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The Effect of Warm Compresses on the Intensity of Dysmenorrhea Pain in Adolescents

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Abstract. Dysmenorrhea, which is common in adolescent girls, is a painful menstrual cycle that frequently interferes with daily activities, both in the classroom and in social situations. Dysmenorrhea is a common condition that needs particular care as a reproductive health concern, notably among young people. Both pharmacological and non-pharmacological approaches can be used to treat dysmenorrhea. The use of warm water compresses is a simple, inexpensive, and effective non-pharmacological approach. By increasing blood vessel dilatation, enhancing blood circulation, lowering muscular tension, and lowering pain perceptions, warm water compresses aid in alleviating dysmenorrhea symptoms. The objective of this study is to assess the impact of warm compresses on the severity of dysmenorrhea pain scales in teenage girls at the Buntalo Community Health Center. The design of this trial was pre-experimental, using a one-group pretest-posttest technique. Using a purposive sampling method, a sample of 20 respondents was chosen. The Wilcoxon test was used to conduct the data analysis. According to the data, there was a statistically significant reduction in pain intensity, with a Z value of -4.065 and a p-value of 0.000 ($p < 0.05$). The average pain scale decreased from 2.95 to 1.80. Based on these findings, it is reasonable to conclude that warm water compresses are helpful in alleviating dysmenorrhea pain in young women. One of the suggestions for non-pharmacological treatments to help alleviate dysmenorrhea symptoms in adolescents is anticipated to be the outcome of this research.

Keywords: Adolescents; Dysmenorrhea; Pain Relief; Warm Compresses; Women's Health

1. INTRODUCTION

Dysmenorrhea refers to the discomfort felt during menstruation, commonly seen in teenage girls, and it can interfere with everyday activities at school and in social settings. The frequent occurrence of dysmenorrhea highlights its significance as a reproductive health concern that needs focused attention, particularly for young individuals. Treatment options for dysmenorrhea include both medicinal and non-medicinal strategies. An accessible, cost-effective, and straightforward non-medicinal technique is the application of warm compresses. These compresses function by promoting the widening of blood vessels, enhancing blood flow, alleviating muscle tension, and lessening pain, which helps in easing the symptoms associated with dysmenorrhea. (Saputri & Hasibuan, nd).

Most women experience pain and discomfort during menstruation. Dysmenorrhea is a painful menstrual period experienced by women, which can disrupt daily activities (Apriani et al., nd).

Adolescence begins with puberty, a period during which various physical changes occur, including changes in appearance, such as body shape and proportions, and physiological changes in reproductive organ maturation. The physical changes during puberty are significant, rapid, drastic, and irregular, particularly in the reproductive system. One of the changes experienced by adolescent girls is menarche, or the first menstruation. This generally occurs

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around the age of 12, but can also occur as early as 8 or as late as 16, depending on factors that influence the maturity and hormonal development of each individual (Daliana, 2018).

A typical menstrual cycle ranges from 24 to 35 days, with the bleeding lasting around 3 to 7 days and involving a blood loss of 30 to 80 ml. Nevertheless, a lot of young girls face issues with their periods, and one of those is dysmenorrhea, which means having pain before or during their period. Dysmenorrhea is one of the most frequent issues related to women's health in teenagers and often does not get much focus, even though it greatly affects their daily lives.

Dysmenorrhea refers to discomfort in the pelvic region that results from a rise in prostaglandin levels during a menstrual cycle. Intense menstrual discomfort in women of reproductive age may impact nearly 50% of their daily activities and is experienced by about 85% of teenage girls.

Dysmenorrhea has a notable effect on the everyday lives of teenage girls, especially regarding their educational activities, focus, and social engagements. Intense menstrual discomfort can result in missing school, challenges in engaging in educational activities, and lower academic achievement. Additionally, ongoing menstrual discomfort may lead to stress, anxiety, and mood-related issues, which can adversely affect the mental health of adolescents. If not properly managed, dysmenorrhea may decrease quality of life and raise the likelihood of experiencing mental health issues in the future (Dyta et al., 2024).

