

Effectiveness of combined use of herbs and physical therapy in reducing dysmenorrhoea pain in adolescent girls: Scoping review

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ABSTRACT

Dysmenorrhea, or menstrual pain, is a common condition experienced by women, particularly adolescent girls. Treatment for dysmenorrhea can be administered through both pharmacological and non-pharmacological methods, including herbal remedies and physical therapy. This study aims to evaluate the effectiveness of combining herbal use and physical therapy in alleviating menstrual pain. This research employs a scoping review methodology, which involves the search, screening, and synthesis of relevant literature on the topic. The process includes formulating research questions, establishing inclusion and exclusion criteria, conducting literature searches, selecting relevant studies, extracting data, and performing qualitative analysis. The combination of herbal remedies such as ginger, cinnamon, and lavender, along with physical therapies like exercise, yoga, and relaxation techniques, offers a more holistic and effective approach to reducing dysmenorrhea. Herbs possess anti-inflammatory and analgesic properties, while physical therapies enhance blood circulation, reduce stress, and release endorphins, thereby complementing each other in the management of menstrual pain. The integration of herbal remedies and physical therapy has the potential to be an effective approach for managing dysmenorrhea. Further research is needed to explore the mechanisms, efficacy, and safety of this combined approach.

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INTRODUCTION

Dysmenorrhea or menstrual pain, is discomfort in the pelvic area caused by menstruation and the release of prostaglandins. Globally, more than 50% of women experience dysmenorrhea. The pain experienced by some women can be very severe, disrupting up to 50% of daily activities in women of childbearing age and 85% of activities in adolescent girls (Yanti, 2023).

Dysmenorrhea is divided into primary and secondary. Primary dysmenorrhea, without

reproductive organ abnormalities, is common in women under 25 years of age. Secondary dysmenorrhea, which is usually associated with reproductive organ abnormalities, is more common in women over 30 years of age (Shi & Wu, 2023).

Treatment for dysmenorrhea includes drug and non-drug therapy. Drug therapy involves the use of analgesics, hormones, or NSAIDs. Non-drug therapy includes exercise, warm compresses, music therapy, relaxation, and herbal drinks. Herbal drinks such as a mixture of honey and turmeric are often used to relieve menstrual pain without side effects.

Based on the Regulation of the Minister of Health of the Republic of Indonesia No. 15 of 2018 concerning the Implementation of Complementary Traditional Health Services, Article 6 paragraph 1 states that complementary traditional health services can be carried out by utilizing skills, herbs, or a combination of both (Kartika & Jaya, 2022).

Herbal medicine has become a popular choice in various cultures to relieve menstrual pain. Medicinal plants such as ginger, cinnamon, and lavender have anti-inflammatory and analgesic properties that can help reduce pain levels. Research shows that ginger, for example, can reduce menstrual pain almost as effectively as NSAIDs (Rohmayanti & Wijayanti, 2021). In addition, cinnamon and lavender have also been shown to be effective in reducing menstrual pain and discomfort through anti-inflammatory and muscle relaxation mechanisms (Poetri et al., 2022).

In addition to the use of herbs, physical therapy is also an effective non-pharmacological method in managing dysmenorrhea pain. Physical therapy includes various interventions such as physical exercise, yoga, and relaxation techniques that work by increasing blood circulation, reducing stress, and releasing endorphins (Tsai et al., 2024). Regular physical exercise has been shown to reduce the intensity of menstrual pain and improve the quality of life of women with dysmenorrhea (Idaningsih & Oktarini, 2020).

The combination of herbal use and physical therapy may offer a more holistic and effective approach to managing dysmenorrhea pain. This combination leverages the anti-inflammatory and analgesic properties of herbs as well as the physical and mental benefits of physical therapy. Although there are several studies supporting the effectiveness of each of these methods, studies examining the combination of the two are still limited. This study aims to determine the effectiveness of the combination of herbal and physical therapy in reducing dysmenorrhea pain. By understanding the interactions and potential between these two approaches, it is hoped that it can provide more comprehensive and evidence-based guidelines for more effective and safe management of dysmenorrhea pain (Tsai et al., 2024).

