

The Effect Of Abdominal Stretching Exercise On Reducing Dysminorrhoea Pain At STIKes As Syifa Female Students

Titin Patimah¹, Selvi Puspan Sari², Paramita Mustari³, Sri Junita Simaremare⁴
Sekolah Tinggi Ilmu Kesehatan Assyifa^{1,2}, Akbid Farama Mulya^{3,4}

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Email :

selvipuspansari@gmail.com

ABSTRACT

Dysmenorrhea or painful menstruation is a gynecological complaint that occurs due to an imbalance in the hormone progesterone, resulting in pain that is often experienced by women, especially teenagers. One action that can be taken to treat dysmenorrhea is abdominal stretching exercises. The aim of this research was to determine the effect of abdominal stretching exercise on reducing dysmenorrhea in female students at STIKes As Syifa. This research method was preexperimental with a one group pre test - post test design involving 33 female students who experienced dysmenorrhea. Sampling used the Total Sampling technique with data collection using the abdominal stretching exercise SOP and a numeric rating scale to determine the scale of dysmenorrhea. The results of data analysis using the Wilcoxon test obtained $p=0.000$ with a significance level of $\alpha=0.05$. This shows that there is an influence of abdominal stretching exercise on reducing dysmenorrhea in female students at STIKes As Syifa. Conclusion: Abdominal stretching exercise is an effective exercise to reduce the scale of dysmenorrhea in female students and can be done independently when female students experience dysmenorrhea.

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1. INTRODUCTION

The adolescent period is the transition period from child to adult period categorized by age 12-19 years. In adolescence, there will be rapid growth and physical development as well as mental development. One of the physical developments that occurs quickly is the period of puberty. For adolescent girls the puberty period is usually characterized by the occurrence of menarche or menstruation for the first time (Diananda, 2018; WHO, 2017).

Menstruation is a normal physiological reaction that occurs every month while in usiaa woman's productive age. This menstruation occurs due to the absence of fertilization, resulting in endometrial detachment on the uterine wall. Women who have menstruated, generally will experience disturbing complaints. One of the complaints that can be felt is dysmenorrhea (Kristianingsih, 2016).

Dysmenorrhea is severe pain in the abdomen, especially the lower part experienced by women during menstruation. Pain that occurs generally will take place before menstruation, at the time of menstruation, until the end of the menstrual cycle with the quality of pain is gone arise and there is also that occurs constantly. *Dysmenorrhea* occurs when there is an increase in prostaglandins which will lead to *hypertonus* and *vasoconstriction* in the *myometrium*, resulting in pain in the lower abdomen (Ratnawati, 2018; Fatmawati, 2018).

According to data obtained by the *World Health Organization* teradapat incidence of *Dysmenorrhea* as many as 1,769,425 women (90%) with dysmenorrhea disorders with 15% are in the classification *dismenoreof* severe dysmenorrhea (Anurogo & Wulandari, 2011). The problem of *dysmenorrhea* that occurs in Indonesia is also included in a fairly high number compared to other countries. According to Larasati (2016) the prevalence of *dysmenorrhea* that occurs in Indonesia has a value of 64.25% which is classified into 54.89% of women with *dismenoreprimary* dysmenorrhea and women with *dismenoresecondary* dysmenorrhea of 9.36%. Primary dysmenorrhea is suffered by adolescents by 75% with different levels of pain. Based on the results of research conducted by Sumartini (2017).

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Dysmenorrhea or menstrual pain can have an impact on the daily activities of adolescents, with symptoms that can arise such as feeling weak, lost spirit, feeling lazy, and decreased concentration that will interfere with the adolescent's learning process. This is in agreement with the results of research conducted by Setiawan (2018). In addition, *dysmenorrhea* also results in abnormal uterine contractions caused by increased intrauterine pressure and *kadarprostaglandin* levels in the blood. When abnormal uterine contractions occur continuously will result in a decrease in blood circulation so that it will make the uterus become ischemic or hypoxic which can risk disrupting female fertility and resulting in infertility (Ammar, 2016). This is supported by research from Indarwati (2017) with the results of factor analysis of infertility by 61.5,5% caused by reproductive organ disorders, one of which is uterine disorders by 15%. Therefore, menstrual pain or *Dysmenorrhea* must be treated immediately before causing other reproductive system disorders. Then action is needed to overcome this, one of which is non-pharmacological action.

