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Research Article

Relationship Between Knowledge Level of Adolescent Girls About The Effect of Warm Water on Dysminorhea Pain

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Abstract: Menstrual pain (dysmenorrhea) experienced by each woman is different, some are slightly disturbed but some are very disturbed to the point of being unable to carry out daily activities and making them have to rest or even be absent from school. Data in the UKS book records show that 16 female students were treated at the UKS where 13 (81.2%) complained of pain during menstruation. The purpose of this study was to determine the effect of warm compresses on reducing dysmenorrhea pain in female adolescents. The type of quantitative research with a pre-experimental research design on the one group pretest and post-test group design research approach. The population of this study was female adolescents who experienced menstrual pain with a sample of 30 female adolescents using a purposive sampling technique. Data collection used an observation sheet. Univariate and bivariate analysis (Wilcoxon test). The results of this study showed that the average menstrual pain in adolescents before being given warm compresses was 4.7 and after being given warm compresses was 1.4. There is an effect of warm compresses on reducing menstrual pain in female adolescents (p-value = 0.000). Advice for young women is to apply warm compresses to reduce pain during menstruation.

Keywords: Dysmenorrhea; teenagers; warm compress

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1. Introduction

Adolescence is a dynamic developmental phase in a person's life, namely the transition period from childhood to adulthood. During this period, various physical, psychological, and biological changes occur, including the maturation of the reproductive organs. One sign of this maturation in adolescent girls is menstruation. Menstruation is periodic vaginal bleeding due to the release of the uterine endometrium. Generally, menstruation begins at the age of 10 to 13 years, depending on various factors such as nutritional status, health, and body mass index. Menstruation occurs every month until women reach the age of 45-50 years.

Many adolescent girls experience complaints of pain during menstruation called dysmenorrhea. This pain usually lasts 2-3 days and begins one day before menstruation. The intensity of the pain varies, from mild to severe, which can interfere with daily activities such as school. Dysmenorrhea can be caused by various factors such as pelvic inflammatory disease, endometriosis, stress, hormonal imbalance, early age of menarche, low body mass index, and genetic factors and anemia.

Dysmenorrhea is one of the most common gynecological problems in women of all ages. Research shows the prevalence of dysmenorrhea is 60% in the United States, 72% in Sweden, and 55% in Indonesia. According to Asih (2020), in Indonesia around 55% of women of productive age experience pain during menstruation, with details of 12% severe pain, 37% moderate, and 49% mild. In Lampung Province, the incidence of dysmenorrhea is 54.9%.

BPS data in 2017 showed that 31.44% of Indonesian women experienced health complaints in the past month, including the 10–14 age group (24.48%) and 15–19 age groups (22.75%). Untreated menstrual pain can cause fatigue, stress, and impaired concentration in learning. Many adolescent girls are forced to take leave from school due to severe pain during menstruation.

Management of dysmenorrhea can be done pharmacologically and non-pharmacologically. Drugs such as analgesics and anti-inflammatories (eg, mefenamic acid, ibuprofen, and other NSAIDs) are often used, but they carry the risk of causing side effects such as stomach upset and anemia. Therefore, non-pharmacological methods such as warm compresses are a safer and more widely used alternative.

Warm compresses work by creating a warm feeling in the painful part of the body, which causes vasodilation of blood vessels, thereby increasing blood flow to the tissue. This accelerates healing and reduces pain. The warm effect of the compress can reduce muscle tension and relieve menstrual pain.

Research conducted by Annida et al. (2024) showed a positive effect of giving warm compresses on reducing the intensity of dysmenorrhea pain in adolescent girls. Similar results were found by Nugraheni et al. (2024), who stated that there was a decrease in the scale of menstrual pain after warm compresses. Akbar (2025) also reported that after the intervention, 60% of respondents no longer experienced menstrual pain, and only 34.3% still experienced mild pain. The Wilcoxon test showed a significant relationship between warm compresses and a decrease in the intensity of menstrual pain. Research by Oktaviani (2023) proved that warm compresses with a temperature of 40–46°C for 20 minutes for 3 days were effective in reducing menstrual pain.

