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Original Research The Effect of Yoga or Nonpharmacotherapy on Dysmenorrhore in Medical Students of Andalas University, Indonesia

Rifqah Wardah Astarini[1], Muhammad Zulfadli Syahrul[2], Mustafa Nour[3], Beni Indra[4], Aladin[5], Miftah Irramah[6]

[1,2,3,4,5,6] Andalas University, Indonesia

Email: rwardahastarini@gmail.com

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ABSTRACT

Background: Dysmenorrhea is a menstrual pain that is often experienced by young women, with a global prevalence of 16.8-81%. In Indonesia, the prevalence reaches 54.89%, with adolescent girls being the largest group. Treatment generally uses analgesics, but it has side effects. Yoga as a non-pharmacological therapy can reduce pain through muscle relaxation.

Purpose: Analyzing the effect of yoga therapy on the intensity of the degree of dysmenorrhea in female students of the Class of 2018 Undergraduate Medical Education Study Program, Faculty of Medicine, Andalas University.

Methods: This research uses a pure experimental design with a pre-test, post-test, and only group design, with a sample size of 32 people. The research instrument used in the study was a pre-test and post-test questionnaire, which contained VAS scores and guidelines regarding yoga movements. The questionnaire contains a Visual Analog Scale (VAS), which consists of a vertical scale from 0 to 10 cm.

Results: The results showed there were no differences related to age. As many as 18% of respondents usually took analgesics, while 81.3% did not take analgesics to treat dysmenorrhea before yoga therapy. Meanwhile, after yoga therapy, 5 out of 6 respondents who usually consumed analgesics in previous menstrual cycles no longer consumed analgesics, and one respondent still consumed analgesics. Bivariate analysis showed a value of $p=0.00$ ($p<0.05$), which means there is a relationship between the provision of yoga therapy and the degree of dysmenorrhea. Where providing yoga therapy can reduce the intensity of pain in respondents who experience dysmenorrhea.

Conclusion: This research concludes that there is a significant relationship between the provision of yoga therapy and the degree of dysmenorrhea.

INTRODUCTION

Dysmenorrhea is a pain in the lower abdomen that is felt during menstruation. Dysmenorrhea is divided into primary dysmenorrhea and secondary dysmenorrhea. Primary dysmenorrhea occurs if no pathological conditions are found in the pelvis (Ferries-Rowe et al., 2020), while secondary dysmenorrhea occurs if pathological conditions such as endometriosis, adenomyosis, uterine myoma, cervical stenosis, pelvic inflammatory disease, pelvic adhesions, or irritable bowel syndrome are found. (French, 2008). Dysmenorrhea complaints are common in women. Most women who experience menstrual

pain rarely consult a doctor. They treat the pain with free medicines without a doctor's prescription. Based on research results, it was also found that as many as 30-70% of female teenagers treat menstrual pain with over-the-counter anti-pain medication. (Chen et al., 2019). Besides that, some medications have side effects. (Nurwana et al., 2017).

According to the World Health Organization (WHO) in 2017, the incidence of dysmenorrhea throughout the world is relatively high. On average, dysmenorrhea occurs in young women as much as 16.8-81%. The incidence of dysmenorrhea is most often found in adolescents, with a prevalence ranging from 20-90%. 15% of these teenagers experience severe dysmenorrhea (Silviani, Karaman, & Septiana, 2019). The incidence of dysmenorrhea in Indonesia is estimated to be 54.89%, while the rest is secondary dysmenorrhea. The incidence of dysmenorrhea in Indonesia occurs in adolescents, with a prevalence of 43% to 93% (Nurwana et al., 2017; Silviani et al., 2019; Titia, 2018). In West Sumatra, there are no definite figures for the prevalence of dysmenorrhea. Based on research conducted at SMAN 1 Padang City in 2017, it was found that 74% of female students in classes X-XI experienced primary dysmenorrhea. %) and severe dysmenorrhea as many as 17 people (53%) (Angraini, Asterina, & Friadi, 2021).