Non-pharmacological measures to treat menstrual pain are safe and easy to take and do not cause negative effects. Non-pharmacological actions to reduce *dysmenorrhea* that can be done such as massage on the back, warm water compresses on the lower abdomen, light exercise, and abdominal stretching exercise (Priscilla, 2017). *Abdominal stretching exercise* is an exercise technique to stretch the muscles in the abdomen which is generally run 10 to 15 minutes to maximize muscle strength and flexibility. This exercise is more recommended to overcome *dysmenorrhea* because it has a safe technique and does not trigger adverse effects because it only uses physiological techniques from the body. At the time of exercise, there will be an increase in endorphin levels produced in the brain and spinal cord. *Endorphin* is what will be the natural sedative therapy, so it will increase the sense of comfort and reduce pain (Salbiah, 2015; Hasnah, 2017).

Based on the phenomenon obtained by researchers at STIKes as Syifa, mahasiswifemale students in the area mostly experience *dysmenorrhea* and do not know how to cope with *dysmenorrhea* that is felt well. The results of interviews on some mahasiswifemale students at STIKes as Syifa found that they overcome by consuming drugs or drinks peredah menstrual pain that cause side effects such as headaches and diarrhea. Then there are those who only allow *dysmenorrhea* to be felt, resulting in discomfort during activities and decreased learning concentration which causes laziness to go to school.

Based on the above research data, researchers can conclude that *dysmenorrhea* has a negative impact on adolescents such as physical activity disorders, learning concentration disorders, and the risk of disrupting female fertility. It took the attention of researchers to conduct research related to non-pharmacological therapy by using *abdominal stretching exercise techniques* to help reduce and overcome the occurrence of *dysmenorrhea*, especially in mahasiswifemale students who are in STIKes as Syifa. Based on the above, the authors were interested in conducting a study entitled "The effect of *Abdominal stretching Exercise* on reducing *Dysminorrhea pain Disminoreain* students at STIKes as Syifa in 2021.

2. METHOD

The type of research used in this study is quantitative research with a pre-experimental approach. The method used is *the one group pre-test-post-test design*, where all the samples that became respondents were assessed on the pain scale before *abdominal stretching exercise* and after *abdominal stretching exercise* were observed again on the pain scale to see changes after the intervention was given. The sample was obtained by using sampling techniques, namely *Total sampling*.

3. RESULTS AND DISCUSSION

Characteristics Of Respondents

Table 4.1 frequency distribution of respondents by age, behavior to overcome *dysmenorrhea* and information on *Abdominal Stretching Exercise* di STIKes As Syifa Kisaran Tahun 2021

| Characteristics | N | % |
|-----------------|----|------|
| Age | | |
| 19-21 years old | 25 | 65.8 |

| Characteristics | N | % |
|--|----|-------|
| 22-24 years old | 13 | 34.2 |
| Behavior for overcoming Dsminore | | |
| Left alone | 14 | 46.6 |
| Break | 8 | 21.0 |
| Taking medication | 7 | 23,3 |
| Drink herbalmedicine | 4 | 13,4 |
| Information About <i>Abdominal Stretching Exercise</i> | | |
| Never | 33 | 100,0 |
| Ever | 0 | 0,0 |
| total | 33 | 100 |

Source: Primary Data, 2021

Based on the results of research conducted at STIKes as Syifa, obtained data on the number of respondents aged 19 to 21 years as many as 25 people (65.8%), ages 22 to 24 years as many as 13 people (34.2%). Most of the students, namely 14 respondents (46.6,6%) did not use any therapy to overcome *dysmenorrhea* or left and there were only 8 people who rested (21.0%). While the number of respondents who use therapy such as taking painkillers as many as 7 respondents (23.3,3%) and consume herbal medicine as many as 4 respondents (13.4%). Then it was also found that all respondents (100%) had never heard of information about *abdominal stretching exercise*.

