The Effectiveness of Warm Compresses And Jasmine Aromatherapy in Reducing Menstrual Pain in Adolescent Girls

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ABSTRACT

Dysmenorrhea, or menstrual pain, is a common gynecological issue experienced by women of various ages. This pain can disrupt daily activities if not properly managed. Dysmenorrhea can be treated pharmacologically (with medication) or non-pharmacologically, such as with warm compresses and aromatherapy. This study aims to determine the effects of warm compresses and jasmine aromatherapy in reducing menstrual pain (dysmenorrhea) among adolescent girls at MA Walisongo Lampung Utara. This research uses a quasi-experimental design with a probability sampling technique, specifically proportionate stratified random sampling. A total of 40 students were sampled, using a non-equivalent pretest-posttest with control group design. The study results showed a difference in the reduction of dysmenorrhea pain in the group using warm compresses, with a p-value of 0.001 < 0.05. Meanwhile, the group using jasmine aromatherapy had a p-value of 0.005 < 0.05. The T-test showed a significant effect of using warm compresses and jasmine aromatherapy on reducing dysmenorrhea pain in adolescent girls at MA Walisongo Lampung Utara. Jasmine aromatherapy is more effective in reducing dysmenorrhea pain compared to warm compresses.

Keywords: Dysmenorrhea, Warm Compress, Jasmine Aromatherapy, Adolescent Girls

INTRODUCTION

Every woman experiences puberty, a transition period from childhood to adulthood. Adolescence is a transitional phase involving physical and psychological changes, during which adolescents tend to be unstable and easily influenced by their surroundings (Study Cha, 2013). One of the common menstrual disorders experienced by many women is dysmenorrhea, which refers to menstrual pain. The severity of the pain can vary, ranging from mild to severe (Study Cha, 2013). The prevalence of dysmenorrhea varies each year, ranging from 28% to 77.7% worldwide. The global incidence of dysmenorrhea is very high, with more than 50% of women in each country experiencing menstrual pain.

This study also found that dysmenorrhea leads to 14% of adolescents frequently missing school, with the pain levels reported as follows: 12% experiencing severe pain, 37% moderate pain, and 49% mild pain. In Indonesia, approximately 54.89% of adolescents aged 14-19 years suffer from primary dysmenorrhea. The 2020 and 2021 Riskesdas reports from Lampung Province indicate that in 12 community health centers in North Lampung Regency, around 52% of adolescent girls were unable to carry out daily activities properly during menstruation due to dysmenorrhea. This research is intriguing because the management of dysmenorrhea often relies on pharmacological drugs or lacks appropriate treatment altogether. Some previous studies have explored non-pharmacological therapies to reduce dysmenorrhea, such as the use of warm compresses, music therapy, acupressure, and others. Prior research has primarily focused on using either warm compresses or jasmine aromatherapy, such as aromatherapy candles, to compare conditions before and after applying these methods. Warm compresses are typically administered using a hot water bottle wrapped in cloth, while aromatherapy is an alternative treatment method that employs the aroma or fragrance of aromatic compounds.

According to previous studies, the results of the comparison between the experimental and control groups, analyzed using the Mann-Whitney test, showed a p-value of 0.009. This indicates no significant difference in the effects between jasmine aromatherapy and warm compresses on dysmenorrhea (Leli Masrurotin Napiah, 2018). Combining warm compresses and jasmine aromatherapy could be an effective alternative treatment for dysmenorrhea, particularly in school settings where access to medical care may be limited. This study is relevant because it not only offers a novel approach to reducing menstrual pain in adolescent girls but also promotes the use of safe and accessible non-pharmacological methods. Thus,

this research could significantly contribute to developing more comprehensive and holistic methods for managing dysmenorrhea.

Research conducted by Wahyu, H., and Lina, L. F. (2019) demonstrated that the combination of warm compress therapy with jasmine essential oil significantly reduces the intensity of menstrual pain. These findings align with studies on the effectiveness of warm compresses and jasmine aromatherapy in alleviating menstrual pain in adolescent girls. Warm compresses help increase blood flow and relieve muscle tension, while jasmine essential oil provides a relaxing effect that reduces emotional stress. This research supports the use of effective, safe, and easily applied non-pharmacological approaches, especially in educational environments where access to medical care may be limited. Thus, this study strengthens the empirical foundation for applying this method as a practical alternative for managing dysmenorrhea, offering a more holistic solution focused on patient well-being.