RESEARCH METHOD

This study used the scoping review method, which involves a series of systematic steps to collect, screen, and synthesize literature relevant to the research topic (Pool et al., 2024). The first step involves formulating a clear research question and detailing inclusion and exclusion criteria to guide the literature search process. The literature was searched thoroughly through academic databases, journals, and other relevant sources. Once the literature was collected, selection was carried out using predetermined inclusion and exclusion criteria. Data from selected articles were then extracted and analyzed qualitatively using an interpretive approach. The analysis process included identifying key themes, patterns, and relationships between concepts that emerged from the reviewed literature. This method allows for comprehensive analysis and answers specific questions by collecting and summarizing various related research sources. When defining the research question, the authors used the mnemonic Population, Exposure, and Outcome (PEO), which is shown in Table 1 (Davies, 2024). The research question is how effective is the combination of herbal medicine and physical therapy in reducing dysmenorrhea pain.

Table 1. PEO mnemonic selection

Population	Exposure	Outcome
Teenage girl	Combination of herbal use and physical therapy	Reduction of dysmenorrhea pain

Source: Author Discussion, 2024

The author narrows the scope by setting inclusion and exclusion criteria for the literature to be used (Table 2). The purpose of setting these criteria is so that the study review can be more focused and in accordance with the research topic. The keywords used are combination, herbal, physical therapy, dysmenorrhea, adolescent girls.

Table 2. Inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
Research articles published in 2020-2024	books, blogs
Articles in Indonesian and English	Paid full text access
Articles have full text	

Source: Author Discussion, 2024

The author screened the literature obtained from various article search engines using previously determined keywords. A total of 1,311 articles were obtained, with details from each search engine as follows: Pubmed 151 articles, Science Direct 82 articles, Google Scholar 1,010 articles, and Worldcat 68 articles. The author used the PRISMA guide in compiling this scoping review. In addition, the author includes a PRISMA diagram showing the number of literatures found, the screening process, literature that met the criteria, and which were finally included in the overall review (Figure 1).

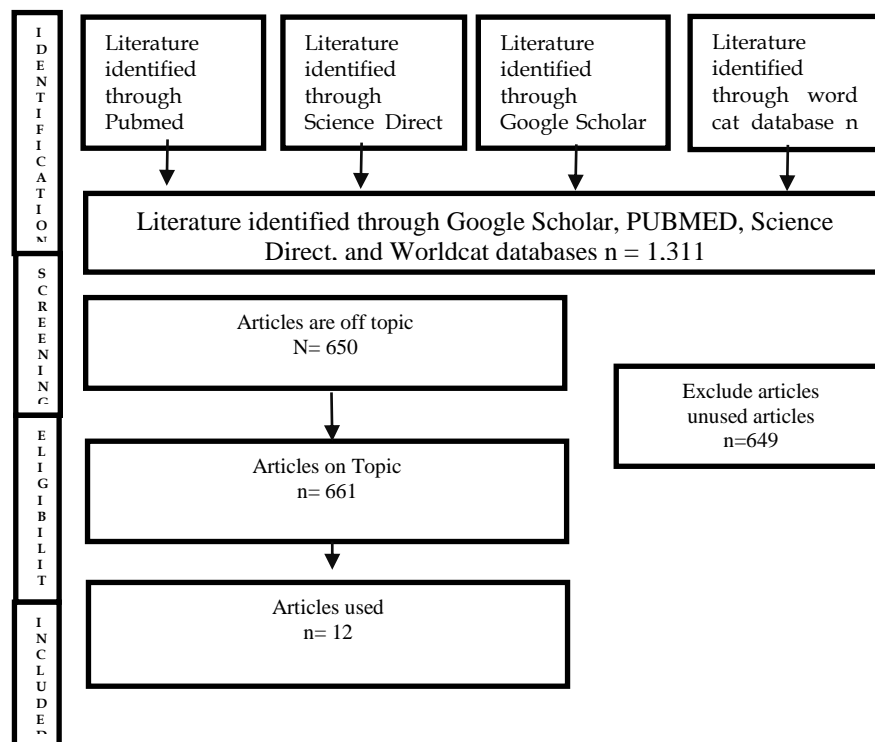


Figure 1. Prism

RESULTS AND DISCUSSIONS

Result

The data synthesis process in this study involved collecting and summarizing articles that met the inclusion criteria into a table. The table includes the title, findings, methodology, and results of the 12 synthesized articles.

