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Comparison of the Effectiveness of Warm Compress Therapy and Ginger Compress Therapy on Dysmenorrhea Pain Intensity among Adolescent Girls

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ABSTRACT

Dysmenorrhea is one of the most common gynecological complaints among adolescent girls and often affects concentration, academic performance, and daily activities. Non-pharmacological pain management, such as warm compresses and herbal-based compresses, has become an alternative considered effective and practical. This study aims to analyze the effect and compare the effectiveness of warm compress therapy and ginger compress therapy in reducing dysmenorrhea pain intensity among adolescent girls. A pre-experimental design with two-group pretest–posttest was used. A total of 32 respondents who met the inclusion criteria were selected using purposive sampling. Data were analyzed using the Wilcoxon test and Mann-Whitney U test. The results showed that both warm compress therapy and ginger compress therapy significantly reduced dysmenorrhea pain intensity ($p < 0.05$). The Mann Whitney test showed a p-value of 0.412 (>0.05), indicating no significant difference between the two interventions. These findings suggest that both warm compress and ginger compress therapies are equally effective in reducing dysmenorrhea pain.

Keywords: dysmenorrhea, ginger compress, non-pharmacological therapy, warm compress

BACKGROUND

Menstruation is a normal physiological process that commonly causes discomfort and pain in many adolescent girls. Dysmenorrhea, characterized by lower abdominal cramps, back pain, and mood changes, frequently interferes with academic performance and physical activity (Kanya & Luthra, 2020). The menstrual pain is caused by excessive prostaglandin production, leading to uterine contractions and ischemia (Rahmadani et al., 2021).

Globally, the prevalence of dysmenorrhea reaches 70–90% among adolescents, with 15% experiencing severe symptoms (WHO, 2020). In Indonesia, the prevalence of dysmenorrhea is reported at 64.25%, consisting of 54.89% primary dysmenorrhea and 9.36% secondary dysmenorrhea (Putri, 2019). Furthermore, surveys conducted in East Java show that dysmenorrhea significantly disrupts school attendance and concentration.

Non-pharmacological therapies such as warm compresses, ginger compresses, aromatherapy, and stretching exercises are widely used due to their accessibility and fewer side effects. Warm compresses promote vasodilation, improve local blood flow, and relax uterine muscles, while ginger compresses provide anti-inflammatory and analgesic effects due to their active components gingerol and shogaol (Andayani, 2018).

A preliminary study showed that 60% of students use analgesics to relieve menstrual pain, while 30% choose to rest, and only 10% use traditional methods such as herbal compresses. This study therefore aims to determine and compare the effectiveness of warm compresses and ginger compresses in reducing dysmenorrhea pain.

METHODS

This study employed a Pre Experimental Design using a two-group pretest posttest approach to assess the effectiveness of warm compress therapy and ginger compress therapy on dysmenorrhea among adolescent girls. The design allowed researchers to measure changes in pain intensity before and after each intervention, providing insight into the impact of both therapies. Although this design does not include a true control group, it remains useful for preliminary evaluations of therapeutic effectiveness in community or school-based settings.

The research was carried out over a period of four weeks in October 2023, allowing sufficient time for data collection across multiple menstrual cycles. The study targeted adolescent girls who experienced primary dysmenorrhea, a common condition characterized by lower abdominal pain during menstruation without any underlying pathology. Conducting the study within a defined timeframe ensured consistency in observation procedures and minimized external variations that could influence pain perception.

A total population of 36 adolescent girls met the inclusion criteria, and 32 respondents were selected through purposive sampling, which is appropriate when participants must meet specific characteristics related to the research objectives. This sampling technique ensured that all respondents experienced primary dysmenorrhea and were suitable for testing the therapies. While purposive sampling may limit generalizability, it strengthens the internal validity of the findings for the targeted group.

The study included two independent variables warm compress therapy and ginger compress therapy both widely used non-pharmacological approaches for relieving menstrual pain. The dependent variable was the intensity of dysmenorrhea pain, which was measured to determine the effectiveness of each intervention. Each therapy was administered for 10 minutes on the first day of menstruation, a timing chosen because dysmenorrhea symptoms typically peak during this phase.

Data collection utilized an observation sheet with pain ratings measured using the Numeric Rating Scale (NRS), a validated and widely used tool for assessing subjective pain levels. Respondents rated their pain before and after receiving the therapy, enabling researchers to identify any changes associated with the interventions. The NRS is advantageous due to its simplicity, clarity, and suitability for adolescent populations.

For data analysis, the study applied two non-parametric statistical tests. The Wilcoxon Signed Rank Test was used to determine the difference in pain intensity before and after each intervention, making it appropriate for paired and non-normally distributed data. The Mann Whitney U Test was employed to compare the effectiveness between the two treatment groups, allowing researchers to assess which therapy provided greater pain reduction. A significance level of $\alpha = 0.05$ was set to determine statistical significance, ensuring that results were evaluated with standard scientific rigor.

