Jurnal Info Kesehatan
Vol. 21, No. 2, June 2023, pp. 274-281
P-ISSN 0216-504X, E-ISSN 2620-536X
DOI: *10.31965/infokes.Vol21Iss2.1043*
Journal homepage:*http://jurnal.poltekeskupang.ac.id/index.php/infokes*

RESEARCH Open Access

Does Effleurage Massage Reduce Dysmenorrhoea Pain in Adolescents?

Sumiaty[1a]*, Nurfatimah[1b], Yuni Sartika[1c], Kadar Ramadhan[1d]

[1] Department of Midwifery, Poltekkes Kemenkes Palu, Palu, Center Sulawesi, Indonesia

[a] Email address: sumiatyakbid@gmail.com
[b] Email address: nfatimahhh@gmail.com
[c] Email address: yunisartika16062000@gmail.com
[d] Email address: kadarlaure@gmail.com

Received: 17 January 2023 Revised: 28 June 2023 Accepted: 29 June 2023

Abstract

Dysmenorrhea, commonly known as menstrual pain or cramps, affects some women and hampers their ability to carry out daily activities. In Indonesia, the incidence of dysmenorrhea among women is reported to be 64.25%, with a significant proportion lacking knowledge regarding its management. Non-pharmacological methods, such as effleurage massage, have been suggested as a viable approach to alleviate dysmenorrhea pain. This study aimed to investigate the impact of effleurage massage on the pain scale associated with dysmenorrhea in adolescents. A quasi-experimental approach utilizing a pre- and post-test for a two-group design was employed. The study population consisted of young women experiencing dysmenorrhea, with a total sample size of 44 respondents divided into intervention and control groups. The research findings revealed a decrease in the mean pain score in the intervention group from 5.1±2.4 to 2.5±1.8 with a p-value of <0.001. Thus, it can be concluded that effleurage massage effectively reduces the intensity of dysmenorrhea pain in adolescents. As a recommendation, adolescents are advised to consider non-pharmacological therapies like effleurage massage as an alternative to pharmacological drugs, and to learn the technique to perform effleurage massage independently at home.

Keywords: Effleurage Massage, Dysmenorrhea Pain, Adolescents.

Corresponding Author:

Sumiaty
Department of Midwifery, Poltekkes Kemenkes Palu, Palu, Center Sulawesi, Indonesia
Email: sumiatyakbid@gmail.com

1. INTRODUCTION

Dysmenorrhea is a problem that arises during or before menstruation which occurs due to the increase of prostaglandin hormone, which increases uterine contractions as well (Andanawarih, Jannah, & Artanti, 2020), causing discomfort in carrying out daily activities for 1-3 days of menstruation period (Rahayu, Pertiwi, & Patimah, 2017; Sukmawati, Kurniawati, & Wahyuni, 2021). In the United States, dysmenorrhea is recognized as the most common cause of school absence in 29-44% of adolescent girls (Rusyanti & Ismiyati, 2019; Sari, et al., 2022). In cases of severe dysmenorrhea, there may be signs of depression, suicidal thoughts, increased anxiety, and feeling unwell (Azima, et al., 2015). The incidence of dysmenorrhea in the world is reported to be 25% -97% (Rusyanti & Ismiyati, 2019). In other words, almost 50% of women worldwide experience dysmenorrhea. In Indonesia, the incidence of women experiencing dysmenorrhea is 64.25% (Argaheni, 2021), 72.89% of primary dysmenorrhea and 21.11% of secondary dysmenorrhea (Syafriani, Aprilla, & Z.R, 2021).

The effect on adolescents who experience dysmenorrhea during menstruation is that they have more days off, and their performance at school decreases compared to adolescents who are not affected by dysmenorrhea. To avoid severe symptoms, dysmenorrhea in adolescents must be treated, even with self-medication or non-pharmacology. The impact that occurs if dysmenorrhea is left untreated, the underlying pathology (abnormality or disorder) can trigger an increase in mortality, including infertility. Apart from the impacts above, emotional conflict, tension and anxiety can all play a role and cause feelings of discomfort and strangeness. Menstrual pain felt by young women in the teaching and learning process causes them to have difficulty concentrating because of the discomfort they feel when they experience menstrual pain. Therefore, dysmenorrhea must be handled at a young age so that there are no impacts like the things above (Acheampong et al., 2019; Nurwana, Sabilu, & Fachlevy, 2017; Udayar, Jeergiyal, & K, 2022).