One of the non-pharmacological therapies that can be used to treat dysmenorrhea is yoga. (Ortiz, Cortés-Márquez, Romero-Quezada, Murguía-Cánovas, & Jaramillo-Díaz, 2015). Directed and continuous training is believed to reduce the intensity of menstrual pain and make the body healthier. Yoga practice not only has a good effect on the physical but is also very good for the psychological. This yoga practice can reduce the intensity of menstrual pain by relaxing the endometrial muscles, which experience spasms and ischemia due to increased prostaglandins, resulting in vasodilation of blood vessels. (Rani et al., 2013). Based on a study conducted in 2012, it was found that before practicing yoga, 50% (10 of 20 respondents) experienced primary dysmenorrhoea with moderate pain intensity, and 10% (2 respondents) had severe pain intensity. After practicing yoga, most respondents' pain intensity was reduced to mild, and no one experienced severe pain anymore. This shows that there is a significant difference in the intensity of pain before yoga practice and after yoga practice. (Imaroh, 2018).

Based on a preliminary survey conducted by researchers on 60 undergraduate medical education students from the class of 2018, 2019, and 2020 with an age range of 18 to 22 years, it was found that 16 of the 20 students of the class of 2018 experienced dysmenorrhea, 12 of the 20 students of the class of 2019 experienced dysmenorrhea, and 9 of the 20 students of the class of 2019 experienced dysmenorrhea. 2020 experienced dysmenorrhea. Based on this, the author is interested in researching the effect of yoga therapy on the degree of dysmenorrhea in female students class of 2018 in the Undergraduate Medical Education Study Program, Faculty of Medicine, Andalas University.

RESEARCH METHODS

This research uses a pure experimental design with a pre-test and post-test design. The study population was 135 students from the 2018 class of the undergraduate Medical

Education Study Program, Faculty of Medicine, Andalas University, Padang, who experienced dysmenorrhea. Research inclusion criteria are female students from the 2018 undergraduate medical education study program, Faculty of Medicine, Andalas University, Padang, who were willing to be respondents, experienced dysmenorrhea-, and had a pain score > 3 using the VAS score. The individual who does regular exercise or yoga is excluded.

The technique used in this sampling is simple random sampling. The number of samples was calculated using the Slovin formula, resulting in a sample size of 20. Next, the sample number was added by 10% to reduce the possibility of dropping out. Researchers chose to increase the sample by ten respondents to avoid too small numbers when dividing the pain scale outcome groups, so the total sample is 32 respondents. The research instruments used for the research are the pre-test and post-test questionnaires containing VAS scores and guidelines regarding movement yoga. The questionnaire contains a Visual Analog Scale (VAS), which consists of a 0 to 10 cm vertical scale.

Researchers compared pain scores before the yoga therapy intervention and after yoga therapy. Yoga intervention will done twice. The first intervention will be carried out by providing material by a certified yoga instructor via Zoom. Furthermore, the second intervention will be carried out by providing yoga therapy when the respondent experiences dysmenorrhea and is supervised directly by researchers. The first intervention consists of breathing and concentration exercises at the beginning of the session for 15 minutes, then continued with providing material regarding movement. Yoga to overcome dysmenorrhea, which consists of 3 movements. Each movement will be done for 5 minutes and repeated two times, so the total time for administration material by a yoga instructor is carried out for 45 minutes. When the respondent experiences dysmenorrhea, the respondent will fill in a Google form that contains the VAS score before doing yoga therapy. Researchers will carry out direct supervision to see the yoga movements that respondents will carry out using the material provided by the yoga instructor. After completing yoga therapy, respondents will be asked to fill in the Google form containing the VAS score again.

In this study, univariate analysis and bivariate analysis were carried out. Univariate analysis was carried out descriptively to see the frequency distribution of the research variables, which consisted of the variable age and history of using analgesics for dysmenorrhea. Meanwhile, bivariate analysis determines the relationship between the independent and dependent variables. The statistical test used in this research is Pearson chi-square. The relationship between the independent variable and the dependent variable is said to be significant if a p-value of <0.05 is obtained.

The researcher has obtained a Certificate of Passing Ethical Review from the Research Ethics Committee of the Faculty of Medicine, Andalas University, with number 577/UN.16.2/KEP-FK/2022 as research eligibility.

RESULTS AND DISCUSSION

Based on the results of research by distributing questionnaires that were carried out given to 32 respondents via Google form, there were 17 respondents aged 21 years (53%) and 15 respondents aged 22 years (46.9%)

Table 1. Age Description of Respondents

Age	f	%
21	17	53,1
22	15	46,9%
Total	32	100%

Characteristics of respondents were obtained based on their history of using analgesics in previous menstrual cycles; six respondents usually consumed analgesics to treat dysmenorrhea in previous menstrual cycles with a percentage of 18.8%, and 26 respondents did not take analgesics to treat dysmenorrhea in previous menstrual cycles, with a percentage of 81.3%. Meanwhile, after yoga therapy, 5 out of 6 respondents who usually consumed analgesics in previous menstrual cycles no longer consumed analgesics, and one respondent still consumed analgesics.