Table 3. Review article data synthesis

No	Title	Author	Sample	Method	Country	Summary
1	The Effect of Effleurage Massage on Reducing Primary Dysmenorrhea Pain in Adolescent Girls at IAI Agus Salim Metro Lampung, 2022	Septika Yani Veronica, Fia Oliana	21 teenage girls	Quantitative (quasi-experimental)	Indonesia	This study examined the effects of effleurage massage on primary dysmenorrhea pain in adolescent girls. The results showed that this technique was effective in reducing pain by relaxing the abdominal muscles and increasing blood circulation (Zuraida & Aslim, 2020).
2	The Effect of Acupressure Therapy on the Intensity of Menstrual Pain (Dysmenorrhea) in Midwifery Students of the Mitra Bunda Health Institute 2020	Agustina Vivin Kurniawati, Diah Pradnya Paramita, Ida Ayu Putu Sri Yuli Purnami	100 female adolescent respondents	Quantitative (quasi-experimental)	Indonesia	This study found that acupressure therapy is effective in reducing the intensity of menstrual pain (dysmenorrhea) in midwifery students. This therapy helps in reducing pain symptoms and providing more comfort during the menstrual period (Husaidah, 2021).
3	The Effect of Yoga and Lavender Aromatherapy Combination on Dysmenorrhea Pain Levels in Adolescent Girls at the Sumatra Thawalib Parabek Islamic Boarding School. 2020	Zuraida, Dania Pumi Keta	16 teenage girls	Quantitative (experimental)	Indonesia	"Research shows that the combination of yoga and lavender aromatherapy significantly reduces dysmenorrhea pain in adolescent girls, with a decrease in pain levels from 5.44 to 3.69 and a p value = 0.000. This therapy is effective in relaxing muscles and increasing menstrual comfort. It is recommended that Islamic boarding schools collaborate with health workers for non-pharmacological treatment of dysmenorrhea (Zuraida & Keta, 2020).
4	Combination Application of Sanyinjiao Point Acupressure and Red Ginger Decoction in Adolescents with Dysmenorrhea: A Case Study, 2021	Niva Widiastuti, Rohmayati, Kartika Wijayanti	1 person (case study)	Quantitative	Indonesia	Research shows that the combination of Sanyinjiao acupressure and red ginger decoction is effective in reducing dysmenorrhea pain in adolescent girls, with the pain scale dropping from 7 to 2. Red ginger provides analgesic, antipyretic, and anti-inflammatory effects, while acupressure relieves muscle tension. This combination therapy is recommended as a non-pharmacological alternative for dysmenorrhea (Widiastuti,