As many as 84.21% of adolescents with dysmenorrhea were treated with non-pharmacological methods, and only 15.79% were treated with medical personnel and used analgesia. Studies have assessed the management of primary dysmenorrhea and identified potential benefits and drawbacks for each therapy. Pharmacological treatments, such as nonsteroidal anti-inflammatory drugs (NSAIDs) and hormonal contraceptives, have proven effective in reducing menstrual pain and cramps, offering quick symptom relief (Chen, et al., 2019; Itani et al., 2022). However, medication use may entail side effects like gastrointestinal problems, headaches, and mood changes, while long-term effects on adolescents remain uncertain (Marjoribanks, et al., 2015). On the other hand, non-pharmacological treatments like heat therapy, exercise, and acupuncture have shown effectiveness in alleviating menstrual pain and cramps. They may be preferable for some adolescents concerned about medication side effects. Nevertheless, non-pharmacological treatments may take longer to provide relief, and concerns exist regarding their availability and accessibility (Aboualsoltani, et al., 2020; Armour, et al., 2019; Unnisa, et al., 2022). Complementary therapy (non-pharmacological methods) that are most often used by adolescents with dysmenorrhea (Dewi, Frafitasari, & Sari, 2023) include; Antalgic postures, warm compresses, using primrose oil, local massage, relaxation techniques, meditation, music therapy, acupressure, aromatherapy, and acupuncture (Fernández-Martínez, Onieva-Zafra, & Parra-Fernández, 2019). One way that can be used to reduce dysmenorrhea pain is effleurage massage.

Effleurage massage is the act of pressing with the hands on the soft tissues of the body without causing a shift or change in joint position. The movement in doing effleurage massage includes placing both palms on the stomach and simultaneously moving into the centre of the

circular direction to the symphysis or can also use one palm in a circular or one-way motion. With effleurage massage, hypoxia in the tissue will be reduced so that the level of oxygen entering the tissue increases, which causes reduced pain. In addition, effleurage massage can increase the release of endorphins so that the pain threshold increases (Argaheni, 2021; Jamhariyah, Karnasih, & Diaz Casitadewi, 2021).

The Pantoloan Health Center is one of three Community Health Centers in Palu City that has formed a youth Posyandu but is still lacking in activities related to disseminating information on adolescent reproductive health, especially related to menstrual disorders and how to deal with them (Sumiaty, et al., 2021). A preliminary study conducted on 30 adolescents at the Adolescent Integrated Health Center, Pantoloan Public Health Center found that 77% of adolescents ignored the problem of dysmenorrhea, 85% chose non-pharmacological therapies such as warm compress, ginger tea infusion, and exercise to treat dysmenorrhea, 90% did not understand how to deal with dysmenorrhea, and 82% were absent from school when experiencing dysmenorrhea (Sumiaty, Sakti, & Hasnawati, 2022). This study aimed to determine the effect of effleurage massage on the pain scale of dysmenorrhea in adolescents.

2. RESEARCH METHOD

The method used in this research is quasi-experimental research design with the pre-test posttest control group design. This research was conducted in the Pantoloan Health Center Working Area. This research was conducted from September 6 to October 6, 2022. The population in this study were adolescents who experienced dysmenorrhea in the Pantoloan Health Center Work Area. The sample used in this study was 44 respondents for the control group, as many as 22 respondents and for the Intervention group, as many as 22 respondents. The sampling technique used in this study is purposive sampling, which involves selecting samples based on predetermined criteria. Inclusion criteria were adolescent girls aged 13-18 years with regular menstrual cycles. Adolescents who did not attend the adolescent integral health care were excluded.

The data collection process was carried out by providing a Numeric Rating Scale / NRS observation sheet, which was measured before and after the effleurage massage was carried out with the criteria for a scale of 0: no pain, scale 1-3: mild pain, scale 4-6: moderate pain, scale 7-9: severe pain, and scale 10: very severe pain. The procedure for effleurage massage involves the respondent assuming a comfortable position, either sitting or lying down, pouring olive oil onto both palms, using the entire palm surface, and starting the massage from the lower back to the upper back, always massaging upwards. Then, slowly push the hands to the sides of the respondent's back. Maintain contact with the respondent's back without applying pressure as you move the hands downward. The massage is performed until the fifth to sixth rib. Effleurage massage is given twice for 15 minutes each, with a 4-hour interval between the first and second sessions. After the massage, wait for 10 minutes for the respondent to fully relax. Then do a pain assessment again on the respondent to determine whether it is effective after the effleurage massage is done.

