

## THE EFFECT OF *ABDOMINAL STRETCHING EXERCISE* ON THE REDUCTION OF DYMNORORE PAIN IN HIGH SCHOOL STUDENTS OF STATE 1 BORBOR, TOBA REGENCY, IN 2022

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### ABSTRACT

Dysmenorrhea is menstrual pain that can occur before and during menstruation which is cramping in the lower abdomen and can usually interfere with activities due to the onset of the pain. This study aims to analyze the effect of giving *Abdominal Stretching Exercise* to reduce dysmenorrhea pain in female students.

This research is a quasi-experimental quantitative research design with nonequivalent control group design research conducted at the State Junior High School 1 Borbor Toba Regency, for the population in this study 60 people with a sample of 30 students, the sampling technique is *Non-probability* with using *purposive sampling*, which means that the number of samples required by the researcher is determined according to inclusion and exclusion. Analyzed by univariate and bivariate using *Wilcoxon*

The results of univariate data show that dysmenorrhea is influenced by the age of menarche where it is found that about 63.3% of students experience dysmenorrhea with menarche age below 12 years. The duration of menstruation also affects the occurrence of dysmenorrhea. Around 20 female students experienced dysmenorrhea or 66.7% experienced dysmenorrhea with the duration of dysmenorrhea more than 7 days. The results of the bivariate test using the Wilcoxon test to determine the effect of *Abdominal Stretching Exercise* on reducing dysmenorrhea pain in class XI students using two groups, namely the experimental group and the control group. The value (p-value = 0.00) in the experimental group and the value (P-value = 0.100) in the control group. *Abdominal Stretching Exercise* is one of the complementary therapies that can reduce dysmenorrhea pain.

**Keywords:** Dysmenorrhea pain, Abdominal stretching exercise

### INTRODUCTION

Quality of life for adolescents is a positive assessment in the life cycle, by feeling satisfied with themselves related to

both physical and psychosocial health which includes a positive self-image (NP Dewi, Solehati, and Hidayati 2018). Reproductive health in women is an

important component, the female reproductive system is susceptible to disturbances that can cause problems in reproductive health, one of the most common reproductive health problems is dysmenorrhea, dysmenorrhea can affect quality of life, daily activities and learning presentations (Astuti 2018). Dysmenorrhea experienced by women is one of the early signs of endometritis. Women who often experience severe dysmenorrhea pain/lower abdominal pain that occurs around 40-60% of the time can potentially experience infertility (Andalas 2019)

Based on data from *the World Health Organization* (WHO) in 2020, it explains that the incidence of dysmenorrhea in the world is still very large, more than 50% of women experience menstrual pain in every country. According to the results of the Indonesian Demographic and Health Survey (IDHS) in 2017, the population aged 10-19 years is 22.9% of the total population of Indonesia. In Indonesia, as many as 55% of productive people experience dysmenorrhea, and 15% are unable to carry out activities due to dysmenorrhea (Ayu Asmarani 2020). In 2021, in Indonesia, the prevalence of

dysmenorrhea is 64.25%, consisting of primary dysmenorrhea around 54.89%, and secondary dysmenorrhea as much as 9.36% (Relaxation et al. 2021).

*Abdominal stretching exercise* is a technique that can reduce the pain of dysmenorrhea, when *abdominal stretching* is done the body will produce endorphins, the brain and spinal cord will produce endorphins, the more endorphins in the body increase, the dysmenorrhea pain will decrease, causing a feeling of comfort, joy and smooth delivery of oxygen to the muscles, endorphins are produced by the brain which can be used as medicine natural body sedative that can produce a sense of comfort (Silviani, Rosnita, and Keraman 2020).

Based on an initial survey conducted at SMA N 1 BORBOR, Toba Regency in 2022 in January 2022 in 11th grade students of SMA N 1 BORBOR there were 60 students in class X1 from the results of interviews that had been conducted 40 people experienced dysmenorrhea pain, students who experienced severe pain did not take part in the lesson because they had dysmenorrhea and many students said to deal with

menstrual pain they drank warm water, rested and took pain medication on the market.

The purpose of this study was to analyze the effect of *abdominal stretching exercise* on reducing dysmenorrhea pain in class XI students of SMA N 1 BORBOR Toba district.