Univariate Analysis

Level of dysmonerrhea before and after intervention intervensi abdominal stretching exercise

Table 4.2 Distribusi Tingkat Dismenore Responden Sebelum dan Setelah Diberikan Intervensi *Abdominal Stretching Exercise* the STIKes As Syifa range in 20211

| | Skala Disminore Pre-Test | | Pos-Test | |
|--------|--------------------------|------|----------|------|
| | f | % | f | % |
| 0 | 0 | 0 | 14 | 42.4 |
| 1 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 4 | 12.1 |
| 3 | 1 | 3 | 7 | 21.2 |
| 4 | 2 | 6.1 | 2 | 6.1 |
| 5 | 5 | 15.2 | 2 | 6.1 |
| 6 | 8 | 24.2 | 4 | 12.1 |
| 7 | 9 | 27.3 | 0 | 0 |
| 8 | 8 | 24.2 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 |
| Number | 33 | 100 | 33 | 100 |

Source: Primary Data, 2021

Based on Table 4.2, it can be seen that the *dysmenorrhea scale* mahasiswi of female students at STIKes As Syifa before the *abdominal stretching exercise intervention* was given on a pain scale of 3, namely 1 respondent (3%), pain scale of 4, namely 2 respondents (6.1%), pain scale of 5, namely 5 respondents (15.2%), pain scale of 6, namely 8 respondents (24.2%), Pain Scale 7 is 9 respondents (27.3%), and pain scale 8 is 8 respondents (24.2%). While the scale of dysmenorrhea after abdominal stretching exercise is given on a scale of pain 0 as many as 14 respondents (42.4%), Pain Scale 2 as many as 4 respondents (12.1%), Pain Scale 3 as many as 7 respondents (21.2%), pain scale 4 as many as 2 respondents (6.1%), Pain Scale 5 as many as 2 respondents (6.1%) and Pain Scale 6 as many as 4 respondents (12.1%).

Mean, Minimum, maximum, and standard deviation values of the dismenore scale before and after abdominal stretching exercise intervention

Table 4.3 distribution of Mean, Minimum, maximum, and standard deviation of pre and Post test dysmenorrhea in adolescent girls in STIKes

| As Syifa Range In 2021 | | | |
|------------------------|------|---------|----------------|
| Skala Disminore | Mean | Min-Max | Std. Deviation |
| Pre-Test | 6.39 | 3-80 | 1.34 |
| Pos-Test | 2.15 | 0-6 | 2.18 |

Source: Primary Data, 2021

Based on Table 5.3, it can be seen that before the intervention, the average value of the *dysmenorrhea scale* was 6.39 with a minimum value of 3 and a maximum of 8 and a standard deviation of 1.34. Then after *abdominal stretching exercise intervention* obtained the average value of dysmenorrhea scale is 2.15 with a minimum value of 0 and a maximum of 6 and the standard deviation is 2.18

Bivariate Analysis

Tabel 4.4 Analisis of differences in dysmenorrhea scale before and after *Abdominal Stretching Exercise* In STIKes The U.S. Census 2021

| Jenis Data | N | Mean-Rank | Sum Of Rank | P |
|----------------------------|-----------------|-----------|-------------|-------|
| Pre Latihan-Negative Ranks | 33 ^a | 17,00 | 561,00 | 0,000 |
| Post Latihan-Positif Ranks | 0 ^b | 0,00 | 0,00 | |
| Ties | 0 ^c | 0,00 | 0,00 | |
| total | 33 | | | |

- Post test < Pre test*
- Post test > Pre test*
- Post test = Pre test*

Bivariate analysis was conducted to provide an overview of respondents according to changes in the scale of *dysmenorrhea* before and after *abdominal stretching exercise* on female students at STIKes as Syifa Kisaran. Based on the results of research conducted by researchers obtained data that all respondents experienced a decrease in the level of menstrual pain after *abdominal stretching exercise*.

Based on the results of the normality test, the data obtained are not normally distributed with significant values that are read in *Shapiro Wilk table*, namely $p = 0.000$, then the data transformation has been carried out but still not normally distributed so that the data analysis continued using the *Wilcoxon alternative test* and obtained the value of $p = 0.000$ and $\textcircled{3} = 0.05$ ($p < \text{decreased level of pain after abdominal stretching exercise intervention}$). Therefore, it can be concluded that *abdominal stretching exercise* is effective for reducing *dysmenorrhea*.

Discussion

Based on the results of research conducted on female students at STIKes as Syifa with 33 respondents in Table 4.1, the lowest respondent age is 19 years and the highest age is 24 years. So it can be proven that all respondents have entered the normal late adolescent age limit to experience menstruation. This is in line with that put forward by Sukarni & Wahyu (2017), which says that the youngest age of menarche is 8 years, while the oldest or slowest age is 18 years.