The analysis used to describe the characteristics of respondents using the frequency distribution, bivariate analysis using the Shapiro Wilk test for the normality test, to compare pain before and after in the intervention group using a paired t-test, while in the control group using the Wilcoxon test. to compare pain between the intervention and control groups before effleurage massage was performed using the independent t-test while after effleurage massage was performed using the Mann-Whitney test. This study had been subject to a research ethics agreement from KEPK Poltekkes Kemenkes Palu with the number: 0035.1/KEPK-KPK/V/2022.

3. RESULTS AND DISCUSSION

Table 1. Frequency Distribution of Respondents' Characteristics.

Respondent characteristics	Intervention		Control	
	n (22)	%	n (22)	%
Age (years old)				
13	9	40.9	4	18.2
14	1	4.5	4	18.2
15	2	9.1	1	4.5
16	7	31.8	9	40.9
17	3	13.6	4	18.2
Education				
Junior High School	12	54.5	9	40.9
Senior High School	10	45.5	13	59.1
Pre				
No pain	0	0	0	0
Mild	8	36.4	1	4.5
Moderate	8	36.4	13	59.1
Severe	6	27.3	8	36.4
Post				
No pain	3	13.6	0	0
Mild	11	50	2	9.1
Moderate	8	36.4	16	72.7
Severe	0	0	4	18.2

As shown in Table 1, in the intervention group, the most respondents at the age of 13 were nine people (40.9%), with junior high school education of 12 people (54.5%). In the control group at 16, there were nine people (40.9%) with senior high school education, as many as 13 people (59.1%). In the intervention group, there was a decrease in the proportion of severe pain from 27.3% to 0%, whereas in the control group, it decreased from 36.4% to 18.2%.

Table 2. Analysis of the differences in dysmenorrhea in the intervention group and the control group.

Dysmenorrhea pain	Group		p-value
	Intervention	Control	
	n (22)	n (22)	
Pre			
Mean (SD)	5.1 (2.4)	6.0 (1.3)	0.150***
Median (Range)	6.0 (8)	6.0 (5)	
Post			
Mean (SD)	2.5 (1.8)	5.4 (1.2)	<0.001****
Median (Range)	2.5 (6)	6.0 (4)	
p-value	<0,001*	<0,001**	

Description test: *paired t-test **Wilcoxon test ***Independent t-test ****Mann-Whitney test

In the intervention group, the average before the effleurage massage was 5.1 and after the intervention was 2.5, while in the control group, the average pain intensity was 6.0, which decreased to 5.4. There was a difference in pain in the intervention group before and after being given effleurage massage with the result p <0.05, which means there was a significant difference in the dysmenorrhea pain scale before and after being given effleurage massage.

The majority of respondents experienced moderate to severe levels of pain before receiving the effleurage massage technique. This indicates that the level of pain response varies among respondents according to their own perceptions (Andriani & Yanti, 2020; Asmawariza & Nurwahida, 2021). This study addressed the research gap by examining the effectiveness of effleurage massage in reducing dysmenorrhea pain among adolescents. Dysmenorrhea pain, described as moderate to severe, significantly affects daily activities and learning abilities of young women (Azzahroh, Indrayani, & Lusiana, 2022; Karout et al., 2021). Pharmacological treatment, such as analgesic drugs, is commonly used, but non-pharmacological approaches are considered easier and have fewer side effects (Andanawarih et al., 2020; Jamhariyah et al., 2021; Nugraha, 2021; Sholihah & Azizah, 2020; Sibero, Sari, & Asmita, 2022; Sumiaty et al., 2022).

Effleurage massage, a non-pharmacological method, involves a light touch on the skin to stimulate nerve pathways and provide pain relief (Qonitun, 2020). The technique activates larger and faster sensory nerve fibers, reducing pain transmission through smaller fibers and closing the synaptic gate for pain impulses. Back massage, a common approach, improves blood circulation, reduces muscle tension, and induces relaxation, leading to pain reduction (Asmawariza & Nurwahida, 2021; Veronica & Oliana, 2022). Effleurage massage during menstruation effectively reduces pain by stimulating the release of endorphins, natural pain relievers, and creating a comfortable sensation (Dewi, Ariani, & Septiani, 2022; Prihatin, 2019; Suwanto & Islamiyah, 2018). It is a safe, affordable, and easily accessible technique that can be performed independently or with assistance.

