


SCOPING REVIEW

The impact of complementary therapies on dysmenorrhea in young women

Tammimin Ummah^{ib*}, Ismarwati^{ib}
Midwifery Masters Program, Faculty of Health Sciences, 'Aisyiyah University, Yogyakarta, Indonesia

Article Info	ABSTRACT
<div>Received Jun 29, 2023 Revised Aug 3, 2023 Accepted Sep 8, 2023 Published Apr 1, 2024</div> <div>*Corresponding author: Tammimin Ummah tammiminummah@gmail.com</div> <div>Keywords: Young women Dysmenorrhea Complementary therapy Herbal drinks Warm compress Maternal health</div>	<p>Objective: The study's objective was to obtain latest data on alternative therapy for dysmenorrhea in adolescent females of reproductive age.</p> <p>Materials and Methods: A scoping review was conducted using the PRISMA ScR protocol. A search was conducted on PubMed, Science Direct, and Wiley, yielding 848 studies. Ten literature studies were identified that satisfied the criteria for population, exposure, and outcome. The studies also incorporated inclusion criteria, focusing on women of reproductive age who had dysmenorrhea.</p> <p>Results: Out of 848 articles, 32 were considered potentially relevant and met the inclusion criteria. The articles indicated that teenagers commonly used warm compresses and herbal drinks as supplementary therapies to alleviate dysmenorrhea due to their perceived effectiveness and comfort. Other complementary therapies for the condition included massage, relaxation, herbal products, self-care practices, acupuncture, and therapeutic methods.</p> <p>Conclusion: Herbal and warm water compress are the most commonly applied alternative therapies for treating dysmenorrhea.</p>
<div>Copyright: © 2024 Majalah Obstetri & Ginekologi. pISSN:0854-0381 eISSN:2598-1013 This is an open-access article distributed under the terms of the Creative Commons Attribution License as stated in https://creativecommons.org/licenses/by-nc-sa/4.0/deed.id</div> <div> CC BY NC SA</div> <div>How to cite: Ummah T, Ismarwati The impact of complementary therapies on dysmenorrhea in young women. Majalah Obstetri & Ginekologi (Journal of Obstetrics & Gynecology Science). 2024;32(1):29-38 doi: 10.20473/mog.V32I12024.29-38</div>	

Highlights:

1. Complementary treatments have been shown to greatly reduce the intensity of dysmenorrhea pain.
2. The use of medicinal plants, herbal concoctions, or compresses might reduce dysmenorrhea discomfort more effectively than taking medications like mefenamic acid, ibuprofen, piroxicam, etc.

INTRODUCTION

Dysmenorrhea is characterized by irregular uterine contractions and lower abdominal pain, caused by increased prostaglandin production and release from the endometrium during menstruation. Dysmenorrhea affects women of childbearing age and adolescent girls more than other age groups. Women who are

menstruating often report experiencing lower abdomen pain that extends to the hips and thighs. Possible additional symptoms may include headache, agitation, nausea, vomiting, and diarrhea. Menstrual pains typically begin a few days before the onset of menstruation and progressively diminish after the period begins.^{1,2}



According to the World Health Organization, 90% of women experience dysmenorrhea (menstrual discomfort) monthly, with 10%–15% of them describing the pain as severe.² Adolescents, as defined by the World Health Organization, are those aged 10 to 19 years old. Over 50% of women in every country will develop dysmenorrhea at some stage in their life. Research shows that 45% to 90% of American teenage girls suffer from dysmenorrhea, while 90% of Swedish women under 19 and 67% of Swedish women over 24 experience this condition.³ Furthermore, research shows that menstrual discomfort is highly prevalent in Indonesia, with 54.89% of women reporting experiencing the condition and 9.36% attributing it as the reason.⁴⁻⁶

Pharmaceutical and non-pharmaceutical treatments are the main categories of treatment for dysmenorrhea. Mefenamic acid, ibuprofen, piroxicam, and other nonsteroidal anti-inflammatory drugs (NSAIDs) can be utilized for pharmacological treatment of menstrual discomfort. Complementary and alternative medicine (CAM) can serve as a non-pharmacological therapy. Complementary and alternative medicine (CAM) is widely used and has increased over time in numerous countries. Complementary and alternative medicine (CAM) or "complementary health approaches" encompass various medical and healthcare treatments and products that fall outside the scope of conventional medicine. Complementary therapies not only improve health but are also more affordable and readily available.⁷ This study aimed to collect current information on alternative therapies for dysmenorrhea in adolescent females of reproductive age.

