, menstrual pain after dysmenorrhea exercises in the morning, menstrual





pain before dysmenorrhea exercises in the afternoon and menstrual pain after dysmenorrhea exercises in the afternoon.

## 2. Bivariate Analysis

In this study, bivariate analysis was used to analyze the differences in menstrual pain before and after dysmenorrhea exercises in the morning and evening using the *Wilcoxon test*. The data can be presented in the following table :

**Table 1.**  
**Differences Painful Period Before and After**  
**Done Exercise Evening Dysmenorrhea (n=20).**

Variables	Mean Rank	Difference	Sum Of Rank	Z	P Value
Pretest	18.00	1.7	630.00	- 5,239	0,000
Posttest	0.00		0.00		

Based on table 1, namely menstrual pain before and after dysmenorrhea exercise in the afternoon, it can be seen from 20 respondents that the average difference in menstrual pain before and after dysmenorrhea exercise in the afternoon (mean rank or average rank) was 18.00, then the difference in pretest and posttest for dysmenorrhea exercise in the afternoon was 1.7. Furthermore, the number of differences in menstrual pain before and after dysmenorrhea exercise in the afternoon (sum of rank or number from rank) is 630.00 and the z value (Wilcoxon test results) is - 5.239 and the significant value *p value is* 0.000, if the significant value  $\leq 0.05$  then  $H_a$  is accepted, namely there is effectiveness of menstrual pain before and after dysmenorrhea exercises are carried out in the afternoon. day and if significant value  $\geq 0.05$  then  $H_a$  rejected, meaning there is no effectiveness painful menstruation before and after dysmenorrhea exercises in the afternoon.

## b. Discussion

Based on the research data above, respondents who experienced a decrease in menstrual pain on the last day after doing dysmenorrhea exercises in the afternoon were all respondents (100%) who experienced mild menstrual pain, while respondents who experienced a decrease in menstrual pain on the last day after doing dysmenorrhea exercises in the morning were only 11 respondents (55%) who





experienced mild menstrual pain. Based on research data before doing dysmenorrhea exercises on the fourth afternoon of menstruation compared to after doing dysmenorrhea exercises on the third afternoon of menstruation, there were 14 respondents who experienced increased menstrual pain. Based on interviews and questionnaires in the afternoon, students had just come home from school and their busy school activities caused menstrual pain.

This is in line with Dhyana's theory (2018) that menstrual pain is most often felt by women on the first to third day of the menstrual cycle, but there are some women who still feel menstrual pain on the fourth day. This is due to the activities carried out by the sufferer, the denser the activity, the heavier the menstrual blood that comes out and causes uterine contractions to increase, resulting in the pain.

Previous research and current research have similarities and differences with this research. The similarity between this research and the research conducted by Nuraeni (2017) lies in the type of research, namely quasi-experimental. The similarity between this research and the research conducted by Tutik Sarifah et al. (2015) lies in the research design, namely one group pretest-posttest and data analysis, namely the Wilcoxon test.

Meanwhile, in the current study, the difference before and after dysmenorrhea exercises were carried out in the morning and evening, the results of the morning pretest and posttest were -3.804, while the results of the afternoon pretest and posttest were -5.239, so that it was seen that the decrease in menstrual pain felt by adolescent girls during menstruation after dysmenorrhea exercises was mostly found in the afternoon with a difference of -1.435.

#### 4. Conclusion

The following conclusions can be drawn:

- a) The results of the study of dysmenorrhea exercises in the morning and evening obtained a p value of 0.000 ( $p < 0.05$ ).
- b) The difference before and after dysmenorrhea exercise in the morning was -3.804. The difference before and after dysmenorrhea exercise in the afternoon was -5.239.





## 5. Compliance with ethical standards

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### Disclosure of conflict of interest

This research collaboration is a positive thing for all researchers so that conflicts, problems and others are absolutely no problem for all writers.

### Statement of informed consent

Every action we take as authors is a mutual agreement or consent.

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