The present study contributes to the existing body of knowledge by providing empirical evidence on the effectiveness of effleurage massage in reducing dysmenorrhea pain among adolescents. The findings support the integration of non-pharmacological interventions, like massage therapy, into the management of dysmenorrhea. Further research could explore the long-term effects, underlying mechanisms, and optimal implementation strategies of massage therapy for menstrual pain relief.

4. CONCLUSION

In conclusion, this study found that effleurage massage is effective in reducing dysmenorrhea pain in adolescents. It is recommended for adolescents to consider using non-pharmacological therapies like effleurage massage instead of relying solely on pharmacological drugs. However, it is important to note that the findings of this study may have limited generalizability due to its focus on a specific age range and gender. Additionally, the small sample size of the study may affect the statistical power and general applicability of the results. Further research is needed to explore additional factors and interventions that may influence the outcomes of dysmenorrhea treatment.

REFERENCES

Aboualsoltani, F., Bastani, P., Khodaie, L., & Fazljou, S. M. B. (2020). Non-Pharmacological Treatments of Primary Dysmenorrhea: A systematic Review. *Archives of Pharmacy Practice*, *11*(S1), 136–142. Retrieved from https://archivepp.com/storage/models/article/5MHRcYsNhzf0u2pmk6bNUVV4sjKA88iTeIWotlJLcjqInnPgDRnBvuRQOiWs/non-pharmacological-treatments-of-primary-dysmenorrhea-a-systematic-review.pdf

Acheampong, K., Baffour-Awuah, D., Ganu, D., Appiah, S., Pan, X., Kaminga, A., & Liu, A. (2019). Prevalence and Predictors of Dysmenorrhea, Its Effect, and Coping Mechanisms among Adolescents in Shai Osudoku District, Ghana. *Obstetrics and Gynecology International*, *2019*, 1–7. https://doi.org/10.1155/2019/5834159

Andanawarih, P., Jannah, M., & Artanti, S. (2020). Teknik Effleurage Massage terhadap Nyeri Dissmenore. *Jurnal Kebidanan Harapan Ibu Pekalongan*, *7*(2), 54–57. Retrieved from https://akbidhipekalongan.ac.id/e-journal/index.php/jurbidhip/article/download/90/101/

Andriani, M., & Yanti, S. (2020). Implementasi Mesase Effleurage Dalam Mengatasi Nyeri Menstruasi Pada Atlet Voly Stkip Taman Siswa Bima. *Jurnal Pendidikan Olahraga*, *10*(1), 35–39. Retrieved from https://www.ejournal.tsb.ac.id/index.php/jpo/article/view/394

Argaheni, N. B. (2021). Systematic Review : The Effect of Massage Effleurage on Dysmenorrhea. *Jurnal Ners Dan Kebidanan (Journal of Ners and Midwifery)*, *8*(1), 138–143. https://doi.org/10.26699/jnk.v8i1.ART.p138-143

Armour, M., Smith, C. A., Steel, K. A., & Macmillan, F. (2019). The effectiveness of self-care and lifestyle interventions in primary dysmenorrhea: a systematic review and meta-analysis. *BMC Complementary and Alternative Medicine*, *19*(1), 22. https://doi.org/10.1186/s12906-019-2433-8

Asmawariza, L. H., & Nurwahida, N. (2021). Pengaruh Kombinasi Masase Punggung dan Masase Effleurage Menggunakan Aromaterapi Melati Terhadap Intensitas Nyeri Disminorea Pada Santriwati di Pondok Pesantren Qamarul Huda Bagu. *Nursing Care and Health Technology Journal (NCHAT)*, *1*(2), 55–63. https://doi.org/10.56742/nchat.v1i2.14

Azima, S., Bakhshayesh, H. R., Kaviani, M., Abbasnia, K., & Sayadi, M. (2015). Comparison of the Effect of Massage Therapy and Isometric Exercises on Primary Dysmenorrhea: A Randomized Controlled Clinical Trial. *Journal of Pediatric and Adolescent Gynecology*, *28*(6), 486–491. https://doi.org/10.1016/j.jpag.2015.02.003

Azzahroh, P., Indrayani, T., & Lusiana, N. (2022). The Effect of Therapy Massage Effleurage on Primary Dysmenorrhea in Adolescents. *Jurnal Keperawatan Stikes Kendal*, *14*(4), 1147–1156. https://doi.org/10.32583/keperawatan.v14i4.507