According to research conducted by Wahyuni (2017) on factors related to *dysmenorrhea*, the results of statistical test analysis obtained $P = 0.051$, which means there is no significant relationship between age and dysmenorrhea. However, this is different from the research conducted by Bunawan et al. (2015) on factors associated with menstrual disorders which showed statistical test results $P = 0.008$ which means there is a relationship between age and menstrual disorders. The average age of respondents who have menstrual disorders is at a younger age (13-17 years). These results agree with the theory put forward by Lee & Bare which states menstrual disorders occur more at the beginning of menstruation compared to older women because they are getting older or have often menstruated, the cervix will be more open or reach reproductive maturity, so that at older ages *dysmenorrhea* is rarely found, but it is possible the presence of dysmenorrhea when accompanied by other disorders of the

reproductive organs such as *endometriosis*, *ovarian cysts*, *salpingitis*, *uterine adenomyosis*, and others.

Efforts made by respondents as a measure of handling dysmenorrhea are perceived differently. It can be seen in Table 4.1 that most female students (78.8%) did not take any therapeutic action to overcome dysmenorrhea while others (21.2%) used pharmacological therapy in the form of anti-pain drugs and herbal medicine. This is in line with research conducted by Safitri et al (2018) which obtained the result that there is an effect of consuming herbs such as turmeric and acid on reducing the scale of primary menstrual pain as evidenced by the results of statistical tests $P = 0.046$. The research is supported by the theory put forward by Hillard (2009) that turmeric and tamarind drinks function as analgesics and anti-inflammatories. Turmeric contains *curcumine* as an anti-inflammatory and *curcumenol* as an analgesic, while acid contains *anthocyanins* as an anti-inflammatory and *antipyretic*. When herbs containing turmeric and acid consumed will inhibit the release of prostaglandins and inflammatory processes and ion influx in uterine epithelial cells that are able to reduce or eliminate contractions in the uterus so *dysmenorrhea* that primary dysmenorrhea does not occur, but when consumed in excess can cause nausea, vomiting, and diarrhea.

According to Riyanti et al., (2016) using analgesic drugs can reduce the scale of menstrual pain felt by women but can result in the appearance of side effects such as nausea, vomiting, anxiety, constipation, and drowsiness, so this technique is not recommended for women who experience *dysmenorrhea*. In addition there are also several other efforts to overcome menstrual pain such as warm compresses and yoga. Warm compresses are believed to be able to reduce abdominal pain due to menstruation because the heat will result in vasodilation of blood vessels, reduce muscle tension, and increase blood circulation so that uterine contractions will decrease. While yoga is one of the relaxation techniques that can reduce pain during menstruation by relaxing skeletal muscles that spasm due to increased prostaglandin levels. When doing yoga relaxation techniques, blood circulation will increase in spasm and ischemic areas (Sutrisni & Arfiani, 2019).

Based on the data obtained, it can be seen that all respondents never get information about *abdominal stretching exercise*. According to Ariesta (2017) reproductive health education is very important for adolescents of childbearing age to increase their knowledge related to efforts to overcome problems that occur in the reproductive organs. The information obtained is an effort to improve the behavior of achieving optimal health, especially related to reproductive health problems. However, when less information is obtained by young women can lead to the inability to take action against reproductive health problems that are felt, the consequences can cause some negative impacts on young women. This is in line with research conducted by Setiawan (2018) which states that adolescent girls with *dysmenorrhea* will experience impaired learning activities, feel weak, lose spirit, decreased concentration, stress, and the risk of fertility disorders.

Based on the results of univariate analysis, there is a difference in average values. Nilai rata-rata setelah dilakukan *abdominal stretching exercise* lebih kecil yaitu 2.15 dibandingkan dengan nilai rata-rata sebelum dilakukan *abdominal stretching exercise* yaitu 6.39. The level of *dysmenorrhea* of respondents before *abdominal stretching exercise intervention* was at a minimum scale of 3 and a maximum of 8, while the level of *dysmenorrhea* after *abdominal stretching exercise* was at a minimum scale of 0 and a maximum of 6. So it can be said that there is a decrease in *dysmenorrhea* after *abdominal stretching exercise intervention*.