Additionally, research by Dhirah, U. H., and Ulfira, M. (2021) also showed that jasmine aromatherapy effectively reduces the scale of primary dysmenorrhea pain in adolescent girls. This study's findings affirm that jasmine aromatherapy has the potential to provide significant relief in managing menstrual pain in a non-pharmacological way, offering a safe and convenient alternative. This research reinforces the scientific basis for a combined approach integrating aromatherapy with warm compresses, broadening the possibilities for managing dysmenorrhea among adolescent girls with more holistic and practical methods. Based on preliminary studies conducted by the researchers in December 2023 at MA Walisongo Lampung Utara, it was found that dysmenorrhea management at the school only involved using eucalyptus oil and administering analgesics or pain relievers. Meanwhile, the use of warm water compresses and aromatherapy had not been applied.

Based on the above background, it is important to explore more deeply the effectiveness of non-pharmacological methods such as warm compresses and jasmine aromatherapy in the management of dysmenorrhea. Previous research indicates that the combination of these two methods can provide significant relief in reducing the intensity of menstrual pain, supporting its potential application in a school setting. Findings from prior studies emphasize that this approach is not only safe and easily accessible but also a practical solution in places where medical care may be limited. Considering the research results showing the combined effectiveness of warm compresses and jasmine aromatherapy, this study aims to provide

strong empirical evidence and enhance the understanding of holistic dysmenorrhea management, particularly for adolescent girls who experience significant impacts from menstrual pain.

METHODS

This study utilized a quasi-experimental design with a probability sampling technique through proportionate stratified random sampling, involving 40 students. It was conducted from March to May 2024 at MA Walisongo Lampung Utara, with a population of all female adolescent students in grades X and XI, totaling 150 students, of whom 80 had a history of dysmenorrhea. The sample was selected using proportionate stratified random sampling, ensuring proportional representation from each stratum within the population (Sugiyono, 2016). The independent variables in this study were warm compresses and jasmine aromatherapy, while the dependent variable was the reduction of menstrual pain (dysmenorrhea) in adolescent girls.

Assessment was carried out using a pain intensity questionnaire that had been tested for validity and reliability. The collected data were processed through editing, coding, scoring, data entry, and tabulation (Riyanto, 2018) to convert them into useful information. Data analysis was conducted univariately and bivariately to identify the relationship between the two variables. Nonparametric statistical tests were used, including paired T-tests to identify the effect of dysmenorrhea before and after the application of warm compresses and jasmine aromatherapy, as well as independent T-tests to compare the effectiveness and differences in pain reduction between the two methods.

RESULT

Univariate Analysis

Table 1. Frequency Distribution Based on the Characteristics of Respondents at MA Walisongo Lampung Utara

Characteristics	Kelompok Remaja Putri			
	Warm Compress Group		Jasmine Aromatherapy Group	
	N	%	N	%
Age				
15 Years	6	31	6	31
16 Years	10	60	6	31
17 Years	4	9	8	38
Age of Menarch				
13 Years	9	37	8	42
14 Years	6	33	10	5
15 Years	5	30	2	8
Menstrual Cycle				
< 28 Days	0	0	0	0
28-35 Days	18	80	20	100
>35 Days	2	20	0	0
Menstrual Pain				
0	0	0	0	0
1-3	11	55	7	35
4-6	7	35	7	35
7-9	2	10	6	30
10	0	0	0	0

Source: Primary Data 2024

Based on the frequency distribution table, there are differences in characteristics between the group receiving warm compresses and the group receiving jasmine aromatherapy at MA Walisongo Lampung Utara. In the warm compress group, the majority of respondents are 16 years old and have the most common menarche age of 13 years, with the majority having a menstrual cycle in the range of 28-35 days. Most respondents experience menstrual pain with a scale of 1-3. Meanwhile, the jasmine aromatherapy group is predominantly composed of 17-year-olds, with the most common menarche age being 14 years and 100% of menstrual cycles falling within the 28-35 day range. For menstrual pain, the jasmine aromatherapy group shows a varied pain distribution, with most experiencing pain on a scale of 4-6.

Bivariate Analysis

a. Menstrual Pain Before and After Administration of Warm Compresses

Table 2. Menstrual Pain Before and After Administration of Warm Compresses

Group	N	Mean	Std. Dev	Nilai ṕ
Dysmenorrhea Before Warm Compresses	20	2,00	0,795	0,35
Dysmenorrhea After Warm Compresses	20	1,20	0,410	0,001

Source: Primary Data 2024

Based on the table, the average menstrual pain (dysmenorrhea) before the application of warm compresses was 2.00 with a standard deviation of 0.795. After the application of warm compresses, the average menstrual pain decreased to 1.20 with a standard deviation of 0.410. The analysis results show a p-value of 0.001, which is less than 0.05, indicating that the difference in menstrual pain before and after the application of warm compresses is statistically significant. This suggests that warm compresses effectively reduce the intensity of menstrual pain in the respondents.