Chen, L., Tang, L., Guo, S., Kaminga, A. C., & Xu, H. (2019). Primary dysmenorrhea and self-care strategies among Chinese college girls: a cross-sectional study. *BMJ Open*, *9*(9), e026813. https://doi.org/10.1136/bmjopen-2018-026813

Dewi, A. R., Frafitasari, D. Y., & Sari, P. M. (2023). Gambaran Kejadian dan Manajemen Penatalaksanaan Dismenorea Primer pada Mahasiswa Coas Fakultas Kedokteran Gigi. *Journal of Pharmaceutical and Health Research*, *4*(1). https://doi.org/10.47065/jharma.v4i1.3113

Dewi, S. W. R., Ariani, D., & Septiani, H. (2022). Efektifitas Teknik Effleurage Massage Dan Slow Deep Breathing Dengan Teknik Endorphine Massage Terhadap Dismenore. *Jurnal ILKES (Jurnal Ilmu Kesehatan)*, *13*(1), 1–13. https://doi.org/10.35966/ilkes.v13i1.224

Fernández-Martínez, E., Onieva-Zafra, M. D., & Parra-Fernández, M. L. (2019). The Impact of Dysmenorrhea on Quality of Life Among Spanish Female University Students. *International Journal of Environmental Research and Public Health*, *16*(5), 713. https://doi.org/10.3390/ijerph16050713

Itani, R., Soubra, L., Karout, S., Rahme, D., Karout, L., & Khojah, H. M. J. (2022). Primary Dysmenorrhea: Pathophysiology, Diagnosis, and Treatment Updates. *Korean Journal of Family Medicine*, *43*(2), 101–108. https://doi.org/10.4082/kjfm.21.0103

Jamhariyah, J., Karnasih, I., & Diaz Casitadewi, D. A. (2021). Effleurage Massage Memberikan Efek Terhadap Intensitas Nyeri Dismenorea Primer. *Malang Journal of Midwifery (MAJORY)*, *3*(1), 12. https://doi.org/10.31290/majory.v3i1.2343

Karout, S., Soubra, L., Rahme, D., Karout, L., Khojah, H. M. J., & Itani, R. (2021). Prevalence, risk factors, and management practices of primary dysmenorrhea among young females. *BMC Women's Health*, *21*(1), 392. https://doi.org/10.1186/s12905-021-01532-w

Marjoribanks, J., Ayeleke, R. O., Farquhar, C., & Proctor, M. (2015). Nonsteroidal anti-inflammatory drugs for dysmenorrhoea. *Cochrane Database of Systematic Reviews*. https://doi.org/10.1002/14651858.CD001751.pub3

Nugraha, Y. (2021). Pengaruh Massage Effleurage terhadap Penurunan Nyeri Haid pada Mahasiswi STIKes YPIB Majalengka Tahun 2021. *Jurnal Kampus STIKES YPIB Majalengka*, *9*(2), 95–101. https://doi.org/10.51997/jk.v9i2.124

Nurwana, N., Sabilu, Y., & Fachlevy, A. F. (2017). Analisis Faktor yang Berhubungan dengan Kejadian Disminorea pada Remaja Putri di SMA Negeri 8 Kendari Tahun 2016. *JIMKESMAS: Jurnal Ilmiah Mahasiswa Kesehatan Masyarakat*, *2*(6), 1–14. Retrieved from https://media.neliti.com/media/publications/185630-ID-analisis-faktor-yang-berhubungan-dengan.pdf

Prihatin, S. (2019). Pengaruh Massage Effleurage Terhadap Penurunan Intensitas Nyeri Dismenorea Primer Pada Remaja Putri DI SMAN 2 Kota Ternate Tahun 2018. *Medica Majapahit: Jurnal Ilmiah Kesehatan*, *11*(2), 1–8. Retrieved from http://ejournal.stikesmajapahit.ac.id/index.php/MM/article/view/328

Qonitun, U. (2020). The Effect Of Massage Effleurage On Pain Intensity And Length Of Labor I In The Normal Inpartu In Tuban District. *Jurnal Midpro*, *12*(1), 105. https://doi.org/10.30736/md.v12i1.187

Rahayu, A., Pertiwi, S., & Patimah, S. (2017). Pengaruh Endorphine Massage Terhadap Rasa Sakit Dismenore Pada Mahasiswi Jurusan Kebidanan Poltekkes Kemenkes Tasikmalaya Tahun 2017. *Jurnal Bidan "Midwife Journal," 3*(02), 22–30. Retrieved from https://www.neliti.com/id/publications/234031/pengaruh-endorphine-massage-terhadap-rasa-sakit-dismenore-pada-mahasiswi-jurusan