## METHODS

This type of research is a quantitative quasi-experimental research design with a nonequivalent control group design research, the sampling technique is *non-probability* using *purposive sampling* . which means that the number of samples required by the researcher is determined according to the inclusion and exclusion approach carried out using the two group pretest and posttest design methods, namely research conducted to assess the experimental group and the control group.

The population is the total number consisting of objects or subjects that have certain characteristics and qualities determined by the researcher to be studied and then conclusions are drawn (Sujarweni

2020) , the population in this study were all 11th grade students of SMA N 1 Borbor, namely 60 people. Primary data collection is obtained directly from the respondents.

## RESULTS

This study was carried out to find out whether there is an effect of *abdominal stretching exercise* on reducing dysmenorrhea pain in students of SMA N 1 BORBOR Toba Regency in 2022, in this study for a population of about 60 people, about 40 students who experienced dysmenorrhea, for sampling done through inclusion and exclusions and samples were selected directly by the researcher according to the specified characteristics or by *purposive sampling*. This data collection was carried out on a primary and secondary basis. Primary data was collected by direct observation of adolescents experiencing dysmenorrhea pain as a pretest stage, after the pretest was carried out on students who experienced dysmenorrhea in accordance with the characteristics of inclusion and exclusion, the data that had been collected was divided into two groups, namely the experimental group and the control group.

The results obtained are in accordance with the characteristics of 30 samples into 2 groups of 15 people for the experimental group and 15 people for the control group, the experimental group will be treated with *abdominal stretching exercises* in accordance with the standard operating procedure (SOP) within one week before menstruating for a period of 3 days, after that it is done re-observation for the pain of dysmenorrhea experienced by the student, then compared the experimental group with the control group and then tested with SPSS.

### Univariate Analysis

#### 4.3.1 Characteristics of Respondents based on Age of Menarche who experience pain Dysmenorrhea

| Menarche Age | F  | Presentation |
|--------------|----|--------------|
| < 12 Years   | 19 | 63.3%        |
| >12Years     | 11 | 36.7%        |
| Total        | 30 | 100%         |

Based on the table above, it was found that 63.3% of students were in the category of Menarche age < 12 years. And there are

>12 years with 36.7%. It can be seen that students who experience menarche age <12 years on average experience more dysmenorrhea pain around 63.3% (19 female students).

#### 4.3.2 Characteristics of Respondents based on the length of menstruation experiencing pain Dysmenorrhea

| duration of menstruation | Frequency | Presentation |
|--------------------------|-----------|--------------|
| <7 days                  | 10        | 33.3%        |
| >7 days                  | 20        | 66.7%        |
| Total                    | 30        | 100%         |

Based on table 4.3.2, it was found that students who experienced dysmenorrhea with a duration of menstruation > 7 days were around 20 people as much as 66.7%. And those who experienced <7 days were about 10 students, so it was found that around 20 female students experienced menstruation duration >7 days, about 20 female students experienced dysmenorrhea pain.

Table 4.4.4 The effect before and after *abdominal stretching exercise* on the reduction of dysmenorrhea pain in the experimental group of class XI students of SMA N 1 BORBOR Toba Regency in 2022

| Dysmenorrhea Pain   | N  | p- value |
|---------------------|----|----------|
| Experiment Pretest  | 15 |          |
| Experiment Posttest | 15 | 0.00     |

Wilcoxon test

Based on the table above, it can be seen that the statistical test results obtained pre-post pain in the experimental group with a value of ( $p\text{-value} = 0.00$ ), it can be concluded that there is an effect before and after *abdominal stretching exercise* in the Experimental group at SMA N 1 BORBOR, Toba Regency. 2022.

Based on table 4.4.4 The effect before and after *abdominal stretching exercise* on the reduction of dysmenorrhea pain in the experimental group of class XI students of SMA N 1 BORBOR Toba Regency in 2022 from the statistical test results obtained pre-post pain in the experimental group with a value ( $p\text{-value} = 0,00$ ), it can be concluded that there is an effect before and after *abdominal stretching exercise* in the Experimental group at SMA N 1 BORBOR, Toba Regency in 2022.