MATERIALS AND METHODS

The scoping review technique was used as methodology in this in-depth review. The research's reference materials were obtained from a variety of articles.⁸ This study used an evidence-based approach for scoping reviews by adopting the design of Tricco et al. (2018), which consists of five stages: stage one is identifying research questions, stage two is to find relevant articles, stage three is selecting articles, stage four is charting the

data, stage five is combining the data, summarizing the findings, and stage six is presenting the findings.⁹ To find questions for the scoping review, it is necessary to use efficient search methods to develop questions for literature search. The search method used in this review was PEO, which stands for Population, Exposure (intervention), and Outcome (results). The population in this review was teenage girls, the intervention was complementary therapy and the outcome was the effect of the complementary therapy. The inclusion and exclusion criteria used to define article eligibility are described in Table 1.

Review in this study, the authors used PubMed, Wiley Online Library, and Science Direct as their search engines to look for studies on the impact of complementary therapy on young women's dysmenorrhea discomfort. To focus the search on teenage girl we used boolean operators using the words Teenage Girl* OR Adolescent* girls OR young women*. The focus complementary therapy used Complementary therapy* OR Treatment traditional*, and the focus on dysmenorrhea used the words Primary dysmenorrhea* OR secondary dysmenorrhea*.

This scoping review found 72 articles from the PubMed database, 210 articles from Wiley Online Library, and 581 articles from Science Direct. All searches were conducted on January 8, 2023. The next step, all articles obtained with a total of 863 articles were entered into Zotero software and we found 15 duplicate articles. After the duplicate articles were discarded, the article review was started by selecting the titles and reading the abstracts to find articles suitable for the research and adjusted to the inclusion and exclusion criteria. We found 273 non-research studies, and 19 articles were found not using English and Indonesian, while 11 articles could not be accessed. Screened by title and abstract to as many as 545 articles, there were 34 articles found by filtering the completeness of the article, and 511 articles with records were excluded. From 34 articles found, there were 24 articles with full text, but 14 articles were excluded because they did not answer the research question. Finally, the results obtained were 10 articles, which were used in this study.

Table 1. Inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
1. Articles published in the last 5 years	1. Articles published are not scientific journals
2. Complete and accessible article	2. Reviews, opinion articles
3. Articles in Indonesian and English	3. Thesis, term paper, dissertation thesis
4. International and National Publications	4. Books
5. Quantitative research articles, qualitative	