No	Title	Author	Sample	Method	Country	Summary
5	Overview of Non-Pharmacological Management of Dysmenorrhea in Grade X Adolescents at SMA Dwijendra Denpasar Year: 2021	Ni Made Widyanti, Ni Komang Ayu Resiyanti, Diah Prihatiningsih	102 respondents	Descriptive cross sectional	Indonesia	2021). The study showed that female adolescents in grade X at SMA Dwijendra Denpasar most often used adequate rest (79.4%) to deal with dysmenorrhea, followed by guided imagery techniques (78.4%) and deep breathing relaxation techniques (63.7%). Other methods such as warm compresses, exercise, herbal medicine, and massage were used with lower frequency. These results highlight the need for further education on non-pharmacological methods for dysmenorrhea so that adolescents can choose the most effective ones (Widyanti & Resiyanti, 2021).
6	Education on Making Turmeric and Tamarind Herbal Medicine to Overcome Menstrual Pain and Increase Body Immunity for Young Women During the COVID-19 Pandemic at SMP N 02 Manokwari, 2022	Dwi Iryani, Ida Ayu Iswari Pramestigiri, Priscilla Jesica Pihahay	24 teenage girls	Quantitative	Indonesia	The education program increased the knowledge of young women about making turmeric and tamarind herbal from 7.70% to 10.33%. Their skills also improved. This herbal is effective in reducing menstrual pain and increasing immunity. Supported by schools and health centers, this program is expected to continue for adolescent reproductive health (Iryani et al., 2022).
7	Effect of Pilates Exercises on Premenstrual Syndrome Symptoms: A Quasi-Experimental Study Year: 2021	Elif Tuğçe Çitil, Nurten Kaya	50 (25 experimental groups, 25 control groups)	Quasi-Experimental Study	Turki	This study showed that Pilates exercise reduced PMS symptoms in midwifery students. After three months, the PMSS scores of the experimental group decreased significantly compared to the control group. Pilates is effective in reducing PMS symptoms and improving women's quality of life (Çitil & Kaya, 2021).
8	Comparison between the effects of aerobic and isometric exercises on primary dysmenorrhea, 2021	Asmaa M. Elbandrawy and Sahar M. Elhakk	105 teenage girls	Randomized Clinical Trial	Mesir	This study compared the effects of aerobic and isometric exercises on primary dysmenorrhea involving 105 women aged 18-25 years, divided into three groups: aerobic, isometric, and control. The exercises were performed three times a week for eight weeks. The results showed that both exercises were effective in reducing menstrual pain and symptoms, with aerobic slightly superior to isometric. There was no significant change in the control group (Elbandrawy & Elhakk, 2021).
9	The Effect of Valerian	Masoumeh	210	Randomiz	Iran	This study showed that Pilates

No	Title	Author	Sample	Method	Country	Summary
	and Ginger on Dysmenorrhea: A Randomized Clinical Trial 2020	Davood Abadi, Katayon Vakilian, Nafiseh Seyyed Zadeh, Aghdam, dan Mehdi Ranjbaran	teenage girls	ed Clinical Trial (RCT)		exercise reduced PMS symptoms in midwifery students. After three months, the PMSS scores of the experimental group decreased significantly compared to the control group. Pilates is effective in reducing PMS symptoms and improving women's quality of life (Abadi et al., 2020). This study showed that consumption of thyme tea significantly reduced primary dysmenorrhea pain in female college students, compared to the control group. These results indicate thyme as an effective herbal alternative without significant side effects (Zeru & Muluneh, 2020).
10	Thyme Tea and Primary Dysmenorrhea Among Young Female Students Tahun: 2020	Abayneh Birilie Zeru, Mikyas Arega Muluneh	252 teenage girls	quantitative	Ethiopia	
11	Local Usage of Nigella sativa Oil as an Innovative Method to Attenuate Primary Dysmenorrhea: A Randomized Double-blind Clinical Trial. 2020	Ezat Samadipour, Mohammad Hassan Rakhshani, Akram Kooshki, dan Bahareh Amin	124 teenage girls	Randomized Double-blind Clinical Trial	Iran	Studies have shown that topical Nigella sativa oil significantly reduces primary dysmenorrhea pain compared to placebo, with no side effects. It is a safe and readily available analgesic supplement (Samadipour et al., 2020).
12	Use of complementary and alternative therapies for the treatment of dysmenorrhea among undergraduate pharmacy students in Malaysia: a cross-sectional study Tahun: 2020	Usman Abubakar, Amni Izzati Zulkarnain, Fatihah Samri, Sabrina Ros Hisham, Anis Alias Muhammad Ishak, Hajarah Sugiman, dan Taufik Ghozali	219 teenage girls	Cross-Sectional Study	Malaysia	This study found that 70.3% of female pharmacy students had used complementary and alternative therapies (CAT) for dysmenorrhea, with 54.4% being current users. Common CAT methods included rest, heat, and massage. The main reasons for using CAT were reduced analgesic requirements and belief in its effectiveness. This study suggests the need for education on the safe and effective use of CAT to reduce side effects and improve quality of life (Abubakar et al., 2020).