Table 2. Overview of the History of Analgesic Use in Previous Menstrual Cycles

	f	%
Group I	26	81,3%
Group II	6	18,8%
Total	32	100%

Information: (I) Respondents who did not consume analgesics in previous menstrual cycles; (II) Respondents who consumed analgesics in previous menstrual cycles.

Table 3. Description of the History of Analgesic Use After Yoga Therapy

	f	%
Group I	31	96,9%
Group II	1	3,1%
Total	32	100%

Information: (I) Respondents who did not consume analgesics after yoga therapy; (II) Respondents who were still taking analgesics after yoga therapy

Table 4. Overview of VAS Score Before Yoga Therapy

	f	%
Mild	0	
Moderate	14	43,8%
Severe	18	56,3%
Total	32	100%

Table 5. Overview of VAS Score After Yoga Therapy

	f	%
Mild	17	53,1%
Moderate	15	46,9%
Severe	0	
Total	32	100%

Before yoga therapy, 0 respondents experienced mild dysmenorrhea, 14 had moderate dysmenorrhea, and 18 had severe dysmenorrhea. Meanwhile, after yoga therapy, 19 experienced mild dysmenorrhea, 13 had moderate dysmenorrhea, and 0 had severe dysmenorrhea.

Table 4. Overview of VAS Score Before Yoga Therapy

	f	%
Mild	0	
Moderate	14	43,8%
Severe	18	56,3%
Total	32	100%

In this study, the intensity of dysmenorrhea pain experienced by respondents varied. This can be caused by many risk factors, such as stress, the large number of activities carried out by the respondent, or an unhealthy lifestyle. (Banjarnahor, 2017)Based on the results of research conducted by researchers, it was found that 6 out of 32 respondents usually consumed analgesics to treat dysmenorrhea in previous menstrual cycles. After yoga therapy was carried out when the respondents experienced dysmenorrhea, it was found that five respondents no longer consumed analgesics, and only one respondent still consumed analgesics. This is related to the perception of pain in each person being different. Some of the analgesics consumed by respondents were paracetamol, ibuprofen and mefenamic acid.

Table 6. Statistic test results for the degree of dysmenorrhea with yoga therapy

		VAS SCOre		total	P-value
		Mild-moderate	Severe		
Yoga status	Group I	14	18	32	0.00

Based on the results of research using the Pearson chi-square statistical test to see the relationship between giving yoga therapy and the degree of dysmenorrhea in female students from the 2018 class of the Undergraduate Medical Education Study Program, Faculty of Medicine, Andalas University, Padang, it was found that p=0.00 (p<0.05). This means that providing yoga therapy can reduce the intensity of dysmenorrhea pain in

respondents. The results of this research are in line with research conducted by Rakhshaee in 2011, which gave three yoga movements to respondents to overcome dysmenorrhea, where it was found that p=0.00 (p<0.05), which means that the intensity of dysmenorrhea can be reduced by providing yoga therapy. (Rakhshaee, 2011).

Apart from that, in research conducted in 2016 regarding yoga management for female students who experienced dysmenorrhea in Korea, it was found that p=0.01 (p<0.05), where the intensity of dysmenorrhea was reduced and could improve the quality of life of the respondents. (Imaroh, 2018). Yoga has short-term and long-term effects for treating dysmenorrhea. This research focuses on short-term effects, where the effect of yoga therapy that respondents will feel only reduces the intensity of dysmenorrhea during the menstrual cycle at that time. Meanwhile, if women regularly do yoga, it can have long-term effects in the form of dysmenorrhea intensity, which will decrease from the beginning of the menstrual cycle when the woman experiences dysmenorrhea. (Hu, Tang, Chen, Kaminga, & Xu, 2020).