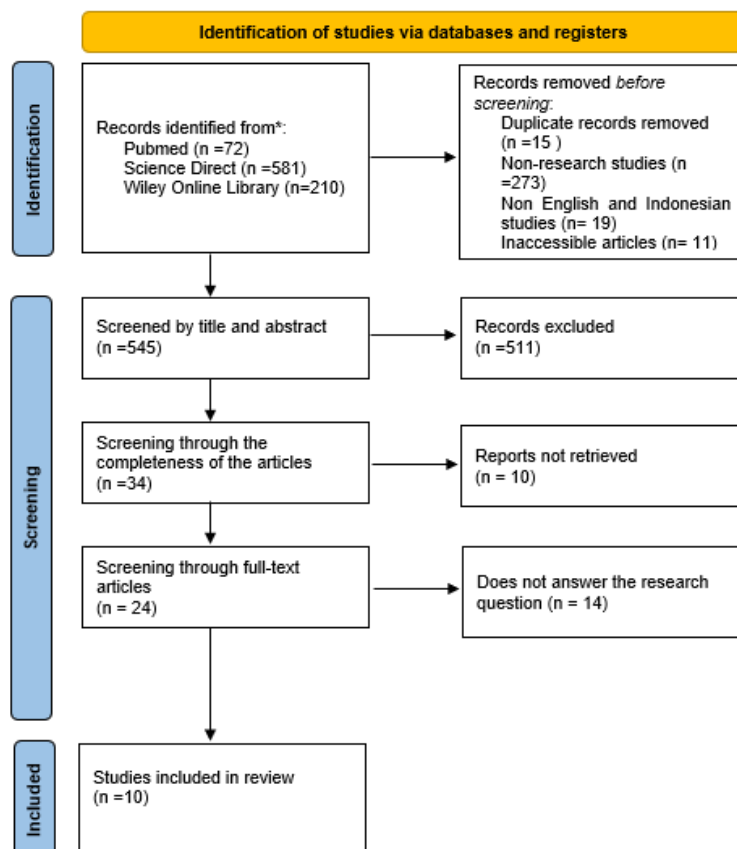


Figure 1. PRISMA flowchart

Critical assessment is the process of carefully, methodically, and accurately analyzing things. The author evaluated the articles using the Joana Briggs Institute (JBI) critical assesment tool. At this point, the author utilized the grades A, B, and C to assess the articles' quality. Every article was examined independently by the researchers to see if it might be used as a reference for further research. Further careful and meticulous assessment of every article later revealed the final values as shown in Table 2.

RESULTS AND DISCUSSION

For each publication included in this review study, the author's name, year and country, purpose, methodology, and findings were documented. All publications were examined for key themes, including characteristics of teenagers who underwent complementary therapy, the use of complementary therapy for comfort, and the effect of the complementary therapy. The articles were

assigned with numbers A1–A10 to facilitate searching. After critically evaluating 10 publications, it was found that there were five cross-sectional quantitative articles (A1, A2, A3, A4, and A6) with high ratings, one qualitative article (A5) with a moderate rating, and the randomized controlled trials (RCTs) articles A7 and A8 were rated highly, while RCTs A9 and A10 had a lower rating.

The articles were grouped using article mapping according to their original characteristics, which was determined by research approaches and country-specific features. Ten articles used different research methodologies, comprising five cross-sectional studies, one qualitative study, and four randomized controlled trials (RCT). This scoping review included research publications from Turkey, China, and Spain as examples of articles from developed countries, and from Malaysia, Ghana, India, and Iran as examples of articles from developing countries.

According to the evaluation conducted with the JBI instrument, seven articles had very good grades (A1, A2, A3, A4, A6, A9, A10) and three articles had good grades (A5, A7, A8). The highest score was 9.3 (A), while the lowest score was 9 (B) in article A5. The review categorized publications based on three important themes: the characteristics of teenagers who underwent complementary therapy, the comfort the therapy offered, and its impact. Primary dysmenorrhea is a common gynecological condition among teenagers, with a high prevalence rate observed in articles A1, A2, A3, A4, A6, and A7 in theme 1 focusing on teenagers who were undergoing alternative therapy. Theme 2 articles focused on complementary therapies that can effectively treat dysmenorrhea and were considered safe for women's comfort. These articles comprised A1, A2, A5, A6, and A8 articles. Theme 3 focused on the impact of complementary therapies. Several alternative therapies were found to be useful in alleviating pain and suffering related to dysmenorrhea, as reported in articles A1, A2, A5, and A6.

Characteristics of the teenagers undergoing complementary therapy

Women are affected by primary dysmenorrhea since it is one of the most prevalent and significant gynecological issues. Women with a history of early menarche, menorrhagia, a family history of dysmenorrhea, and emotional disorders were found to have a greater prevalence of dysmenorrhea. All young female students who had dysmenorrhea used supplementary medicine. As much as 48.9% of female students were between the ages of 21 and 23, while 47.2% were between the ages of 18 and 20. The age of menarche for 68.9% of the students was under 10 years old. All students had a regular menstrual cycle and 68.9% of them had a menstrual cycle of more than 7 days (A3). As much as 48.9% of female students were between the ages of 21 and 23, while 47.2% were between the ages of 18 and 20. The age of menarche for 68.9% of the students was under 10 years old. All students had a regular menstrual cycle and 68.9% of them had a menstrual cycle of more than 7 days (A3). Among the female students, 48.9% were between the ages of 21 and 23, while 47.2% were between the ages of 18 and 20. The age of menarche for 68.9% of students was under 10 years old. All students had a regular menstrual cycle and 68.9% of them had a menstrual cycle of more than 7 days (A3).¹⁰ We analyzed the distribution of those students' use of complementary and alternative medicines to treat dysmenorrhea. The quality of life, work position, and social obligations are all greatly impacted by dysmenorrhea. The most common method of managing dysmenorrhea is through the use of non-pharmacological treatments since pain management without or

