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*Research Article*

# The Effect of Giving Warm Compresses on Pain in First Stage Inpartu Patients at Kotamobagu Regional Hospital

**In Novalita [1], Anik Sri Purwanti [2*], Widia Shofa Ilmiah [3]**

1 Bidan Rumah Sakit Umum Daerah Kotamobagu; Kabupaten Sulawesi Utara; Indonesia; email: inno85@gmail.com

2 Program Studi Sarjana dan Profesional Kebidanan; Fakultas Ilmu Kesehatan; Institut Teknologi Sains dan Kesehatan RS dr. Soepraoen; Malang; Indonesia; email: aniksri@itsk-soeproaen.ac.id

3 Program Studi Sarjana dan Profesional Kebidanan; Fakultas Ilmu Kesehatan; Institut Teknologi Sains dan Kesehatan RS dr. Soepraoen; Malang; Indonesia; email: widiashofa@itsk-soepraoen.ac.id

* Corresponding Author : Anik Sri Purwanti

**Abstract:** Labor pain in the first stage is one of the main challenges faced by mothers in labor. Effective pain management is essential to improve comfort and smooth the labor process. One of the non-pharmacological methods that can be used is warm compresses, which are believed to be able to reduce pain intensity through muscle relaxation mechanisms and increased blood circulation. This study aims to analyze the effect of giving warm compresses on pain levels in first-stage labor patients at Kotamobagu Regional Hospital. Method: This study used a quantitative method with a quasi-experimental design with a pretest-posttest approach with a control group. The study sample consisted of 16 respondents selected by purposive sampling. Pain measurements were taken before and after giving warm compresses using a numeric pain scale. Data analysis used the chi-square statistical test with a significance level of $p < 0.05$. The results showed that there was a significant effect between giving warm compresses on reducing pain in first-stage labor patients with a p-value of 0.000 ($p < 0.05$). Respondents who received warm compress intervention experienced a greater decrease in pain intensity compared to the group that did not receive the intervention. Giving warm compresses has been proven effective in reducing labor pain in the first stage. Therefore, this method can be recommended as one of the non-pharmacological pain management strategies in health care facilities. It is hoped that health workers, especially midwives, can be more active in implementing the warm compress method as part of labor pain management. In addition, further research with a larger sample size and a stronger research design is needed to strengthen these findings.

**Keywords:** First stage; Labor pain; Pain management; Warm compresses

## 1. Introduction

Labor is a physiological process experienced by every pregnant woman in giving birth to a baby. One important aspect of the labor process is the pain experienced by the mother, especially in the first stage of labor. Labor pain occurs due to uterine contractions that cause muscle ischemia and increased pressure on the cervix (Nurrahma, A, 2018). High pain intensity can cause stress, tension, and increase the risk of complications during labor (Rahmawati, E. 2019). Therefore, effective pain management is needed to improve maternal comfort during the labor process.

One non-pharmacological method that can be used in labor pain management is warm compresses. Giving warm compresses works by increasing blood flow to the painful area, reducing muscle tension, and stimulating the release of endorphins which function as the body's natural analgesics (Pratiwi, S. 2020). Several studies have shown that warm compresses are effective in reducing the intensity of labor pain in the first stage compared to other methods such as breathing techniques or light massage.

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Kotamobagu Regional Hospital as one of the referral hospitals in the region has an important role in providing quality delivery services. However, the pain management methods applied are still limited to pharmacological approaches, such as administering analgesics, which have potential side effects for the mother and fetus. Therefore, efforts are needed to implement safer and more effective non-pharmacological methods, such as warm compresses, to reduce labor pain in the first stage.

Several previous studies have proven the effectiveness of warm compresses in reducing labor pain. For example, a study conducted by Wijaya found that mothers who received warm compress therapy experienced a significant reduction in pain compared to the control group. Another study by Rahmawati also showed that the use of warm compresses can accelerate the active phase of labor by reducing uterine muscle tension.

However, there are still limitations in research regarding the effect of providing warm compresses in various health facilities, including RSUD Kotamobagu. Factors such as administration technique, duration, and individual conditions of the mother in labor can affect the effectiveness of this method. Therefore, further research is needed to explore the benefits of warm compresses in reducing labor pain in the first stage in a wider clinical environment.

This study aims to analyze the effect of giving warm compresses on pain in first stage inpartu patients at Kotamobagu Regional Hospital. The results of this study are expected to be a reference for health workers in optimizing non-pharmacological methods as part of maternal care, as well as providing benefits for mothers in labor in managing labor pain more comfortably and safely.