Based on the results of a pre-survey conducted at one school, of the 16 female students who were recorded as seeking treatment at the UKS, 13 (81.2%) complained of menstrual pain. Of the 4 female adolescents interviewed, one stated that her menstrual pain was so severe that she did not go to school. They experienced pain in the waist, lower abdomen, their whole body felt sore and tired, and they were unable to participate in school activities optimally. All of these adolescents did not know that warm compresses could help reduce dysmenorrhea. So far, they have only relied on pain relievers.

Based on these problems, researchers are interested in further researching the effect of warm compresses on reducing dysmenorrhea pain in adolescent girls.

2. Research Methods

This study is a quantitative research type with a pre-experimental design. The design used in this study is one group pre and post-test design. The population in this study were all 67 female adolescents, with 30 female adolescents experiencing menstrual pain.

According to Sugiyono (2018), in experimental research the number of samples in one group ranges from 10–20 respondents. In this study, 30 female adolescents experiencing menstrual pain were taken. The sampling technique used was purposive sampling.

The research variables consisted of independent variables, namely warm compresses, and dependent variables, namely menstrual pain. Data collection was carried out using observation sheets. Data analysis was carried out univariately and bivariately using the Wilcoxon test.

Data collection in this study was intended to determine whether there was an effect of giving warm compresses on the incidence of dysmenorrhea in female adolescents. The researcher collected data directly from the research subjects, namely female adolescents, assisted by two enumerators who worked as midwives. To obtain accurate data, researchers conducted direct pain measurements on respondents who had been selected based on inclusion criteria.

3. Results and Discussion

Average menstrual pain in adolescent girls before being given warm compresses

Table 1. Average menstrual pain in adolescent girls before being given warm compresses

Menstrual Pain	Mean	SD	Min	Malx	n
Before	4.7	0.6	4	6	30

Based on the table of menstrual pain analysis results before warm compresses, it is known that the average (mean) pain felt by 30 female adolescents was 4.7 with a standard deviation of 0.6, a minimum value of 4, and a maximum of 6. These values indicate that most respondents experienced menstrual pain in the moderate category before the intervention.

Menstrual pain with a score of 4–6 is categorized as moderate dysmenorrhea, which often causes discomfort and can interfere with adolescents' daily activities, including learning activities, concentration, and school attendance. This fairly high average pain score indicates that non-pharmacological treatment is needed to reduce pain levels so as not to interfere with the social function and productivity of female adolescents.

These results are in line with Akademi's research (2024) which explains that most female adolescents experience moderate to severe menstrual pain, and warm compress intervention has proven to be effective as an alternative non-pharmacological therapy. Warm compresses work by increasing blood flow through vasodilation, as well as relaxing uterine muscles that contract due to increased prostaglandin hormones during menstruation.

The World Health Organization (WHO) also recommends non-pharmacological approaches such as warm compresses as part of menstrual pain management, especially for adolescents who want to avoid the side effects of analgesic drugs.

Thus, these results support the importance of implementing warm compresses as an initial effort in dealing with menstrual pain in adolescent girls, especially for those who experience moderate dysmenorrhea before intervention.

Average menstrual pain in adolescent girls after being given a warm compress.

Table 2. Average menstrual pain in adolescent girls after being given a warm compress.

Menstrual Pain	Mean	SD	Min	Malx	n
After	1.4	1.0	0	3	30

Based on the research results shown in the table, the average intensity of menstrual pain in adolescent girls after being given warm compresses was 1.4 with a standard deviation of 1.0, a minimum value of 0 and a maximum of 3 out of 30 respondents. These results indicate that after the intervention in the form of warm compresses, the level of pain felt by adolescent girls decreased significantly compared to before being given treatment.

This decrease reflects the effectiveness of warm compress therapy in relieving dysmenorrhea. Warm compresses work by increasing blood flow to the uterine area through the process of vasodilation of blood vessels and relaxation of smooth muscles, thereby reducing muscle tension and inhibiting the production of prostaglandins which play a role in the emergence of pain during menstruation.

This finding is reinforced by Wafiroh's research (2022) which showed a significant decrease in pain levels after giving warm compresses to adolescent girls who experienced primary dysmenorrhea. Likewise, Daniel et al. (2022) also found that regular use of warm compresses during menstruation reduced pain intensity to a mild category or even disappeared completely.