with minimum drug use is a significant healthcare aim (A6).¹¹⁻¹³

Effect of complementary therapy on comfort

While painkillers were insufficiently effective to regulate or lessen pain (A5),¹⁴ complementary therapies are safe and effective to relieve menstruation discomfort or dysmenorrhea, so that their impact on women's comfort was apparent (A1).¹³ One of the complementary therapies is the use of ginger as a herbal remedy. It is a safe herbal remedy for treating dysmenorrhea so that it does not impede young women's activities (A8).¹⁵ This demonstrates that those who experience dysmenorrhea are more interested in relieving their menstrual pain using those therapies than using medical treatment, and complementary therapy in treating dysmenorrhea is safe and effective for use in women or young women (A1).¹³ The relationship between availability and cost can be a common reason for the use of those therapies. Complementary therapies are often used in conjunction with conventional medicine or as a method to help patients feel more comfortable. It was also found that analgesic was ineffective for dysmenorrhea. In order to lessen pain, dysmenorrhea can be treated with either self-medication or complementary therapy.

Effect of complementary therapy on dysmenorrhea

Women who employ a variety of complementary therapies are believed to have pain and discomfort relief from dysmenorrhea (A2).⁶ According to several research, using complementary and alternative therapies to treat dysmenorrhea in adolescents can have an impact on menstruation discomfort or dysmenorrhea (A1).¹³ Strategies included in complementary therapy treatments carried out for pain management include those that support relaxation, such as rest, heat, massage, music, and adopting antalgic positions and distraction techniques. Common techniques to promote relaxation and consequently reduce pain include physical rest, various forms of heat application such as hot baths, warm compresses, electric blankets or even drinking hot herbal tea can help influence the reduction of dysmenorrhea (A5).¹⁴

Transcutaneous electrical nerve stimulation (TENS) has been proposed as an effective method for reducing pain in primary dysmenorrhea. TENS is a cost-effective, portable technique that is noninvasive and has minimal hazards and with only a few contraindications. TENS is a noninvasive, inexpensive, portable method with minimal risks and a few contraindications. According to the numerical rating scale (NRS) for dysmenorrhea-related pain, the length of dysmenorrhea pain relief, and

the quantity of ibuprofen pills used, TENS demonstrated a larger benefit in pain relief (A10).¹⁷

The most popular strategy for treating dysmenorrhea is the use of non-pharmacological treatments including complementary therapies. Alternative non-pharmacological treatments for primary dysmenorrhea include self-care techniques such as exercise, rest, dietary changes, and use of cold medications. and hot compresses to relieve menstrual pain (A6).¹¹ Additionally, it has been demonstrated that complementary treatments, such as acupuncture, can lessen the symptoms of primary dysmenorrhea and are linked to substantially lower pain intensity (A7).¹²

This scoping review tried to understand how complementary therapy affected young women's dysmenorrhea. Menstrual pain before or during a period, known as dysmenorrhea, renders a woman unable to work or engage in other activities and forces her to sleep. Dysmenorrhea is a condition that causes cramps, pelvic pain, and abdominal pain throughout the menstrual cycle.¹⁶ Dysmenorrhea has a detrimental impact on social interaction, psychological status, and daily physical activity, as well as daily work or school activities, such as absenteeism, loss of attention, and decreased participation or output.¹³

There are four types of self-care measures for primary dysmenorrhea: lifestyle improvements involving reducing physical activity, keeping warm, consuming warm beverages, and avoiding cold beverages and foods, as well as hot or greasy foods, caffeine, and sweet foods. Self-medication, including traditional Chinese medicine or Western medicine, is a kind of symptom management. Self-regulation of negative emotions involves actions such as engaging in disruptive behaviors, expressing feelings, and self-talk to suppress them, as well as alternative therapies including heat therapy, massage, and acupuncture. The category of dysmenorrhea including communication with others includes interactions with the mother, other family members, acquaintances, classmates, or teachers to seek management guidance or medical help (A4).²⁰