According to Kuswardani et al. (2021), yoga can create an atmosphere of relaxation that can release muscle tension; when the body begins to relax, it will positively influence the entire circulation system and heart to rest. Yoga is a relaxation technique that can reduce pain intensity by relaxing the spasmed skeletal muscles and increasing blood flow to the spasmed area. Yoga can increase brain endorphin production, reducing stress and pain indirectly. Endorphin is a neuropeptide produced by the body when relaxed. Endorphins are produced in the brain and spinal cord. This hormone can function as a natural tranquilizer produced by the brain, creating a sense of comfort and increasing endorphin levels to reduce pain during contractions. Yoga has been shown to increase b-endorphin levels four to five times in the blood, so the more you do yoga, the higher your b-endorphin levels will be. When someone does yoga, b-endorphins are captured by receptors in the hypothalamus and limbic system that regulate emotions. Increased b-endorphin is associated with decreased pain, improved memory, improved appetite, sexual ability, blood pressure, and breathing. (Kuswardani, 2021; Wardani & Suryanti, 2020; Yonglitthipagon et al., 2017).

As in previous research conducted by Nam Young et al. in 2016, yoga therapy carried out regularly for 12 weeks could significantly and clinically reduce the intensity of pain in dysmenorrhea. The intensity of pain mainly decreased significantly from the first to the second month of respondents undergoing yoga therapy to treat dysmenorrhea.[15] Yoga therapy is one of the relaxation techniques recommended for reducing the degree of dysmenorrhea pain. Yoga therapy can cure pain, menstruation, and overall body health. Yoga can also relax and reduce cramps or contractions in the abdomen. This relaxation will increase the response of the parasympathetic nerves, causing vasodilation of blood vessels and the uterus, resulting in blood flow. (McGovern & Cheung, 2018). The uterus will increase, and uterine contractions will decrease. Yoga is considered a complementary therapy with low costs and small risks, so it is feasible to consider in the treatment of dysmenorrhea. (Luu & Hall, 2016) (Feng & Wang, 2018) (Nie et al., 2020) (Rakhshaee, 2011) (Govindaraj, Karmani, Varambally, & Gangadhar, 2016) .[18-24]

The limitation of this study was that the focus was only on providing yoga therapy for the short term. The results of this research will be more optimal if researchers can research providing yoga therapy routinely to treat dysmenorrhea so that it can have long-term effects. Apart from that, researchers did not directly see the exact etiology of various risk factors resulting in dysmenorrhea. (Yang & Kim, 2016).

CONCLUSION

Most of the students from the 2018 class of the Undergraduate Medical Education Study Program at The Faculty of Medicine, Andalas University, experienced a degree of dysmenorrhea moderate to severe before yoga therapy. Most of the students are experiencing a decline. The intensity of the pain becomes mild to moderate after yoga therapy. There is a significant relationship between providing yoga therapy and the degree of dysmenorrhea.

REFERENCES

Angraini, Desti, Asterina, Asterina, & Friadi, Andri. (2021). Hubungan Pemberian Coklat Hitam Dengan Derajat Dismenore Pada Mahasiswi Kedokteran Universitas Andalas. *Jurnal Ilmu Kesehatan Indonesia*, *2*(1), 70–75.

Banjarnahor, Riri Oktavani. (2017). *Hubungan Stres dengan Kejadian Dismenorea pada Mahasiswi Universitas Sumatera Utara Angkatan 2016*. Universitas Sumatera Utara.

Chen, Ling, Tang, Lu, Guo, Shengyu, Kaminga, Atipatsa Chiwanda, & Xu, Huilan. (2019). Primary dysmenorrhea and self-care strategies among Chinese college girls: a cross-sectional study. *BMJ Open*, *9*(9), e026813.

Feng, Xuan, & Wang, Xiaoyun. (2018). Comparison of the efficacy and safety of non-steroidal anti-inflammatory drugs for patients with primary dysmenorrhea: A network meta-analysis. *Molecular Pain*, *14*, 1744806918770320.

Ferries-Rowe, E., Corey, E., & Archer, Johanna S. (2020). Primary dysmenorrhea: diagnosis and therapy. *Obstetrics & Gynecology*, *136*(5), 1047–1058.

French, L. (2008). Dysmenorrhea in adolescents: diagnosis and treatment. *Pediatric Drugs*, pp. *10*, 1–7.

Govindaraj, Ramajayam, Karmani, Sneha, Varambally, Shivarama, & Gangadhar, B. N. (2016). Yoga and physical exercise–a review and comparison. *International Review of Psychiatry*, *28*(3), 242–253.