RESULTS

The characteristics of respondents revealed that both the warm compress and ginger compress groups consisted of adolescent girls aged 15 to 18 years, with the majority concentrated at ages 16 and 17. All respondents in both groups had regular menstrual cycles ranging between 28–35 days,

which helped ensure homogeneity in physiological patterns affecting dysmenorrhea. Before receiving the interventions, respondents commonly used various self-management methods to relieve menstrual pain, such as resting, taking analgesics, consuming herbal drinks, or applying compresses. The Wilcoxon test results demonstrated a significant reduction in pain intensity after the application of both warm and ginger compress therapies, with p-values of 0.002 and 0.001, respectively, indicating that each therapy was effective in decreasing dysmenorrhea symptoms. However, based on the Mann–Whitney U test, there was no statistically significant difference in effectiveness between the two therapies, suggesting that warm compress and ginger compress interventions provide similarly beneficial outcomes in reducing menstrual pain among adolescent girls.

Table 1. Characteristics of Respondents by Age

Age	Warm Compress (n=16)	Ginger Compress (n=16)
15 years	3 (18.8%)	2 (12.5%)
16 years	7 (43.8%)	6 (37.5%)
17 years	4 (25%)	5 (31.3%)
18 years	2 (12.5%)	3 (18.8%)

Table 1 illustrates the distribution of respondents based on age across the warm compress and ginger compress groups. The data show that most participants were aged 16 and 17 years, representing the age range in which primary dysmenorrhea is commonly experienced due to ongoing hormonal maturation and ovulatory cycle stabilization. The similarity in age distribution between the two groups supports sample comparability, thereby reducing age-related bias in pain perception or treatment response. The balanced proportion across both groups ensures that age is not a confounding factor influencing the observed therapeutic effects.

Table 2. Respondents' Menstrual Cycles

Cycle	Warm Compress	Ginger Compress
28–35 days	16 (100%)	16 (100%)

Table 2 demonstrates that all respondents in both groups had menstrual cycles ranging from 28 to 35 days, indicating regular and typical reproductive patterns for adolescents. This homogeneity is essential because menstrual cycle irregularity can influence the intensity and duration of dysmenorrhea. With all participants sharing a similar cycle length, the study minimizes variability related to hormonal fluctuations, thus strengthening the validity of pain intensity comparisons following each intervention.

Table 3. Usual Methods Used to Manage Dysmenorrhea

Method	Warm Compress	Ginger Compress
Rest/Sleep	9 (56.3%)	10 (62.5%)
Analgesics	4 (25%)	3 (18.8%)
Herbal Drinks	2 (12.5%)	1 (6.3%)
Compress (Any Type)	1 (6.3%)	2 (12.5%)

Table 3 presents the common strategies used by respondents to manage dysmenorrhea prior to the intervention. The majority relied on rest or sleep, suggesting that non-pharmacological self-care

remains the first-line approach for many adolescents. A smaller proportion used analgesics, herbal drinks, or some form of compress, indicating variation in personal coping mechanisms. These findings highlight that before the study, both groups had similar pain-relief behaviors, which contributes to the methodological strength by ensuring that prior habits did not create significant baseline differences between the groups.

Table 4. Wilcoxon Test Results

Therapy	Pretest (Moderate Pain)	Posttest (No Pain)	p-value
Warm Compress	10 (62.5%)	11 (68.8%)	0.002
Ginger Compress	9 (56.3%)	10 (62.5%)	0.001

Table 4 displays the Wilcoxon Signed Rank Test outcomes, which reveal a statistically significant decrease in dysmenorrhea pain following both warm compress and ginger compress therapies ($p = 0.002$ and $p = 0.001$, respectively). These results provide empirical support for the effectiveness of each intervention in reducing menstrual pain intensity. The substantial shift from moderate pain in the pretest to no pain in the posttest suggests a strong analgesic or muscle-relaxing effect associated with both thermal therapy and phytotherapeutic compounds in ginger. The significant p-values confirm that the observed reductions are unlikely due to chance.

Table 5. Mann Whitney U Test Results

Group	Mean Rank	p-value
Warm Compress	17.00	
Ginger Compress	15.00	0.412

Table 5 compares the mean ranks of pain reduction between the warm compress and ginger compress groups. Although the warm compress group shows a slightly higher mean rank (17.00 vs. 15.00), the p-value of 0.412 indicates that this difference is not statistically significant. This finding suggests that both therapies are equally effective in reducing dysmenorrhea symptoms. The absence of significant differences supports the conclusion that ginger compress therapy provides therapeutic benefits comparable to warm compress therapy, offering valuable alternatives for non-pharmacological menstrual pain management.