There are other types of complementary treatments that can be employed, including herbal remedies, relaxing techniques, drinking mineral water as a form of therapy, and combination therapies. Adolescents can be managed and have their quality of life improved with the use of

complementary therapies because they are secure and efficient. Young women receive complementary and alternative therapy. On the other hand, warm water compress therapy is a popular supplementary therapy that is utilized frequently nowadays due to its ease of use, safety and comfort it provides, and effectiveness.¹³

Warm compresses have been shown in studies by Yunianingrum & Widyastuti¹⁸ to be effective in treating dysmenorrhea while Ariyantiet al., found that using warm water compresses or herbs as a complementary therapy had similar effects.¹⁹ Herbal beverages are occasionally used by teenagers as a supplemental treatment to ease menstrual discomfort. Herbal beverages like tamarind, turmeric, hot ginger, honey, and coconut water are thought to ease menstruation cramps.¹⁹ The best for reducing the symptoms of dysmenorrhea are fennel, hops, chamomile, lavender, lemon balm, mint, rose, papaya, lemongrass, and zataria. Other properties of each plant that support the activity of reducing symptoms of dysmenorrhea include curcuma, pawpaw, aloe vera, cinnamon, and lemongrass.¹⁶ According to numerous research, supplementary therapy can influence dysmenorrhea or menstrual pain. According to Chen et al.'s findings, supplementary therapy reduced dysmenorrhea by about 56.5%.²⁰

Because it is simple to use and has no detrimental impacts on health, complementary therapy was highlighted in this study. According to the results, probably it is the most popular therapy now since it has been shown to be simpler, more efficient, and safer to use in several studies, particularly when combined with warm compresses and herbal therapy employing medicinal plants like ginger, turmeric, and other similar plants.

Since Asian culture made up the majority of the research papers, they were unable to adequately describe other cultures that diverge from the norms and cultures that are discussed in the research articles. Furthermore, as this study only included one qualitative article, not enough information was available for all young women who treat their dysmenorrhea with alternative therapies. Furthermore, the JBI tool was utilized in this scoping review to appraise the articles' quality and the phases involved in creating a scoping review, which were verified by means of the PRISMA-ScR checklist.

Table 2. Chart of data studied

No	Author, year	Country	Aim	Type Of Reseach	Data Collection	Participants	Results	JB1
A1	Abubakar et al., 2020 ¹³	Malaysia	This research determined the practices and perceptions of female students with dysmenorrhea towards complementary and alternative therapies (CAT)	Quantitative Cross Sectional	Questionnaire, and numeric rating Scale (NRS)	As many as 474 female students participated in this survey as responders.	The incidence of dysmenorrhea was 72.1%, and the most common CATs used by respondents were hot compresses/heating pads (47.5%) and massage (43.0%), both of which were used often. The use of CAT was most frequently done to lessen the need for analgesics (61.4%), for efficacy (37.3%), and on the advice of others (32.9%). Approximately 23 and 9% of respondents said CAT was "effective" and "more effective" than analgesics, respectively.	A
A2	Samba Conney et al., 2019 ⁶	Ghana	The purpose of this study was to evaluate the effectiveness of complementary and alternative medicine (CAM) in treating dysmenorrhea in teenage girls.	Quantitative Cross Sectional	The NRS, a semi-structured questionnaire comprising both open-ended and closed-ended items, was used to collect the data.	As many as 478 female students from Mporhor High School and Archbishop Porter Girls' Secondary School participated in this survey as responders..	Users of CAM used 32% mind-body techniques like relaxation, 31% alternative techniques like hot water therapy, 15% biological techniques like herbal products, and 22% manipulative and body-based techniques like exercise. Significant connections were found that might lead to higher quality of life (QoL).	A
A3	Duman and Yıldırım, 2022 ¹⁰	Turkey	Aimed to identify the risk factors for primary dysmenorrhea in female students as well as the impact of CAM use in preventing primary dysmenorrhea.	Quantitative Cross Sectional	Visual Analogue Scale (VAS)	In this study, 134 respondents were divided into two groups at random, having 67 respondents in each group.	The students' mean VAS ratings indicated that having a hot bath (4.61 ± 2.13) and applying heat to the stomach (4.33 ± 1.98) were the most effective mind-body approaches utilized to minimize primary dysmenorrhea.	A
A4	Chen et al., 2019 ²⁰	China	The purpose of this study was to investigate the frequency of primary dysmenorrhea among Chinese female students as well as its features and self-care management techniques.	Quantitative Cross Sectional	Questionnaire	There were 2.555 female students selected utilizing multistage cluster random sampling as respondents for this study.	Self-care strategies commonly used to reduce dysmenorrhea are keeping warm (84.6%), drinking warm drinks (75.7%) and avoiding cold drinks and food (74.2%). As much as 34.8% self-medicated, those using Western medicine were 15.6%, traditional Chinese medicine 8.6%, or both 10.6%.	A