Thus, warm compresses can be considered as an effective, simple, inexpensive, and safe non-pharmacological intervention to overcome menstrual pain, especially in adolescent girls who may not have been advised to use medication routinely.

The effect of warm compresses on reducing menstrual pain in adolescent girls

Table 3. The effect of warm compresses on reducing menstrual pain in adolescent girls

Menstrual Pain	Mean	Min-Max	Negative ranks	Positif ranks	Ties	p-value
Before Intervention	4,7	4-6	30	0	0	0.000
After Intervention	1,4	0-3				

Based on the results of statistical analysis using the Wilcoxon Signed Ranks Test, it is known that the p-value = 0.000 (<0.05), which indicates a significant difference between the intensity of menstrual pain before and after the warm compress intervention. Before the intervention, the mean menstrual pain intensity was 4.7 with a range of values 4–6, while after the intervention, the mean decreased significantly to 1.4 with a range of values 0–3. No ties or negative ranks were found, meaning that all respondents experienced a decrease in pain (100% showed positive ranks).

These results strengthen the evidence that warm compresses are effective in reducing the intensity of primary dysmenorrhea pain in adolescent girls. The mechanism of action of warm compresses is based on the thermal effect which causes vasodilation of blood vessels,

increases blood flow to the uterus, reduces smooth muscle spasms, and helps the process of releasing excessive prostaglandins—one of the main causes of pain during menstruation.

According to Nopriani et al. (2024), non-pharmacological therapies such as warm compresses can provide good analgesic effects with minimal risk. A similar study by Septiana et al. (2022) also found that giving warm compresses to the suprapubic area for 20 minutes for 3 consecutive days significantly reduced the level of menstrual pain in school adolescents.

Furthermore, Wafiroh (2022) showed that 60% of adolescents who previously experienced moderate pain changed to no pain after being given a warm compress intervention. This shows the great potential of this simple intervention in improving the quality of life of adolescent girls during menstruation.

Thus, warm compresses are a safe, effective, inexpensive, and easy-to-implement alternative intervention both individually and in school health programs, especially UKS, to help adolescent girls who experience dysmenorrhea.

Menstrual pain (dysmenorrhea) in adolescent girls is a very common gynecological problem that can impact productivity, quality of life, and educational participation. Some adolescents even have to miss school or reduce their participation in activities due to intense pain. Therefore, finding effective and accessible interventions is essential to support adolescent health.

Warm compress therapy provides an effective non-pharmacological solution with minimal risk of side effects. When a warm compress is applied, thermal receptors in the skin are activated, which can then inhibit the pain transmission pathway through the gate control theory mechanism. This means that heat provides a sensation that competes with pain signals to the brain, so that the perception of pain is reduced.

In addition to physical effects, heat therapy also provides psychological relaxation effects, reduces tension, and improves mood, which often contribute to the perception of pain during menstruation. This is important because psychological components such as stress and anxiety contribute to the high perception of menstrual pain.

Another study by Septira et al. (2024) also proved that warm compresses with a temperature of 40–45°C given for 15–20 minutes, twice a day, for 2–3 days, provided significant results in reducing dysmenorrhea pain. This is in line with the results of your study, which showed a decrease in the average pain from 4.7 to 1.4, with strong statistical significance ($p = 0.000$).

Thus, this intervention is not only practical and efficient, but can also be widely implemented in schools or homes by adolescent girls themselves, with education and guidance from health workers such as midwives or UKS officers. It should also be noted that non-pharmacological approaches like this can reduce dependence on analgesics, which are often overused without medical supervision.

4. Conclusions

The results of the study showed that giving warm compresses significantly affected the decrease in the intensity of menstrual pain in adolescent girls. Before the intervention, the average pain felt was in the moderate to severe category (mean = 4.7), while after being given

warm compresses for several days, there was a significant decrease to the mild to no pain category (mean = 1.4) with a p value = 0.000.

These findings prove that warm compresses are an effective, safe, and easy-to-implement non-pharmacological intervention to reduce dysmenorrhea pain. This intervention can be an alternative therapy that is recommended, especially for adolescent girls who have limited access or do not want to use pain relievers.

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