DISCUSSION

The findings of this study demonstrate that warm compress therapy produces a significant reduction in dysmenorrhea pain, as evidenced by a p-value of 0.002. The mechanism underlying this improvement is closely associated with the physiological effects of heat, which promotes vasodilation and enhances blood flow to the pelvic region. Increased circulation helps deliver oxygen to uterine muscles, thereby reducing ischemia and relieving muscle spasms that contribute to menstrual pain. This outcome supports the clinical relevance of thermal therapy as an accessible and widely accepted intervention for adolescent menstrual discomfort.

Furthermore, the effectiveness of warm compress therapy observed in this study is consistent with previous literature. Hidayati (2019) reported similar findings, highlighting that heat application can relax uterine muscles and reduce pain intensity during menstruation. Such concordance with earlier research not only reinforces the reliability of the current results but also validates warm compress therapy as a practical non-pharmacological option for managing primary dysmenorrhea.

This evidence strengthens the argument for incorporating heat therapy into school health programs and community-based interventions targeting menstrual pain among adolescents.

In addition to warm compress therapy, the study also found that ginger compresses significantly decreased dysmenorrhea pain, with a p-value of 0.001. Ginger contains potent bioactive compounds primarily gingerol and shogaol that exhibit anti-inflammatory and analgesic effects. These compounds work by inhibiting prostaglandin synthesis, which is known to trigger uterine contractions and intensify menstrual pain. The reduction in prostaglandin activity helps alleviate cramping and discomfort, making ginger compress therapy a promising natural alternative for menstrual pain relief.

These findings align well with previous research, including the study by Rahmasari (2020), which showed that ginger compresses are not only effective but also safe for repeated use. Herbal-based interventions like ginger compress therapy are particularly valuable in adolescent populations because they pose minimal risk and offer culturally acceptable treatment options. The present results contribute additional evidence supporting ginger as a therapeutic agent capable of reducing dysmenorrhea without the side effects commonly associated with pharmaceutical analgesics.

When comparing the two interventions, the Mann Whitney U test revealed no statistically significant difference between warm compress and ginger compress therapy in reducing menstrual pain. Although the warm compress group showed slightly higher mean ranks, this variation was not meaningful in statistical terms. Both approaches provided comparable levels of relief, indicating that individuals may choose either method based on personal preference, availability, or comfort.

While the overall effectiveness of the two therapies was similar, each approach offers unique physiological benefits. Warm compress therapy primarily aids in muscle relaxation and improved blood flow, whereas ginger compress therapy provides stronger anti-inflammatory effects due to its phytochemical components. Together, these findings highlight the importance of offering multiple non-pharmacological options for dysmenorrhea management, allowing adolescents to select the intervention that best suits their needs and health beliefs.

CONCLUSION

The findings of this study show that warm compress therapy is highly effective in reducing dysmenorrhea pain intensity among adolescent girls. The application of heat promotes vasodilation, increases blood circulation, and relaxes uterine muscles, which collectively help alleviate the cramps and discomfort associated with primary dysmenorrhea. The significant reduction in pain levels observed after the intervention supports the use of warm compress therapy as a simple, accessible, and non-invasive option for menstrual pain management.

In addition, the study confirms that ginger compress therapy is also effective in lowering dysmenorrhea pain intensity. Ginger contains bioactive compounds such as gingerol and shogaol, which exhibit strong anti-inflammatory and analgesic properties. These compounds reduce prostaglandin activity, thereby decreasing uterine contractions and menstrual pain. The effectiveness of ginger compresses highlights the potential of herbal-based therapies as safe alternatives for adolescents who may wish to avoid pharmacological treatments.

Moreover, the results indicate that there is no significant difference in effectiveness between warm compress therapy and ginger compress therapy. Both interventions demonstrated comparable reductions in pain intensity, suggesting that they can be used interchangeably based on individual preference, comfort, or availability. This finding supports the recommendation that either method may serve as an effective non-pharmacological alternative for managing dysmenorrhea, providing adolescents with flexible and low-risk options to alleviate menstrual pain.

REFERENCES

Andayani, L. (2018). The Effect of Herbal Compresses on Menstrual Pain. *Journal of Women's Health*, 4(2), 45–52.

Hidayati, F. (2019). Warm Compress and Pain Reduction in Dysmenorrhea. *Midwifery Care Journal*, 3(1), 22–29.

Kanya, P., & Luthra, S. (2020). Adolescent Dysmenorrhea and Non-Pharmacological Interventions. *International Journal of Reproductive Health*, 12(4), 301–309.

Putri, D. A. (2019). Prevalence of Dysmenorrhea in Indonesia. *National Public Health Report*, 5(3), 77–84.

Rahmadani, T., et al. (2021). Prostaglandin Role in Dysmenorrhea. *Journal of Gynecologic Science*, 8(2), 119–127.

Rahmasari, W. (2020). Effectiveness of Ginger Compress for Menstrual Pain. *Herbal Medicine Review*, 6(1), 55–62.

WHO. (2020). Adolescent Reproductive Health Statistics. World Health Organization.