A5	Fernández-Martínez et al., 2022 ¹⁴	Spain	This study aimed to describe how Spanish students manage dysmenorrhea	Quantitative Case Study	Interview	In this study, 33 nursing students from Andalusia (Spain) participated as responders.	Four main themes were identified: (a) Pain management strategies; (b) using painkillers; (c) selecting the ideal treatment; (d) non-pharmacological treatments.	B
A6	Unnisa et al., 2022 ¹¹	India	The aim of this study was to explore quality of life with non-pharmacological treatment for dysmenorrhea.	Quantitative Cross Sectional	Questionnaire, interview	Respondents in this study totaled 517 respondents	348 out of 517 participants finished the study; of these, 51.1% had average QOL, 33.3% had bad QOL, and 14.9% had good QOL. This shows that managing the adverse impacts on health-related issues can be accomplished by frequently implementing non-pharmacological approaches.	A
A7	Wang et al., 2019 ¹²	China	This study was conducted to evaluate the effectiveness of acupressure techniques to relieve pain in patients with primary dysmenorrhea compared with conventional pain treatment.	Quantitative Cross Sectional	Visual Analogue Scale (VAS)	The respondents in this study were 62 young women	The results of this study were that acupuncture was proven to be associated with significantly lower pain intensity and reduced severity of primary dysmenorrhea symptoms compared to ibuprofen ($p < 0.05$).	B
A8	Adib Rad et al., 2018 ¹⁵	Iran	This research was conducted with the aim of comparing the effects of ginger and Novafen in menstrual pain.	Quantitative Cross Sectional	Demographic questionnaires, the pain visual analog scale (PVAS), the multidimensional verbal rating scale (MVRS), and pictorial blood loss assessment charts (PBAC) were used in this study to gather data. Using PVA, the degree of dysmenorrhea was examined.	The respondents in this study were 168 female teenage students	The differences between the two groups each time did not show statistical significance ($p > 0.05$). Both drugs reduced menstrual pain. Ginger and Novafen are effective in relieving pain in women with primary dysmenorrhea. Therefore treatment with natural herbal medicines, non-synthetic medicines, to reduce primary dysmenorrhea is recommended	B

A9	Yu et al., 2018 ²¹	China	The purpose of this study was to compare the effectiveness of AHP with an acupoint placebo plaster (APP) administered to patients with primary dysmenorrhea in a waiting list control group.	Quantitative Cross Sectional	Visual Analogue Scale (VAS)	Respondents in this study were 180 women.	The findings of this study demonstrated that acupoint plasters are safe to use and that their therapeutic effects as complementary therapies are superior to those of medicines.	A
A10	Bai, et al. 2017 ¹⁷	China	This study looked at how transcutaneous electrical nerve stimulation (TENS) therapy affected women with primary dysmenorrhea in terms of pain reduction.	Quantitative Cross Sectional	Numeric Rating Scale (NRS)	As many as 134 people participated in the study as respondents.	According to the study's findings, TENS was a safe and effective way to treat pain in people with primary dysmenorrhea. Therefore, the quantity of ibuprofen tablets taken (P.01), the length of time the pain from dysmenorrhea was relieved (P.01), and the NRS (P.01). However, there was no discernible change in the 2 groups' WHOQOL-BREF scores for life quality.	A

CONCLUSION

Complementary therapies can help treat or lessen dysmenorrhea or period pain in young women. Studies on complementary therapy therapies for teenagers with dysmenorrhea provided evidence for this. The use of non-pharmacological treatments found in complementary therapy programs is the most widely used approach to treating dysmenorrhea. Because complementary therapy is simple to apply and has no detrimental effects on health, its significance should be stressed. Herbs and warm water compress therapy are two additional complementary therapies that are frequently employed since they are efficient and secure in treating dysmenorrhea. Research is needed to understand how alternative therapies affect dysmenorrhea in teenage girls.