Hu, Zhao, Tang, Lu, Chen, Ling, Kaminga, Atipatsa Chiwanda, & Xu, Huilan. (2020). Prevalence and risk factors associated with primary dysmenorrhea among Chinese female university students: a cross-sectional study. *Journal of Pediatric and Adolescent Gynecology*, *33*(1), 15–22.

Imaroh, E. Dewi. (2018). Pengaruh Terapi Yoga Terhadap Nyeri Haid (Dismenore) Pada Wanita Usia Produktif (20 S/D 45 Tahun) Di Rumah Sakitwava Husada Kepanjenkabupaten Malang. *Kendedes Midwifery Journal*, *1*(1), 11–19.

Kuswardani, Fitratun. (2021). N., & Boki, J.(2021). Pengaruh Senam Yoga Terhadap Penurunan Nyeri Haid (Dysmenorrhea) pada Mahasiswi Program Studi D III Fisioterapi Widya Husada Semarang. *Jurnal Fisioterapi Dan Rehabilitasi*, *5*(2), 174–

178.

Luu, K., & Hall, Peter A. (2016). Hatha yoga and executive function: a systematic review. *The Journal of Alternative and Complementary Medicine*, *22*(2), 125–133.

McGovern, Christina E., & Cheung, Corjena. (2018). Yoga and quality of life in women with primary dysmenorrhea: a systematic review. *Journal of Midwifery & Women's Health*, *63*(4), 470–482.

Nie, W., Xu, Ping, Hao, Chunyan, Chen, Yingying, Yin, Yanling, & Wang, Lisheng. (2020). Efficacy and safety of over-the-counter analgesics for primary dysmenorrhea: a network meta-analysis. *Medicine*, *99*(19), e19881.

Nurwana, Nurwana, Sabilu, Yusuf, & Fachlevy, Andi Faizal. (2017). *Analisis faktor yang berhubungan dengan kejadian disminorea pada remaja putri di SMA Negeri 8 Kendari Tahun 2016*. Haluoleo University.

Ortiz, Mario I., Cortés-Márquez, Sandra Kristal, Romero-Quezada, Luis C., Murguía-Cánovas, Gabriela, & Jaramillo-Díaz, Alfonso P. (2015). Effect of a physiotherapy program in women with primary dysmenorrhea. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *194*, 24–29.

Rakhshaee, Z. (2011). Effect of three yoga poses (cobra, cat, and fish poses) in women with primary dysmenorrhea: a randomized clinical trial. *Journal of Pediatric and Adolescent Gynecology*, *24*(4), 192–196.

Rani, M., Singh, U., Agrawal, G. G., Natu, S. M., Kala, S., Ghildiyal, A., & Srivastava, Neena. (2013). Impact of Yoga Nidra on menstrual abnormalities in females of reproductive age. *The Journal of Alternative and Complementary Medicine*, *19*(12), 925–929.

Silviani, Yulita Elvira, Karaman, Buyung, & Septiana, Puput. (2019). Pengaruh teknik relaksasi nafas terhadap dismenorea. *Hasanuddin Journal of Midwifery*, *1*(1), 30–37.

Titia, Febri M. (2018). *Hubungan Karakteristik Remaja Putri Dengan Kejadian Dismenorea Primer Pada Siswi Kelas X Dan Xi Di Sman 1 Kota Padang Tahun 2017*. Universitas Andalas.

Wardani, I. Gusti Ayu Ngurah, & Suryanti, Putu Emy. (2020). Yoga Sebagai Upaya Meringankan Nyeri Haid Pada Remaja Perempuan. *Jurnal Yoga Dan Kesehatan*, *3*(2), 195–202.

Yang, Nam Young, & Kim, Sang Dol. (2016). Effects of a yoga program on menstrual cramps and menstrual distress in undergraduate students with primary dysmenorrhea: a single-masked, randomized controlled trial. *The Journal of Alternative and Complementary Medicine*, *22*(9), 732–738.

Yonglitthipagon, Ponlapat, Muansiangsai, Somruthai, Wongkhumngern, Wilanee, Donpunha, Wanida, Chanavirut, Raoyrin, Siritaratiwat, Wantana, Mato, Lukana, Eungpinichpong, Wichai, & Janyacharoen, Taweesak. (2017). Effect of yoga on the menstrual pain, physical fitness, and quality of life of young women with primary dysmenorrhea. *Journal of Bodywork and Movement Therapies*, *21*(4), 840–846.