In accordance with the research conducted by Dharmanyanti et al (2020)

one way to deal with dysmenorrhea pain is by doing abdominal stretching exercises, where when doing abdominal stretching exercises can increase levels of endorphins which benefits can cause a feeling of comfort, happiness, and smooth oxygen to the body. muscles so that it can reduce the pain of dysmenorrhea. The results of this study showed a decrease in the level of dysmenorrhea pain after being given *abdominal stretching exercise treatment*, this was due to the movement of the lower abdominal and lumbar muscles so that it put pressure on the large basic vessels in the abdomen and there was an increase in the volume of blood flowing throughout the body to the reproductive organs. so that oxygen can smoothly enter the blood vessels that experience vasoconstriction and there is a decrease in dysmenorrhea pain (Dharmayanti and Jumhati 2020).

In line with research conducted by Ardiani, et al (2020) *abdominal stretching exercise* is a stretching of the abdominal muscles that can increase muscle strength, endurance, and flexibility so as to reduce the intensity of dysmenorrhea pain, with the results of the study that *abdominal stretching exercise* can reduce dysmenorrhea pain. because *abdominal stretching exercise* produces endorphins 4-5 times in the blood which can cause a sense of comfort (Ardiani and Sani 2020).

Based on research conducted by Faridah (2019), students who experience dysmenorrhea usually during menstruation will experience chronic lower abdominal cramps, the muscles will contract, resulting in the cessation of blood circulation in the muscles so that the blood vessels in the muscles are pinched, contractions that occur in the muscles. This results in an increase in intramuscular calcium and inorganic phosphate ion levels which stimulate glycogen breakdown, a decrease in muscle glycogen levels resulting in the need for glucose uptake from blood to be broken down. Respondents who have received *abdominal stretching exercise* for 10 minutes have decreased dysmenorrhea pain or decreased cramping in the lower abdomen so that they become relaxed, *abdominal stretching exercise movements* performed will increase control the volume of blood flowing throughout the body so as to smooth the supply of oxygen to blood vessels that experience vasoconstriction so that the pain of dysmenorrhea decreases (Faridah, Handini, and Dita 2019)

Table 4.4.5 The effect before and after *abdominal stretching exercise* on reducing dysmenorrhea pain in the control group of class XI students of SMA N 1 BORBOR Toba Regency in 2022

| Dysmenorrhea Pain | N  | p -value |
|-------------------|----|----------|
| Pretest Kontrol   | 15 |          |
| Kontrol Posttest  | 15 |          |
|                   |    | 0.100    |

Wilcoxon test

Based on table 4.4.5 The effect before and after *abdominal stretching exercise* on reducing dysmenorrhea pain in the control group of class XI students of SMA N 1 BORBOR Toba Regency in 2022 from the statistical test results obtained pre-post pain in the experimental group with a value ( $p\text{-value} = 0,1000$ ), it can be concluded that there is no effect before and after *abdominal stretching exercise* in the control group at SMA N 1 BORBOR, Toba Regency in 2022.

### CONCLUSION

From the results of research conducted with a sample of 30 students of SMA N 1 BORBOR, Toba Regency, it can be concluded that:

1. Students who experience dysmenorrhea pain after being given *abdominal stretching exercise* in the Experiment group experienced a decrease in dysmenorrhea pain with a value ( $p\text{-value} = 0.00$ ) which means  $H_0$  is rejected and it can be concluded that there is an effect of *abdominal stretching exercise* on the Experiment group at SMA N 1 BORBOR, Toba District in 2022.
2. Students who experienced dysmenorrhea pain in the control group who were not given *abdominal stretching exercise treatment* with a value ( $p\text{-value} = 0.1000$ ) which means  $H_0$  is accepted, so it can be concluded that there is no effect of *abdominal stretching exercise* on the

control group at SMA N 1 BORBOR, Toba District in 2022

3. There is an effect of *abdominal stretching exercise* on reducing dysmenorrhea pain in class XI students of SMA N 1 BORBOR Toba Regency in 2022

## SUGGESTION

### 1 For Researchers

The results of this study are expected to add knowledge to every woman who experiences dysmenorrhea pain, so that it can improve the quality of reproductive health in women.