DISCLOSURES

Acknowledgment

Thank you to all parties involved in this research

Conflict of interest

All authors have no conflict of interest

Funding

This research has received no external funding

Author Contribution

All authors participated in all phases of this research, including planning, collecting and analyzing data, drafting, and approving the manuscript for publication.

REFERENCES

1. Astuti D, Kulsum U. Pola menstruasi dengan terjadinya anemia pada remaja [Menstrual pattern and anemia incidence among adolescents]. Ilmu Keperawatan dan Kebidanan. 2020;11(2):314–27. [doi: 10.26751/jikk.v11i2.832](https://doi.org/10.26751/jikk.v11i2.832).
2. Sembiring JB, Kadir D, Tarigan R. Efektivitas terapi kombinasi pemberian seduhan kembang telang/butterfly pea (*Clitoria ternatea*) dan lamaze exercise terhadap penurunan nyeri haid (disminore) pada remaja putri [Effectiveness of combined therapy using butterfly pea infusion and lamaze exercise on dysmenorrhea reduction]. Healthy Tadulako Journal. 2022;8(1):44–51. [doi: 10.22487/htj.v8i1.487](https://doi.org/10.22487/htj.v8i1.487)
3. Budhi NGMAA, Aticeh, Follona W, et al. (2022). Effect of spice drinks (red ginger and cinnamon) on dysmenorrhea pain. International Journal of Science and Society. 2022;4(4):437–48. [doi: 10.54783/ijssoc.v4i4.592](https://doi.org/10.54783/ijssoc.v4i4.592).
4. Nurbaiti, Febrina R. Pranayama sebagai pengurangan nyeri menstruasi pada remaja putri di SMK Baiturrahim [Pranayama to reduce dysmenorrhea among female adolescents in SMK Baiturrahim]. 2022;4(3):355–60. [doi: 10.36565/jak.v4i3.329](https://doi.org/10.36565/jak.v4i3.329).
5. Azizah N, Kusumawardani PA. Inhalasi aromaterapi lavender dengan penurunan intensitas nyeri dismenorea pada remaja. [Proceeding Book of the Health National Conference](https://doi.org/10.36565/jak.v4i3.329); 2020 Mar 4; Mataram, Indonesia.
6. Samba Conney C, Akwo Kretchy I, Asiedu-Danso M, et al. Complementary and alternative medicine use for primary dysmenorrhea among senior high school students in the western region of Ghana. Obstet Gynecol Int. 2019;2019:8059471. [doi: 10.1155/2019/8059471](https://doi.org/10.1155/2019/8059471). PMID: 31885598; PMCID: PMC6899296.
7. Arini KN, Nyoman N, Witari D. Edukasi pemanfaatan terapi komplementer untuk mengurangi kejadian emesis gravidarum pada kehamilan pertama [Education on complementary therapy for reducing emesis gravidarum in first pregnancy]. Jurnal Abdi Mahosada. 2023 ;1(1):7–13. [doi: 10.54107/abdimahosada.v1i1.145](https://doi.org/10.54107/abdimahosada.v1i1.145)
8. Munn Z, Peters MDJ, Stern C, et al. Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. BMC Med Res Methodol. 2018;18(1):143. [doi: 10.1186/s12874-018-0611-x](https://doi.org/10.1186/s12874-018-0611-x). PMID: 30453902; PMCID: PMC6245623.
9. Tricco AC, Lillie E, Zarin W, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018;169(7):467–73. [doi: 10.7326/M18-0850](https://doi.org/10.7326/M18-0850). Epub 2018 Sep 4. PMID: 30178033.
10. Duman NB, Yıldırım F, Vural G. Risk factors for primary dysmenorrhea and the effect of complementary and alternative treatment methods: Sample from Corum, Turkey. Int J Health Sci (Qassim). 2022;16(3):35–43. [PMID: 35599944](https://doi.org/10.35599944); PMCID: PMC9092532.
11. Unnisa H, Annam P, Gubba NC, et al. Assessment of quality of life and effect of non-pharmacological management in dysmenorrhea. Ann Med Surg (Lond). 2022;81:104407. [doi: 10.1016/j.amsu.2022.104407](https://doi.org/10.1016/j.amsu.2022.104407). PMID: 36147090; PMCID: PMC9486665.
12. Wang H, Cao Y, Jin X, et al. Effect of an acupuncture technique of penetrating through zhibian (BL54) to shuidao (ST28) with long needle for pain relief in patients with primary