Dysmenorrhea happens because the endometrium generates higher amounts of prostaglandins during the menstrual period. The rise in prostaglandins activates muscle contractions in the uterus, resulting in discomfort. Besides the pain in the lower abdomen, dysmenorrhea may also include other symptoms like nausea, vomiting, diarrhea, headaches, tiredness, and problems with sleep. Intense pain can interfere with everyday tasks, decrease efficiency, and lead to emotional issues like anxiety, depression, and irritability.

As stated by the World Health Organization (WHO), dysmenorrhea occurs frequently across the globe. On average, over 50% of women in each country undergo dysmenorrhea. In Sweden, around 72% of women indicate that they have experienced dysmenorrhea. At the same time, it is estimated that almost 90% of women in the United States encounter menstrual discomfort, and about 10–15% of these women face pain that is significant enough to disrupt their daily routines.

Dysmenorrhea can be treated using both medical and non-medical methods. Medication treatment, including the use of nonsteroidal anti-inflammatory drugs (NSAIDs), has proven effective in alleviating pain; however, it frequently leads to side effects such as nausea,

vomiting, and drowsiness. Alternatively, non-drug treatments are being utilized more frequently since they are viewed as safer and involve a low risk of adverse effects. One non-drug approach that has been shown to be effective is the use of warm compress therapy. (Mustaghfiroh & Widyastuti, 2021).

2. RESEARCH METHOD

With a one-group pretest–posttest method, this study employed a pre-experimental design in accordance with its goals and features. This study aims to establish a cause-and-effect link by including one group of participants who were measured both before and after receiving therapy. The severity of period discomfort (dysmenorrhea) was assessed both before and after the application of warm compresses in this study. The objective of this research is to evaluate the efficacy of warm compresses in treating dysmenorrhea discomfort in teenagers at the Buntalo Community Health Center. In October 2025, this research was carried out.

3. RESULTS AND DISCUSSION

Results

Table 1. Distribution of Respondent Characteristics by Age

Characteristics Age	Frequency (f)	Percentage (%)
13	5	25.0
14	7	35.0
15	2	10.0
16	6	30.0
Total	20	100.0

According to Table 1 that presents the distribution of respondents' characteristics by age, it is evident that the largest group of participants was 14 years old, comprising 7 individuals (35. 0%). There were 5 respondents aged 13 years (25. 0%), 2 at the age of 15 years (10. 0%), and 6 who were 16 years old (30. 0%). These findings suggest that most respondents fall within the early to middle teenage years, a period commonly associated with the occurrence of dysmenorrhea stemming from hormonal fluctuations.

Table 2. Distribution of Respondent Characteristics by Age of Menarche

Characteristics Age of Menarche	Frequency (f)	Percentage (%)
< 10 years	1	5.0
10-12 years	18	90.0
>12 years	1	5.0
Total	20	100.0

According to Table 2, which outlines how respondents are grouped by the age they started their periods, most of the respondents had their first period between the ages of 10 and 12 years, with 18 respondents in total (90. 0%). On the other hand, there was 1 person (5. 0%) who began their period before turning 10, and another 1 person (5. 0%) who started after the age of 12. Starting one's period at an earlier age is linked to a higher chance of having painful periods, as it means they have been exposed to prostaglandins sooner and more often.

Table 3. Distribution of Respondent Characteristics based on Menstrual Cycle

Characteristics Work	Frequency (f)	Percentage (%)
< 4 days	3	15.0
4-7 days	13	65.0
>7 days	4	20.0
Total	20	100.0

Table 3, which presents the Distribution of Respondent Characteristics According to Menstrual Cycle Length, indicates that the majority of respondents have menstrual periods lasting between 4 to 7 days, totaling 13 respondents (65. 0%). Three participants (15. 0%) reported having menstrual periods that lasted fewer than 4 days, whereas four participants (20. 0%) indicated that their menstrual periods lasted longer than 7 days. Longer menstrual periods may possibly raise the chance of experiencing menstrual pain as a result of prolonged contractions in the uterus.