The search results that match the research keywords produce 12 articles. The articles reviewed come from developing countries. Some of the countries are Indonesia, Turkey, Egypt, Iran, Ethiopia, and Malaysia. The following are the countries that are the research locations in the articles.

Table 4. Distribution of countries in articles

Country	Freq.	Country	Freq.
Indonesia	6	Iran	2
Turki	1	Ethiopia	1
Mesir	1	Malaysia	1

This article evaluates the effectiveness of the combination of herbal and physical therapy in reducing dysmenorrhea pain in adolescent girls. Analysis of various studies shows that the use of herbal and physical therapy can quantitatively reduce dysmenorrhea pain in adolescent girls. This emphasizes that both herbal and physical therapy can reduce the incidence of dysmenorrhea among adolescent girls. The findings of this article indicate that original studies using quantitative methods have overall examined the use of herbal and physical therapy in reducing dysmenorrhea pain.

Table 5. Article synthesis results

No	Main	Topic
1	Effectiveness of Non-Pharmacological Therapy for Dysmenorrhea Pain	a. Evaluasi terapi non farmakologis (1,2,3,5,12) b. Symptoms of Dysmenorrhea (1,2,3,7,8,9)
2	Use of Herbs to Reduce Dysmenorrhea Pain	a. Use of herbal plants to relieve dysmenorrhea pain (3,4,6,9,10) b. Use of Nigella sativa oil (11,12)
3	Physical Exercises for Dysmenorrhea Pain	a. Effectiveness of massage ((1,5,12) b. Acupressure therapy (2,4) c. Effects of yoga, aerobics and pilates (3,5,8,7)

Discussion

Effectiveness of Non-Pharmacological Therapy for Dysmenorrhea Pain

- a. Evaluation of non-pharmacological therapy, evaluation of non-pharmacological therapy for dysmenorrhea has shown various significant results. According to research, methods such as relaxation techniques, exercise, and the use of warm compresses have been shown to be effective in reducing the intensity of menstrual pain (Lubis et al., 2023). Research shows that this non-pharmacological therapy can help reduce dependence on painkillers and improve the quality of life of patients by providing a safe alternative with minimal side effects. Methods such as yoga and acupuncture have also shown positive results in several studies, providing additional options for managing dysmenorrhea (Mulyaningsih et al., 2023).
- b. Symptoms of Dysmenorrhea, dysmenorrhea is a common health problem in women of reproductive age (Alsaleem, 2018). There are two types: primary dysmenorrhea, which occurs without gynecological abnormalities and usually begins a year after menarche, and secondary dysmenorrhea, which is associated with certain medical conditions. Symptoms of primary dysmenorrhea include lower abdominal cramps that appear 8-72 hours after menstruation begins and can increase in the first few days. In addition to cramps, other symptoms that are often experienced include back pain, thigh pain, headache, diarrhea, nausea, and vomiting (Widowati et al., 2020).

Use of Herbs to Reduce Dysmenorrhea Pain

- a. Use of herbal plants to relieve dysmenorrhea pain, based on the journal (Khoiroh & Jannah, 2024), several herbal plants such as turmeric tamarind, rosella, and ginger have the potential as menstrual pain relievers (dysmenorrhea) because of their active compound content. The use of herbal plants as a non-pharmacological treatment can relieve menstrual pain without side effects. Several studies have shown the effectiveness of turmeric tamarind decoction and processed rosella herbal plants in reducing the intensity of dysmenorrhea in adolescent girls (Husna, 2021)(Muflih, 2018). With proper management, herbal plants can be a safe and effective alternative in overcoming menstrual pain in women.
- b. Use of Nigella sativa oil, research shows that Nigella sativa oil, which contains thymoquinone and various anti-inflammatory compounds, can reduce the intensity of pain in women with dysmenorrhea. The study found that Nigella sativa oil supplementation significantly reduced the duration and intensity of pain compared to placebo, as well as reducing menstrual-related

symptoms such as nausea and back pain. *Nigella sativa* oil as a therapeutic alternative in the management of dysmenorrhea (Nurbaiti, 2021).