b. Menstrual Pain Before and After Aromatherapy with Jasmine

Table 3. Menstrual Pain Before and After Aromatherapy with Jasmine

Group	N	Mean	Std. Dev	Nilai ṕ-value
Dysmenorrhea Before Aromatherapy with Jasmine	20	1,90	0,718	0,12
Dysmenorrhea After Aromatherapy with Jasmine	20	1,50	0,607	0,001

Source: Primary Data 2024

Based on the table, the average dysmenorrhea pain before administering jasmine aromatherapy was 1.90 with a standard deviation of 0.718, while after administering jasmine aromatherapy, the average pain level decreased to 1.50 with a standard deviation of 0.607. The p-value of 0.001, which is less than 0.05, indicates a significant reduction in dysmenorrhea pain following the use of jasmine aromatherapy. Although the p-value before administering jasmine aromatherapy was 0.12, which is not significant, these results suggest that jasmine aromatherapy has a significant effect on reducing menstrual pain intensity.

c. Effectiveness Test Between Warm Compress and Jasmine Aromatherapy for Menstrual Pain

Table 4. Effectiveness Test Between Warm Compress and Jasmine Aromatherapy for Menstrual Pain

Group	Mean	N	Std. Dev	Nilai p-value
Warm Compress	1,20	20	0,410	0,001
Jasmine Aromatherapy	1,50	20	0,607	0,005

Source: Primary Data 2024

Based on Table 4, the average reduction in dysmenorrhea after the application of a warm compress is 1.20, while for the group receiving jasmine aromatherapy, the average reduction is 1.50. The effectiveness test results show that the reduction in dysmenorrhea for the warm compress group has a p-value of 0.001, and for the jasmine aromatherapy group, the p-value is 0.005, both of which are less than 0.05. Using an unpaired T-test, the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted, indicating that both the warm compress and jasmine aromatherapy methods are effective in reducing dysmenorrhea in adolescent girls at MA Walisongo Lampung Utara.

DISCUSSION

Based on the research findings, there is a significant reduction in menstrual pain following the application of pain reduction methods. For the group receiving warm compresses, the average menstrual pain before treatment was 2.00 with a standard deviation of 0.795, which decreased to 1.20 with a standard deviation of 0.410 after treatment, with a p-value of 0.001 indicating statistical significance. Similarly, for the group receiving jasmine aromatherapy, the average menstrual pain before treatment was 1.90 with a standard deviation of 0.718, which decreased to 1.50 with a standard deviation of 0.607 after treatment, with a p-value of 0.001 also indicating significance. Comparison analysis between the two methods shows that although both methods are effective in reducing menstrual pain, warm compresses have a smaller p-value (0.001) compared to jasmine aromatherapy (0.005), suggesting that warm compresses may be more effective in reducing dysmenorrhea than jasmine aromatherapy. These results affirm that both warm compresses and jasmine aromatherapy can be used as effective non-pharmacological methods for reducing menstrual pain in adolescent girls at MA Walisongo Lampung Utara.

The application of warm compresses affects the activity of large and small diameter nerve fibers. On the other hand, jasmine aromatherapy, although showing a slower reduction in dysmenorrhea, has the additional benefit of reducing dysmenorrhea. Existing theories explain

that jasmine aromatherapy affects the olfactory senses, specifically the nose. Aromatherapy molecules inhaled through the nose are converted by olfactory cilia into electrical impulses, which are then transmitted to the brain via the olfactory nerves and reach the limbic system. The limbic system is associated with mood, emotions, memory, and learning processes. Subsequently, scent signals are sent to the hypothalamus for further processing (Pangesti, 2017). The response to scent triggers activity in the autonomic nervous system, which regulates involuntary functions such as breathing and blood pressure, thus creating conditions of relaxation and calmness. Pleasant aromas can stimulate the production of enkephalins, which act as natural pain relievers and relaxation agents, reducing tension and stress. Consequently, menstrual pain decreases, and respondents appear more refreshed upon waking after undergoing this therapy (Syafitri, 2019).

Jasmine aromatherapy influences endorphin hormones, which can provide stimulating, balancing, and relaxing effects on the mind and body. This effect contributes to the reduction of pain sensation. Jasmine oil has a sedative aroma that can relieve pain, relax the nervous system, and provide tranquility. Meanwhile, warm compresses work by reducing pain through the heating effect that alleviates tension, enhances menstrual flow, and reduces pelvic congestion, thereby improving blood circulation in the affected tissues (Dewi Sari, 2015).
Research by Agustina, Hariyani, and Pasiriani (2023) shows a significant effect of warm compresses and jasmine aromatherapy on the reduction of dysmenorrhea pain. This study aligns with research conducted at MA Walisongo Lampung Utara on the effectiveness of warm compresses and jasmine aromatherapy in reducing menstrual pain in adolescent girls. The study found that both methods effectively reduced the intensity of menstrual pain, reflecting the potential of these interventions as non-pharmacological alternatives for managing dysmenorrhea. This research supports and reinforces previous findings by demonstrating that both warm compresses and jasmine aromatherapy can have a positive impact on reducing menstrual pain, which is relevant to the context of MA Walisongo Lampung Utara in seeking effective solutions for dysmenorrhea in adolescent girls.