Table 4. Pain Intensity Before Compression

Characteristics Pain Scale	Frequency (f)	Percentage (%)
1-3 (Mild Pain)	4	20.0
4-6 (Moderate Pain)	13	65.0
7-10 (Severe Pain)	3	15.0
Total	20	100.0

According to Table 4, the majority of respondents—13 (65.0%)—reported moderate pain (scale 4–6) prior to receiving a warm compress intervention. Three respondents (15.0%) reported severe pain (scale 7–10), while four respondents (20.0%) reported mild pain (scale 1–3). According to these findings, the majority of teenage girls had moderate dysmenorrhea pain intensity prior to receiving warm compress therapy. This illness may interfere with everyday activities, particularly with learning and focus in the classroom. According to earlier studies, the majority of adolescent females experience dysmenorrhea with moderate pain intensity prior to receiving non-pharmacological treatment. In their 2022 study, Mustaghfiroh and Widyastuti found that before warm compress therapy, menstrual pain in adolescents is often on a moderate

to severe scale. Furthermore, Sari et al. (2023) found that untreated dysmenorrhea pain can lower the quality of life and negatively impact students' academic performance.

Table 5. Bivariate Analysis

Variable	Wilcoxon test			*Z*	*p-value*
	N	**Mean**	***Standard Deviation***		
Before Compression	20	2.95	605	-4,065	.000
After Compress	20	1.80	410		

According to the bivariate analysis using the Wilcoxon test in Table 5, there is a notable variation in the intensity of dysmenorrhea pain before and after the warm compress therapy. There were , a Z value of -4.065 with a p-value of 0.000 (p 0.05), indicating a statistically significant difference between the pain levels before and after the application of warm compresses. Therefore, it may be deduced that using warm compresses has a substantial impact on lowering the degree of dysmenorrhea pain experienced by participants.

Discussion

Intensity of Dysmenorrhea Pain Before Applying a Warm Compress

Based on a study carried out in October 2025 that examined how warm compresses affect dysmenorrhea in young women at the Buntalo Community Health Center, the frequency of warm compress application related to menstrual pain intensity among adolescent girls was analyzed. Prior to the warm compress treatment, there were 20 respondents, with their menstrual pain levels ranging from a minimum score of 4 to a maximum of 3. The average intensity of menstrual pain reported by the participants before the intervention was 2. 95.

According to research by Jayanti et al. (2022), the level of menstrual pain reported by women varies significantly, as pain perception is subjective for each individual. Menstrual discomfort can be categorized into mild, moderate, or severe, with different traits and pain tolerance observed among individuals. Numerous factors lead to menstrual discomfort, which necessitates suitable treatment to avoid negatively affecting a woman’s quality of life.

During episodes of dysmenorrhea, the uterus may contract excessively, putting pressure on nearby blood vessels and hindering blood flow from the uterus to surrounding tissues. This situation leads to a decrease in oxygen supply to the muscle tissues, resulting in pain (Novitasari et al., 2024). Dysmenorrhea is affected by several aspects, one of which is hormonal influences marked by elevated prostaglandin levels during menstruation that cause contractions in the uterine muscle. Additionally, factors such as the age at menarche, length of menstruation and

cycle, nutritional health, levels of stress, and physical activity also contribute to this condition (Itani et al. , 2022).

Intensity of Dysmenorrhea Pain After Warm Compresses

According to the findings from the study carried out, it was discovered that using warm compresses helped lessen the severity of menstrual cramps in young girls at the Buntalo Community Health Center. The data analysis revealed a p-value of 0. 000, which is under 0. 05. Hence, it can be said that warm compresses notably decreased menstrual pain.