Physical Exercise for Dysmenorrhea Pain

- a. Effectiveness of massage, massage is a gentle touch that increases the release of endorphins and oxytocin hormones, which play a role in reducing pain (Rahayu et al., 2017). Massage has been shown to be effective in reducing pain intensity in women with dysmenorrhea (Hasanah & Chotimah, 2022). The application of massage to overcome menstrual pain in adolescents can affect the level of pain felt. This indicates that massage is an effective method in reducing the intensity of menstrual pain. Before massage, the menstrual pain experienced by adolescents was very severe, but after massage therapy, the menstrual pain decreased to a lighter level (Hasanah & Chotimah, 2022).
- b. Acupressure therapy, acupressure therapy is a method that involves stimulating acupuncture points without using needles, but through massage using the fingers (Adams et al., 2017). Acupressure therapy applied to the SP6 point for 20 minutes each session, carried out consistently for two months. Acupressure therapy has been shown to be effective in reducing dysmenorrhea pain in Fitkes Unjani female students, with significant results when done routinely and for a long period of time (Jatnika et al., 2022).
- c. Effects of yoga, aerobics and pilates, a study revealed that yoga practice significantly reduced the intensity of menstrual pain and improved the quality of life of women with dysmenorrhea through calming breathing and stretching techniques (Kanchibhotla et al., 2023). In addition, aerobic exercise also helps reduce pain by increasing blood circulation and releasing endorphins which function as natural pain relievers (Nwaezuoke & Gbonjubola, 2022). According to Song et al. 2023, showed that pilates exercise strengthens core muscles and increases flexibility, which helps reduce menstrual cramps and discomfort. These three types of exercises can be used as an effective non-pharmacological approach to managing dysmenorrhea symptoms.

CONCLUSION

Dysmenorrhea is discomfort in the pelvic area due to menstruation and the release of prostaglandins, which can interfere with women's daily activities. Treatment of dysmenorrhea can be done pharmacologically or non-pharmacologically, including the use of herbs and physical therapy. This study explains that the combination of the use of herbs such as ginger, cinnamon, and lavender which have anti-inflammatory and analgesic properties, as well as physical therapy such as physical exercise, yoga, and relaxation techniques that can improve blood circulation, reduce stress, and release endorphins so that they are effective in reducing dysmenorrhea pain. Although research that specifically examines the combination of the two is still limited, this article concludes that this combination approach has good potential for more effective and safe management of dysmenorrhea pain. Further research is needed to explore the mechanisms and safety of this combination approach.

References

- Abadi, M. D., Vakilian, K., Aghdam, N. S. Z., & Ranjbaran, M. (2020). The effect of valerian and ginger on dysmenorrhea: a randomized clinical trial. *Int J Women's Health Reprod Sci.*, 8, 101-105.
- Abubakar, U., Zulkarnain, A. I., Samri, F., Hisham, S. R., Alias, A., Ishak, M., Sugiman, H., & Ghozali, T. (2020). Use of complementary and alternative therapies for the treatment of dysmenorrhea among undergraduate pharmacy students in Malaysia: a cross sectional study. *BMC Complementary Medicine and Therapies*, 20, 1-8.
- Adams, A., Eschman, J., & Ge, W. (2017). Acupressure for chronic low back pain: a single system study. *Journal of Physical Therapy Science*, 29(8), 1416-1420.
- Alsalem, M. A. (2018). Dysmenorrhea, associated symptoms, and management among students at King