Research by Sumiaty, S., Dupa, A. V. M., Suryani, L., & Ramadhan, K. (2021) shows that the application of warm compresses significantly reduces the intensity of menstrual pain in adolescent girls. The study revealed that after using warm compresses, there was a 15.8% reduction in severe pain, a 60.4% reduction in moderate pain, and nearly half of the respondents experienced no pain at all. The Wilcoxon Signed Rank test resulted in a p-value <

0.001, indicating a statistically significant difference. This study supports the use of warm compresses as an effective method for reducing menstrual pain, with consistent results showing a decrease in pain intensity.

Research by Delfina, R., Saleha, N., & Sardaniah, S. (2020) confirms the effectiveness of warm compresses in reducing menstrual pain by demonstrating an average decrease in pain of 2.533 after the application of warm compresses compared to before the intervention. These findings significantly reinforce the evidence that warm compresses can be an effective method for managing menstrual pain. The observed reduction in average pain indicates that warm compresses not only alleviate pain intensity but also provide substantial comfort to the patient. This study's results align with other studies showing that warm compresses help relieve muscle tension and improve blood flow in the pelvic area, thereby reducing the sensation of pain. The significant reduction in menstrual pain observed in this study underscores the consistency of the results and supports the use of warm compresses as an effective strategy in menstrual pain management. With additional evidence from this research, it is further affirmed that warm compresses are an intervention that not only delivers tangible results but can also be integrated with other methods, such as aromatherapy, to enhance menstrual pain management outcomes in adolescent girls.

Research by Asman, A., & Dewi, D. S. (2021) investigated the effectiveness of jasmine aromatherapy on pain intensity, showing a reduction of 0.90 on the pain scale between pre-test and post-test values. This decrease indicates that jasmine aromatherapy has a positive effect on reducing the intensity of pain experienced by study participants. The results suggest that jasmine aromatherapy functions not only as an alternative method for pain management but also provides significant relief from discomfort. Jasmine aromatherapy works by stimulating the nervous system, particularly affecting the limbic system and hypothalamus, which are involved in regulating emotions and pain sensations. The average reduction in pain recorded in this study highlights the potential of aromatherapy as an effective method for pain management. Jasmine aromatherapy is known for its sedative effects, which can relax the nervous system, reduce stress, and provide a sense of calm that contributes to pain relief. By decreasing levels of anxiety and tension, aromatherapy can reduce the perception of pain, making it a valuable complementary method in menstrual pain management.

Based on the research findings demonstrating the effectiveness of warm compresses and jasmine aromatherapy in reducing menstrual pain, the researchers assume that both methods

can serve as effective interventions for managing dysmenorrhea. This assumption is based on physiological and psychological theories about how heat and aromatherapy influence pain perception. Warm compresses are believed to work by improving blood circulation and reducing muscle tension in the pelvic area, while jasmine aromatherapy can affect the nervous system through the sense of smell, reduce stress, and enhance relaxation. Referring to previous studies showing a reduction in menstrual pain after the application of warm compresses and jasmine aromatherapy, the researchers assume that combining these two methods may offer a holistic solution that integrates the physical effects of heat with the psychological benefits of aroma. This approach could provide a more comprehensive method for managing menstrual pain, improving overall well-being for adolescent girls experiencing menstrual discomfort.

CONCLUSIONS AND RECOMMENDATIONS

Based on the research results, it can be concluded that both warm compresses and jasmine aromatherapy are significantly effective in reducing menstrual pain. The study shows that the average menstrual pain significantly decreased after the application of warm compresses, with a p-value < 0.001, and jasmine aromatherapy, also with a p-value < 0.001, indicating the effectiveness of both in alleviating dysmenorrhea. Although warm compresses showed a lower p-value, indicating greater effectiveness compared to jasmine aromatherapy, both methods provide positive results in managing menstrual pain. This study supports previous findings that warm compresses and jasmine aromatherapy can be effective non-pharmacological alternatives for addressing menstrual pain in adolescent girls.

As a recommendation, it is suggested to consider using both methods in clinical practice and health education for adolescent girls experiencing dysmenorrhea. The integration of warm compresses and jasmine aromatherapy can offer a more comprehensive approach to managing menstrual pain, combining the physical benefits of heat with the relaxation and stress-reducing effects of aroma. Further research could explore the combination of these two methods to determine the combined effectiveness and potential additional benefits in managing menstrual pain, as well as identify the optimal duration and frequency of interventions for better outcomes.

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