2. Share the research site

Since this research is still the first time it has been conducted at the State High School 1 Borbor Hopefully through the research that has been done on students, hopefully it can be useful and can help fellow women in overcoming the pain of dysmenorrhea

3. For midwifery education

Can be used as a reference for community service for complementary therapies in dealing with dysmenorrhea pain about the effect of *abdominal stretching exercise* on reducing dysmenorrhea pain

4. For the next researcher

## REFERENCES

- Amalia, Amrina Rosyada, Yulia Susanti, and Dwi Haryanti. 2020. "Efektivitas Kompres Air Hangat Dan Air Dingin Terhadap." *Jurnal Kebidanan Malakbi* 1(1): 7–15.
- Andalas, Mohd, Cut Rika Maharani, and Rayhan Shafithri. 2019. "Nyeri Perut Berulang Saat Haid, Berisiko Mandul?" *Jurnal Kedokteran Syiah Kuala* 19(2): 115–21.
- Anggraeni, Titik et al. 2021. "3) 1,2,3)." *10(1)*: 19–26.
- Ardiani, Nurul Devi, and Fakhruddin Nasrul Sani. 2020. "Pemberian Abdominal Stretching Exercise Terhadap Nyeri Disminore Pada Remaja." *XIII(I)*: 29–33.
- Astuti, Endah Puji. 2018. "Hubungan Indeks Masa Tubuh (Imt) Dengan Dismenorea Pada Remaja." *Jurnal Kebidanan* 9(02): 121.
- Ayu Asmarani. 2020. "Pengaruh Pemberian Kompres Air Hangat Terhadap Penurunan Intesitas Dismenore Primer Pada Mahasiswi AKBID Pondok Pesantren Assanadiyah Palembang." *Kampurui Jurnal Kesehatan Masyarakat* 02(02): 13–19.  
<https://www.ejournal.lppmunidayan.ac.id/index.php/kesmas/article/view/225>.
- Dewi, Bela Purnama. 2019. "Pengaruh Terapi Kompres Hangat Terhadap Nyeri Haid (Dismenorea)." *JURNAL IPTEKS TERAPAN Research of Applied Science and Education* 10(2): 141–47.  
<http://prosiding.stikesmitraadiguna.ac.id/index.php/PSNMA/article/view/4>.
- Dewi, Nadya Puspita, Tetti Solehati, and Nur Oktavia Hidayati. 2018. "Kualitas Hidup Remaja Yang Mengalami Disminore Di Smk Negeri 2