- Khalid University, Saudi Arabia: An exploratory study. *Journal of Family Medicine and Primary Care*, 7(4), 769-774.
- Çitil, E. T., & Kaya, N. (2021). Effect of pilates exercises on premenstrual syndrome symptoms: a quasi-experimental study. *Complementary Therapies in Medicine*, 57, 102623.
- Davies, A. (2024). An introduction to carrying out and appraising systematic reviews in healthcare. *Journal of Paramedic Practice*, 15(11), 1-12.
- Elbandrawy, A. M., & Elhakk, S. M. (2021). Comparison between the effects of aerobic and isometric exercises on primary dysmenorrhea. *Acta Gymnica*, 51, 0-4.
- Hasanah, U., & Chotimah, C. (2022). Efektivitas Penggunaan Terapi Massage Effleurage Terhadap Penurunan Nyeri Haid Mahasiswi Stikes Abdi Nusantara Tahun 2022. *Jurnal Pendidikan Dan Konseling (JPDK)*, 4(4), 448-458.
- Husaidah, S. (2021). Pengaruh Terapi Akupresur Terhadap Intensitas Nyeri Haid (Dismenore) Pada Mahasiswa Kebidanan Institut Kesehatan Mitra Bunda 2020. *Jurnal Sehat Mandiri*, 16(1), 72-81.
- Husna, P. H. (2021). Perbedaan Pemberian Kunyit Asam Dan Teknik Nafas Dalam Mengatasi Dismenore Pada Remaja Putri. *Jurnal Keperawatan GSH*, 10(1), 44-49.
- Idaningsih, A., & Oktarini, F. (2020). Pengaruh Efektivitas Senam Dismenore Terhadap Penurunan Intensitas Nyeri Dismenore Pada Remaja Putri Di SMK YPIB Majalengka Kabupaten Majalengka Tahun 2019. *Syntax Literate*, 5(2), 55-66.
- Iryani, D., Pramestigiri, I. A. I., & Pihahay, P. J. (2022). Edukasi Pembuatan Herbal Kunyit Asam Untuk Mengatasi Nyeri Haid dan Meningkatkan Imunitas Tubuh bagi Remaja Putri Dimasa Pandemi Covid-19 di Smp N 02 Manokwari. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*, 5(8), 2507-2523.
- Jatnika, G., Badrujamaludin, A., & Yuswandi, Y. (2022). Pengaruh terapi akupresur terhadap intensitas nyeri dismenore. *Holistik Jurnal Kesehatan*, 16(3), 263-269.
- Kanchibhotla, D., Subramanian, S., & Singh, D. (2023). Management of dysmenorrhea through yoga: A narrative review. *Frontiers in Pain Research*, 4, 1107669.
- Kartika, I. G. A. A., & Jaya, M. K. A. (2022). Kombinasi Yoga dan Herbal dalam Pengobatan Beserta Efektivitasnya. *Jurnal Yoga Dan Kesehatan*, 5(2), 170-182.
- Khoiroh, M., & Jannah, A. (2024). PENGELOLAHAN TANAMAN HERBAL SEBAGAI OBAT PEREDA NYERI HAID. *Jurnal Inovasi Kesehatan Terkini*, 6(2).
- Lubis, D. S., Hasanah, O., & Woferst, R. (2023). Gambaran Intensitas Nyeri Haid (Dismenore) Dan Upaya Penanganannya Pada Mahasiswi. *Jurnal Penelitian Perawat Profesional*, 5(1), 363-372.
- Muflih, M. (2018). Upaya Pengurangan Nyeri Dismenore Pada Remaja Dengan Pemanfaatan Olahan Tanaman Herbal Rosella. *Jurnal Pengabdian Dharma Bakti*, 1(1).
- Mulyaningsih, E. A., Mudhawaroh, M., Chanda, P. B., & Pitriawati, D. (2023). YOGA UNTUK PENURUNAN NYERI PADA DISMENORE PRIMER. *EJOIN: Jurnal Pengabdian Masyarakat*, 1(6), 482-488.
- Nurbaiti, H. (2021). Aroma terapi menurunkan intensitas dismenorea primer pada remaja putri: literature review. *Tanjungpura Journal of Nursing Practice and Education*, 3(2).
- Nwaezuoke, C. A., & Gbonjubola, Y. T. (2022). Aerobic exercise as a non-medicinal option in the management of primary dysmenorrhea: A critical review. *Adesh University Journal of Medical Sciences & Research*, 4(1), 3-9.
- Poetri, F. B., Afriosa, S., & Puspitasari, R. (2022). Pengaruh aromaterapi kayu manis terhadap nyeri haid primer pada remaja di Desa Pasir Gadung Tangerang. *Jurnal Sains Dan Kesehatan*, 6(2), 24-33.
- Pool, J., Akhlaghpour, S., Fatehi, F., & Burton-Jones, A. (2024). A systematic analysis of failures in protecting personal health data: a scoping review. *International Journal of Information Management*, 74, 102719.
- 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*, 3(2), 22-29.
- Rohmayanti, R., & Wijayanti, K. (2021). APLIKASI KOMBINASI AKUPRESUR TITIK SANYINJIAO DAN REBUSAN JAHE MERAH PADA REMAJA DENGAN DISMENORE: STUDI KASUS. *Indonesia Jurnal Perawat*, 6(2), 13-16.
- Samadipour, E., Rakhshani, M. H., Kooshki, A., & Amin, B. (2020). Local usage of Nigella Sativa oil as an innovative method to attenuate primary dysmenorrhea: a randomized double-blind clinical trial. *Oman Medical Journal*, 35(5), e167.
- Shi, Y., & Wu, W. (2023). Multimodal non-invasive non-pharmacological therapies for chronic pain: mechanisms and progress. *BMC Medicine*, 21(1), 372.
- Tsai, I.-C., Hsu, C.-W., Chang, C.-H., Lei, W.-T., Tseng, P.-T., & Chang, K.-V. (2024). Comparative