Based on the bivariate analysis Table using *the Wilcoxon test*, the *negative ranks of the dysmenorrhea scale obtained* before the intervention and after the intervention were 33 with *mean ranks* of 17 and *sum of ranks* of 561, which means that all respondents experienced a decrease or reduction in the level of *dysmenorrhea* from before the intervention to after the intervention. In addition, it also obtained a value of $p < 0.05$ which means that *abdominal stretching exercise* is effective for reducing *dysmenorrhea*. This is in line with *the gate control theory* proposed by Melzack and Wall that pain impulses are regulated by defense mechanisms along the central nervous system. This theory says that pain impulses are delivered when the defense is open and pain impulses can be inhibited when the defense is closed. The attempt to close such defense mechanisms is the basis of therapy for pain relief. This can be done by relaxing. *Abdominal stretching exercise* is one of the relaxation actions that can relieve or eliminate pain by stretching the muscles that experience spasm

due to an increase in prostaglandins that cause vasodilation of blood vessels and will launch blood circulation to areas that experience spasm and ischemic (Fauziah, 2015).

Arifiani (2016) states that muscle stretching or *stretching* can increase muscle strength, endurance, flexibility, reduce muscle tension, cramps in the muscles and blood circulation. This is supported by the results of research Fauziah (2015), analysis of the average menstrual pain experienced by respondents before the intervention *abdominal stretching exercise* for 10 to 15 minutes is 2.79 while the results after the intervention *abdominal stretching exercise* an average of 1.21. In addition, this is also supported by the results of a study conducted by Sutrisni & Arfiani (2019), the results of the analysis of the average menstrual pain of respondents before yoga intervention were 4.69 while the average menstrual pain of respondents after yoga intervention was 2.50. Routine actions can improve blood circulation including circulation in the reproductive organs that experience vasoconstriction so that *dysmenorrhea* can be reduced. According to Woo & Mc Enemy (2010) stretching is one of the non-pharmacological techniques that are highly recommended to overcome pain because it only needs to use the body's physiological processes, besides this action is also very safe and easy to do and does not cause side effects.

Based on the above explanation, researchers assume that age affects the incidence *dismenore* of primary dysmenorrhea, where *dismenore* primary dysmenorrhea is more common in young women than older ones. This is because with increasing age, the maturity of the functions of the reproductive organs increases. But unlike the case of *secondary dysmenorrhea*, this type of dysmenorrhea can be felt by all ages because it is caused by other pathological conditions in the reproductive organs. Then the lack of information obtained plays an important role in the behavior of handling *dysmenorrhea*. The inability of adolescents to deal with *dysmenorrhea* will have a negative impact on their productivity and quality of life. Therefore, an effective action is needed to overcome *dysmenorrhea*, one of which is *abdominal stretching exercise*. *Abdominal stretching exercise* is effective to reduce dysmenorrhea because when stretching will occur vasodilation of blood vessels that increase blood circulation in the reproductive organs that experience spasm and ischemic so that there will be a decrease in pain. This is in line with what researchers found when conducting research on female students at STIKes as Syifa, where after doing *abdominal stretching exercises* for three consecutive days starting on the first day of menstruation, all respondents obtained a decrease in pain scale. This decrease in pain can make respondents more relaxed and feel comfortable to carry out their daily activities.

4. CONCLUSION

From the results of a study conducted on 33 respondents on October 20 Oktober, 2021 to 2 November 2, 2021 at STIKes as Syifa Kisaran, it can be concluded that: Dysmenorrhea scale in mahasiswifemale students at STIKes as Syifa before *abdominal stretching exercise intervention* obtained the average value of *dysmenorrhea scale* 6.39 with *dismenore* the lowest dysmenorrhea scale 3 and *dismenore* the highest dysmenorrhea scale 8 and standard deviation 1.34. Dysmenorrhea scale in adolescent girls at STIKes as Syifa after *abdominal stretching exercise intervention* decreased *dysmenorrhea scale* can be seen from the average value of *dysmenorrhea scale* 2.15 with *dismenore* the lowest dysmenorrhea scale 0 and *dismenore* the highest dysmenorrhea scale 6 and standard deviation 2.18. Ada perbedaan skala *dismenore* sebelum diberikan intervensi abdominal stretching exercise dan sesudah diberikan intervensi *abdominal stretching exercise* pada mahasiswi putri di STIKes As Syifa. This shows that *abdominal stretching exercise* is effective to reduce *dysmenorrhea*.

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