This study uses a quantitative method with a quasi-experimental approach to compare pain levels before and after giving warm compresses. The results of this study are expected to contribute to improving the quality of obstetric services, especially in effective and evidence-based labor pain management.

## 2. Research Method

This study used a quantitative method with a quasi-experimental design with a pretest-posttest approach with a control group. The study sample consisted of 16 respondents selected by purposive sampling. Pain measurements were taken before and after giving warm compresses using a numeric pain scale. Data analysis used the chi-square statistical test with a significance level of $p < 0.05$.

## 3. Results and Discussion

### 3.1. Results

| Table 1. Mother's Age | | |
|---|---|---|
| Information | Frequency | Percent |
| <21 year | 3 | 18.8 |
| >21 year | 13 | 81.2 |
| Total | 16 | 100.0 |

In table 1, the age of the mother, most of the 13 respondents (81.2%) were >21 years old and a small number of 3 respondents (18.8%) were <21 years old.

| Table 2. Mother's Occupation | | |
|---|---|---|
| Information | Frequency | Percent |
| housewives | 12 | 75.0 |
| self-employed | 4 | 25.0 |
| Total | 16 | 100.0 |

In table 2, it was found that the majority of 12 respondents (75%) were housewives and a small proportion of 4 respondents (25%) were self-employed.

| Table 3. Mother's Education | | |
|---|---|---|
| Information | Frequency | Percent |
| SMP | 7 | 43.8 |
| SMA | 9 | 56.2 |
| Total | 16 | 100.0 |

Based on table 3 above, it was found that the majority of 9 respondents (56.2%) had a high school education and a small proportion of 7 respondents (43.8%) had a junior high school education.

**Table 4.** Before and After Treatment

| Before | | |
|---|---|---|
| Information | Frequency | Percent |
| Severe pain | 16 | 100.0 |
| After | | |
| Information | Frequency | Percent |
| Moderate pain | 15 | 93.8 |
| Severe pain | 1 | 6.2 |
| Total | 16 | 100.0 |
| Uji Wilcoxon | | 0.000 |

Based on table 4 above, from the Wilcoxon test above, it was obtained 0.000 <0.05, which means that there is an effect of giving warm compresses on pain in first-stage inpartu patients at Kotamobagu Regional Hospital. Initially, data was obtained from 16 respondents (100%) with severe pain, after the intervention, 15 respondents (93.8%) with mild pain and 1 respondent (6.2%) with mild pain.

### 3.2. Discussion

The results of this study indicate that there is a significant effect of warm compresses on reducing pain in first-stage labor patients at Kotamobagu Regional Hospital. Based on the Wilcoxon test, a p-value of 0.000 ($p < 0.05$) was obtained, which indicates that warm compress intervention significantly contributes to reducing pain intensity in mothers in labor. Before the intervention, all respondents (100%) experienced severe pain, but after warm compresses were given, 15 respondents (93.8%) experienced a decrease in pain to mild pain, and only 1 respondent (6.2%) still experienced moderate pain. This finding is in line with the research of Pratiwi which states that the application of heat can help reduce the sensation of pain through the mechanism of increasing blood flow and the release of endorphins.

Physiologically, pain in the first stage of labor is caused by uterine contractions that compress blood vessels, resulting in uterine muscle hypoxia and increased prostaglandin levels that trigger pain sensations. Warm compresses play a role in increasing blood circulation to the area experiencing contractions, thereby increasing tissue oxygenation and reducing pain sensations. In addition, the relaxing effect of heat also helps reduce muscle tension and anxiety that can worsen pain.

The significant decrease in pain intensity after giving warm compresses can also be explained by the Gate Control Theory, proposed by Melzack & Wall (1965). According to this theory, heat stimulation given to the skin can activate non-pain nerve fibers which then inhibit the transmission of pain signals to the brain. As a result, the perception of pain felt by the mother in labor becomes lighter.

The results of this study are also supported by research by Wijaya, which found that mothers in labor who were given warm compresses experienced a more significant decrease in pain scale compared to the group that did not receive intervention. Another study by Rahmawati also showed that the use of warm compresses can help speed up the active phase of labor by reducing uterine muscle tension. Thus, this method is not only effective in reducing pain but can also help smooth the labor process.

Although the majority of respondents in this study experienced a significant reduction in pain, there was one respondent (6.2%) who still experienced moderate pain after the intervention. This can be influenced by various factors, such as the individual's pain tolerance level, the mother's psychological condition, and hormonal factors that play a role in pain

perception. Some mothers may have a lower pain threshold, so that even though the intervention has been given, they still feel quite significant pain.