- dysmenorrhea: A randomized controlled trial. *Pain Res Manag.* 2019;2019:7978180. doi: [10.1155/2019/7978180](https://doi.org/10.1155/2019/7978180). PMID: 31929849; PMCID: PMC6935824.
13. Abubakar U, Zulkarnain AI, Samri F, et al. Use of complementary and alternative therapies for the treatment of dysmenorrhea among undergraduate pharmacy students in Malaysia: a cross sectional study. *BMC Complement Med Ther.* 2020;20(1):285. doi: [10.1186/s12906-020-03082-4](https://doi.org/10.1186/s12906-020-03082-4). PMID: 32948163; PMCID: PMC7501717.
 14. Fernández-Martínez E, Pérez-Corrales J, Palacios-Ceña D, et al. Pain management and coping strategies for primary dysmenorrhea: A qualitative study among female nursing students. *Nurs Open.* 2022;9(1):637-45. doi: [10.1002/nop2.1111](https://doi.org/10.1002/nop2.1111). Epub 2021 Oct 30. PMID: 34719126; PMCID: PMC8685831.
 15. Adib Rad H, Basirat Z, Bakouei F, et al. Effect of Ginger and Novafen on menstrual pain: A cross-over trial. *Taiwan J Obstet Gynecol.* 2018;57(6):806-9. doi: [10.1016/j.tjog.2018.10.006](https://doi.org/10.1016/j.tjog.2018.10.006). PMID: 30545531.
 16. Fauziyah PN, Zuhrotun A. Review: Tumbuhan Berkhasiat Untuk Mengatasi Dismenorea [Review article: traditional plants for dysmenorrhea]. *Kartika J Ilm Farm.* 2020;7(2):79. doi: [10.26874/kjif.v7i2.284](https://doi.org/10.26874/kjif.v7i2.284).
 17. Bai HY, Bai HY, Yang ZQ. Effect of transcutaneous electrical nerve stimulation therapy for the treatment of primary dysmenorrheal. *Medicine (Baltimore).* 2017;96(36):e7959. doi: [10.1097/MD.00000000000007959](https://doi.org/10.1097/MD.00000000000007959). PMID: 28885348; PMCID: PMC6392990.
 18. Yunianingrum E, Widyastuti Y, Margono. The effect of warm compress and aromatherapy lavender to decreasing pain on primary dysmenorrhea. *Jurnal Kesehatan Ibu dan Anak.* 2018;12(1):39-47.
 19. Ariyanti KS, Sariyani MD, Winangsih R. Terapi non-farmakologis untuk mengurangi nyeri haid pada remaja di Tabanan [Non-pharmacological therapy to reduce dysmenorrhea among adolescents in Tabanan]. *J Kebidanan Malakbi.* 2022;3(2):58. doi: [10.33490/b.v3i2.612](https://doi.org/10.33490/b.v3i2.612).
 20. Chen L, Tang L, Guo S, et al. Primary dysmenorrhea and self-care strategies among Chinese college girls: a cross-sectional study. *BMJ Open.* 2019;9(9):e026813. doi: [10.1136/bmjopen-2018-026813](https://doi.org/10.1136/bmjopen-2018-026813). PMID: 31537555; PMCID: PMC6756436.
 21. Yu S, Wen Y, Xia W, et al. Acupoint herbal plaster for patients with primary dysmenorrhea: study protocol for a randomized controlled trial. *Trials.* 2018;19(1):348. doi: [10.1186/s13063-018-2682-8](https://doi.org/10.1186/s13063-018-2682-8). PMID: 29970155; PMCID: PMC6029355.