- Effectiveness of Different Exercises for Reducing Pain Intensity in Primary Dysmenorrhea: A Systematic Review and Network Meta-analysis of Randomized Controlled Trials. *Sports Medicine-Open*, 10(1), 63.
- Widiastuti, N. (2021). APLIKASI KOMBINASI AKUPRESUR TITIK SANYINJIAO DAN REBUSAN JAHE MERAH PADA REMAJA PUTRI DENGAN DISMENOIRE. Karya Ilmiah, Universitas Muhammadiyah Magelang.
- Widowati, R., Kundaryanti, R., & Ernawati, N. (2020). Pengaruh Pemberian Minuman Madu Kunyit Terhadap Tingkat Nyeri Menstruasi. *Ilmu Dan Budaya*, 41(66).
- Widyanthi, N. M., & Resiyanthi, N. K. A. (2021). Gambaran penanganan dismenorea secara non farmakologi pada remaja kelas X di SMA Dwijendra Denpasar. *Jurnal Inovasi Penelitian*, 2(6), 1745-1756.
- Yanti, M. D. (2023). Penyuluhan Manfaat Pemberian Kunyit Dan Madu Terhadap Penurunan Nyeri Haid (Dysmenorrhoe) Pada Remaja Di Klinik Citra Marendal. *Jurnal Pengabdian Masyarakat Putri Hijau*, 3(2), 19-22.
- Zeru, A. B., & Muluneh, M. A. (2020). Thyme tea and primary dysmenorrhea among young female students. *Adolescent Health, Medicine and Therapeutics*, 147-155.
- Zuraida, Z., & Aslim, M. (2020). Pengaruh Massage Effleurage Terhadap Penurunan Nyeri Dismenore Primer Pada Remaja Putri Di Sma N 1 Sutera Kabupaten Pesisir Selatan. *Menara Ilmu: Jurnal Penelitian Dan Kajian Ilmiah*, 14(1).
- Zuraida, Z., & Keta, D. P. (2020). Pengaruh Kombinasi Yoga Dan Aroma Terapi Lavender Terhadap Tingkat Nyeri Dismenore Pada Remaja Putri Di Pondok Pesantren Sumatera Thawalib Parabek. *Maternal Child Health Care*, 2(2), 330-341.