Rusyanti, S., & Ismiyati, I. (2019). Massage Effleurage Menurunkan Nyeri Haid (Dismenore). *Pameran Poster Ilmiah Dalam Rangka Dies Natalis Ke-8 Poltekkes Kemenkes Banten*, 90–96. Retrieved from https://www.researchgate.net/publication/338535674_MASSAGE_EFFLEURAGE_MENURUNKAN_NYERI_HAID_DISMENORE

Sari, T. M., Suprida, S., Amalia, R., & Yunola, S. (2022). Faktor-Faktor yang Berhubungan dengan Dismenore pada Remaja Putri di MAN 1 Ogan Komering Ulu Tahun 2021. *Jurnal Ilmu Kesehatan UMC*, *11*(1), 42. Retrieved from https://e-journal.umc.ac.id/index.php/JIK/article/download/3026/1659

Sholihah, N. R., & Azizah, I. (2020). The Effect of Effleurage Massage on Primary Dysmenorrhea in Female Adolescent Students. *Jurnal Info Kesehatan*, *18*(1), 9–17. https://doi.org/10.31965/infokes.Vol18.Iss1.310

Sibero, J. T., Sari, I. D., & Asmita, R. (2022). The Effect of Massage Effleurage Therapy Towards Reduction of Mental Pain in Adolescent Women at SMA Negeri 09 Medan in 2022. *Science Midwifery*, *10*(4), 3203–3212. https://doi.org/10.35335/midwifery.v10i4.791

Sukmawati, N., Kurniawati, A., & Wahyuni, S. (2021). Efektivitas Massage Effleurage Terhadap Penurunan Intensitas Skala Nyeri Dismenore Pada Remaja Putri. *Prosiding Kebidanan: Seminar Nasional "Bidan Tangguh Bidan Maju."* Tasikmalaya. Retrieved from https://journal.umtas.ac.id/index.php/prosidingkeperawatan/article/view/1955

Sumiaty, S., Dupa, A. V. M., Suryani, L., & Ramadhan, K. (2021). Penurunan Intensitas Nyeri

Menstruasi (Dysmenorrhae) dengan Kompres Hangat. *Jurnal Bidan Cerdas*, *3*(1), 31–37. https://doi.org/10.33860/jbc.v3i1.130

Sumiaty, S., Sakti, P. M., & Hasnawati, H. (2022). Pelatihan Pemanfaatan Terapi Komplementer sebagai upaya Penanganan Dismenorhoe pada Remaja Putri. *Poltekita: Jurnal Pengabdian Masyarakat*, *3*(3), 626–633. https://doi.org/10.33860/pjpm.v3i3.1256

Suwanto, S., & Islamiyah, M. (2018). Pengaruh Teknik Effleurage Kombinasi Olive Oil Jahe (Zingiber Officinale) Terhadap Dysmenorhea Pada Remaja Putri. *Journals of Ners Community*, *9*(1), 1–7. https://doi.org/https://doi.org/10.55129/jnerscommunity.v9i1.421

Syafriani, S., Aprilla, N., & Z.R, Z. (2021). Hubungan Status Gizi dan Umur Menarche dengan Kejadian Dismenore pada Remaja Putri di SMAN 2 Bangkinang Kota 2020. *Jurnal Ners*, *5*(1), 32–37. https://doi.org/10.31004/jn.v5i1.1676

Udayar, S. E., Jeergiyal, D. P., & K, K. (2022). Prevalence and Predictors of Dysmenorrhea and its Impact on Quality of Life among Tribal Adolescent Girls in India. *Unnes Journal of Public Health*, *11*(1), 23–32. https://doi.org/10.15294 /ujph.v11i1.45965

Unnisa, H., Annam, P., Gubba, N. C., Begum, A., & Thatikonda, K. (2022). Assessment of quality of life and effect of non-pharmacological management in dysmenorrhea. *Annals of Medicine & Surgery*, *81*. https://doi.org/10.1016/j.amsu.2022.104407

Veronica, S. Y., & Oliana, F. (2022). Pengaruh Massage Effleurage Terhadap Penurunan Nyeri Dismenore Primer pada Remaja Putri di IAI Agus Salim Metro Lampung. *Journal of Current Health Sciences*, *2*(1), 19–24. https://doi.org/10.47679/jchs.202232