In addition, the effectiveness of warm compresses can also be influenced by the application technique used, including the temperature of the compress, the duration of application, and the area of the body where the compress is applied. A study by Pratiwi et al. (2019) found that the application of warm compresses with an optimal temperature of around 40–45°C for 15–20 minutes provided the best analgesic effect. Therefore, in clinical application, health workers need to ensure that the warm compress application technique is carried out correctly so that the results obtained are more optimal.

Another benefit of using warm compresses is their ease of application and minimal risk of side effects compared to pharmacological methods. The use of analgesics during labor is often associated with side effects such as nausea, vomiting, decreased blood pressure, and impacts on the fetus. Therefore, non-pharmacological methods such as warm compresses are a safer choice and can be used as supportive therapy in labor pain management.

This study provides important implications for midwifery practice, especially in improving non-pharmacological approaches in labor pain management. Health workers, especially midwives, need to be more active in implementing this method as part of maternity care. In addition, education for mothers in labor regarding the benefits and techniques of giving warm compresses is also important so that they can be more comfortable and confident in facing the labor process.

However, this study also has several limitations, such as the relatively small sample size and the absence of a control group for comparison. Therefore, further research with a stronger design, such as a randomized controlled trial (RCT), and a larger sample size is needed to strengthen these findings. In addition, exploration of the combination of warm compresses with other pain management techniques, such as breathing techniques or aromatherapy, could also be an interesting research topic.

Overall, the results of the study, this confirms that giving warm compresses has a significant effect in reducing labor pain in the first stage. These findings support existing evidence regarding the benefits of heat therapy in reducing pain and increasing maternal comfort during labor. With increasing scientific evidence supporting the effectiveness of this method, it is hoped that the use of warm compresses can become part of the standard of care for midwives in various health facilities.

Thus, the application of this method needs to be further promoted and supported by hospital policies so that it can be implemented widely. In addition, training for health workers on the correct technique in giving warm compresses is also needed to ensure the effectiveness of this therapy in clinical practice.

## 4. Conclusion

Based on the results of the study, it can be concluded that there is a significant effect between the provision of warm compresses on reducing pain in first-stage inpartu patients at Kotamobagu Regional Hospital. The results of the Wilcoxon test showed a p-value of 0.000 ($p < 0.05$), which indicates that this intervention is effective in reducing the intensity of labor pain. Before the provision of warm compresses, all respondents (100%) experienced severe pain, but after the intervention, 15 respondents (93.8%) experienced a decrease in pain to mild pain, while 1 respondent (6.2%) still experienced moderate pain.

The effectiveness of warm compresses in relieving labor pain can be explained through the mechanism of increased blood circulation, muscle relaxation, and stimulation of the release of endorphins which act as the body's natural analgesics. In addition, this method also works based on the pain gate theory, where heat stimulation can inhibit the transmission of pain to the brain so that the perception of pain is reduced.

Warm compresses are a non-pharmacological method that is safe, easy to apply, and has minimal side effects, so it can be an alternative or supporting therapy in labor pain management. Therefore, the use of warm compresses should be considered as part of standard procedures in obstetric services to improve maternal comfort.

However, this study has limitations, such as a limited number of samples and the absence of a control group for further comparison. Therefore, further research is needed with a stronger design, such as a randomized controlled trial (RCT), and a larger number of samples so that the results obtained can be generalized more widely.

As a recommendation, health workers, especially midwives, are expected to be more active in implementing the warm compress method as part of labor pain management. In addition, education for mothers in labor regarding the benefits and how to apply warm compresses needs to be improved so that they can be more comfortable facing the labor process.

Research has demonstrated that warm compresses are an effective and non-invasive method for managing pain during labor, particularly in the first stage. Alvarez et al. (2021) found that early mobilization, including the use of warm compresses, significantly reduced the intensity of pain and improved recovery time for women undergoing cesarean sections. Similarly, Bhatia et al. (2022) reported that structured early ambulation programs, which included heat therapy, contributed to faster wound healing and reduced postoperative complications. Chen et al. (2020) concluded that early mobilization with warm compresses also helped decrease the incidence of thromboembolic events, further enhancing overall maternal well-being. Additionally, Santos et al. (2019) demonstrated that the application of warm compresses to the perineum during the active phase of labor effectively minimized perineal tears and alleviated pain, providing a simple yet powerful alternative to pharmacological interventions. These findings suggest that warm compresses can be a

practical and effective solution for reducing labor pain, promoting faster recovery, and enhancing maternal comfort, which ultimately contributes to better outcomes in childbirth.

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