Warm compresses are a form of therapy that utilizes heat through conductive heat transfer. Applying a warm compress can induce relaxation and vasodilation, increasing blood flow and improving the distribution of oxygen and nutrients to tissues. This contributes to reduced pain and swelling, as evidenced by IV insertion accompanied by warm compresses. Research conducted by Hanifah & Kuswantri (2020) shows that applying a warm pad to the abdominal area is effective in increasing comfort and helping women perform their daily activities better.

Warm compresses contribute to enhancing blood circulation, alleviating tension in the uterine muscles, and decreasing the secretions of prostaglandin hormones that lead to inflammation and heightened uterine contractions. This, in turn, helps to lessen the severity of pain in women who suffer from dysmenorrhea (Marlina, 2010). According to the findings from the frequency distribution concerning the application of warm compresses to alleviate menstrual pain among adolescents in the Mojoroto District, a comparison of pain levels before and after the intervention revealed a notable difference in the average pain intensity. The average change in pain levels before and after the application of warm compresses was noted to be 2. 53.

The Effect of Using Warm Compresses on Reducing Dysmenorrhea Pain in Adolescents

The study's findings indicated that in Mojoroto District, warm compresses helped lessen the severity of menstruation pain in teenagers. The p-value from the statistical test was 0.000, which is less than 0.05. As a result, it may be inferred that the application of warm compresses is an effective method for alleviating menstrual discomfort.

The study findings can be explained using the hypothesis put forth by Pramardika and Fitriana (2019), which posits that a warm compress is the practice of applying a heating sensation to a specific area of the body by using a container filled with warm water to create a warming effect on the body part in need. Placing a jar or glass bottle full of warm water on the afflicted area of the body is one way to use a warm compress with a temperature between 38 and 40 degrees Celsius.

Applying warm compresses can help alleviate or control pain. Ischemia can be treated by applying heat, which reduces the severity of uterine contractions and increases blood flow. This mechanism aids in lowering muscular tension, enhancing comfort, promoting menstruation flow, and minimizing pelvic vasocongestion. Warm compresses are another well-known non-pharmacological approach for relieving pain and muscle cramps. Applying a warm compress might help with stiffness, muscle relaxation, and localized warmth. The heat effect helps lessen ischemia by boosting blood flow and reducing contractions. Additionally, warm compresses can promote the release of endogenous endorphins, which are known to suppress the transmission of pain signals (Hanifah & Kuswantri, 2020).

The use of warm compresses has been shown to be effective in alleviating the severity of primary dysmenorrhea pain, according to studies done by (Jo & Lee, 2018). In addition, the study's findings Nurmulia (2024) indicated a p-value of 0.003, which is less than 0.05. This suggests that giving warm compresses has a substantial impact on lowering menstrual discomfort in adolescent girls in Piyanggang Village.

4. CONCLUSION AND SUGGESTIONS

Based on the findings from research examining how warm compresses influence menstrual discomfort (dysmenorrhea) among teenagers in Mojoroto District, it can be determined that warm compresses are effective in alleviating menstrual pain. Prior to the intervention, the participants reported various levels of menstrual pain, from mild to intense. Following the application of warm compresses, there was a notable reduction in the average menstrual pain experienced by the participants.

The statistical evaluation revealed a p-value of 0. 000, which falls below the threshold of 0. 05. Hence, it can be inferred that warm compresses significantly impact the reduction of menstrual pain in adolescents. This decrease in pain levels suggests that warm compresses serve as a valuable, safe, and easily applicable non-drug approach for managing dysmenorrhea.

Consequently, warm compresses can be endorsed as a potential treatment option for menstrual discomfort in teenagers, especially to lessen reliance on pain relief medications. The findings of this research aim to serve as a reference for medical practitioners, educational organizations, and adolescent females in adopting warm compress therapy to enhance comfort and overall well-being during their menstrual periods.

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