- Sumedang.” *Jurnal Ilmiah Manuntung* 4(2): 129.
- Dharmayanti, Ni Deni, and Siti Jumhati. 2020. “Pengaruh Abdominal Stretching Exercise Terhadap Penurunan Nyeri Haid ( Dismenorea ) Primer Pada Mahasiswi DIII Analis Kesehatan.” 12(September): 213–20.
- Faridah, Faridah, Haspita Rizki Syurya Handini, and Revina Dita. 2019. “Pengaruh Abdominal Stretching Exercise Terhadap Penurunan Intensitas Nyeri Haid Pada Remaja Putri.” *Jik- Jurnal Ilmu Kesehatan* 3(2): 68.
- Irtawati, Gusti Ayu, Martha Debora Korompis, and Juwita Rahayu Betrang. 2018. “Analisis Faktor Penyebab Dismenorea Pada Siswi Di Asrama Puteri Madrasah Aliyah Negeri Model 1 Manado.” *JIDAN (Jurnal Ilmiah Bidan)* 5(2): 63–67.
- Isnainy, Usastiawaty Cik Ayu Saadiyah, Yopita Sari, and Umi Romayati Keswara. 2021. “Kompres Hangat Untuk Menurunkan Disminore Di Desa Padang Tambak Kecamatan Way Tenong Kabupaten Lampung Barat.” *Jurnal Kreativitas Pengabdian Kepada Masyarakat (Pkm)* 4(3): 509–14.
- Mahua, Hawa, Sri Mudayatiningsih, and Pertiwi Perwiraningtyas. 2018. “Pengaruh Pemberian Kompres Air Hangat Terhadap Dismenore Pada Remaja Putri Di SMK Penerbangan Angkasa Singosari Malang Hawa.” *Nursing News* 3(1): 259–68. <https://publikasi.unitri.ac.id/index.php/fikes/article/view/787>.
- Mau, Raemon Alexandro, Hendrik Kurniawan, and Anna Maria Dewajanti. 2020. “Artikel Penelitian The Relationship between Menstrual Cycle Interval and Menstrual Duration.” 26(3): 139–45.
- Nikmah, Anis Nikmatul. 2018. “Pengaruh Abdominal Sretching Terhadap Perubahan Nyeri Dismenorea Primer Pada Remaja Putri.” *Jurnal Kebidanan* 4(3): 119–23.
- Pangesti, Retno Hayu, Gangsar Indah Lestari, and Riyanto Riyanto. 2017. “Pengurangan Nyeri Dismenore Primer Pada Remaja Putri Dengan Kompres Hangat.” *Jurnal Kesehatan Metro Sai Wawai* 10(2): 97.
- Relaksasi, Efektivitas et al. 2021. “Warm Compress on Primary Dysmenorrhea :” 12: 103–13.
- Salsabila, Siti Aulia, Sjarif Ismail, and Swandari Paramita. 2021. “Kajian Terapi Komplementer Dengan Pijat Tangan Secara Mandiri Terhadap Intensitas Skala Nyeri Dismenorea Pada Mahasiswi Program Studi Kedokteran Universitas Mulawarman.” *Jurnal Verdure* 3(2): 107–12.
- Sari, Natya Erlita, and Chanif. 2020. “Penerapan Terapi Kompres Hangat Terhadap Penurunan Nyeri Dismenore Pada Remaja Di Desa Jambu Timur Mlonggo Jepara.” *Prosiding Seminar Nasional Unimus* 3: 1–8.
- Savitri, N P W, D M Citrawathi, and N P S R Dewi. 2019. “HUBUNGAN STATUS GIZI DAN USIA MENARCHE DENGAN KEJADIAN DISMENORE SISWI SMP NEGERI 2 SAWAN.” 6(2): 93–102.



- Seingo, Fransiska, Ni Luh Putu Eka Sudiwati, and Novita Dewi. 2018. "Pengaruh Kompres Dingin Terhadap Penurunan Intensitas Nyeri Pada Wanita Yang Mengalami Dismenore Di Rayon Ikabe Tlogomas." *Nursing News* 3(1): 153–63.
- Silviani, Yulita Elvira, Tita Rosnita, and Buyung Keraman. 2020. "PENGARUH ABDOMINAL STRETCHING EXERCISE TERHADAP PENURUNAN DYSMENORRHEA THE EFFECT OF ABDOMINAL STRETCHING EXERCISE ON DYSMENORRHEA REDUCTION LATAR BELAKANG Angka Kejadian Nyeri Menstruasi ( Dysmenorrhea ) Di Dunia Sangat Besar , Rata- Rata Lebih Dari 50 %." 7(1): 58–62.
- Sujarweni, wiratna, ed. 2020. *Metode Penelitian*. Yogyakarta: PT. PUSTAKA BARU.
- sukarni, icesmi. 2015. *Kehamilan, Persalinan Dan Nifas*. jl. sadewa no 1 sorowajan baru, Yogyakarta: Nugu Medika.
- Syaiful, Yuanita, and Siti Varyal Naftalin. 2018. "Abdominal Stretching Exercise Menurunkan Intensitas Iismenorea Pada Remaja Putri." *Jurnal Ilmu kesehatan* 7(1): 269–76. <http://ejurnaladhkdr.com/index.php/jik/article/view/195>.
- Windastiwi, Weny, Wahyu Pujiastuti, and ) Mundarti. 2017. "PENGARUH ABDOMINAL STRETCHING EXERCISE TERHADAP INTENSITAS NYERI DISMENOREA Abdominal Stretching Exercise 1) Student of Diploma Programme Midwifery Magelang 2) Lecture of Diploma Programme Midwifery Magelang." *Jurnal Kebidanan* 6(12): 17–26.
- YS, Rifki, Ermawati Ermawati, and Irvan Medison. 2016. "Hubungan Paparan Asap Rokok Lingkungan Dengan Kejadian Dismenorea Primer." *Jurnal Kesehatan Andalas* 5(3): 590–94