



## EFFECTIVENESS OF THE COMBINATION WARM COMPRESS AND BENSON RELAXATION THERAPY IN THE LABOR PROCESS OF MOTHERS

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### ABSTRACT

Pain and anxiety in mothers during the first stage of labor are two interrelated conditions that can interfere with the effectiveness of contractions and the mother's comfort, where increased pain triggers nerve activation, while anxiety amplifies the perception of pain through the pain-anxiety-tension cycle mechanism. Various non-pharmacological interventions such as warm compresses and Benson relaxation have been proven to help, but the effectiveness of their combination in a pre-post approach has rarely been studied. To determine the effectiveness of combining warm compress therapy and Benson relaxation in reducing pain and anxiety levels in mothers who are about to undergo the labor process in Brotojoyo 3 Room, K.R.M.T Wongsonegoro Hospital, Semarang. Data collection was carried out directly on Mrs. N and Mrs. W, with pain intensity measured using the VAS questionnaire and anxiety levels measured using the HARS questionnaire before (pre-test) and after (post-test) the intervention. The intervention provided consisted of a warm compress for 15 minutes and Benson relaxation for 15–20 minutes. Data analysis was conducted descriptively and comparatively by comparing changes in pain and anxiety scores before and after the intervention for each patient, which were then presented in the form of tables and graphs. The results showed a decrease in pain in the first patient from 6 to 3 and in the second patient from 7 to 4, while anxiety decreased from moderate to low in the first patient and from moderate-severe to moderate in the second patient; vital signs such as pulse and respiration also showed improvement after the intervention. Overall, the combination of warm compresses and Benson's relaxation proved to be effective, safe, and easy to apply in reducing pain and anxiety in first-stage laboring mothers and has the potential to be used as part of the standard non-pharmacological nursing care. Labor pain before intervention in both patients was at a moderate to severe level, whereas after the intervention it decreased by 2–3 levels. Pre-intervention anxiety was at a moderate to severe level, and post-intervention showed a significant decrease, especially in the first patient. The combination of warm compress and Benson relaxation was proven effective in reducing pain intensity, anxiety, muscle tension, and sympathetic responses (pulse, BP, RR). This intervention is suitable to be applied in the delivery room because it is safe, inexpensive, easy to perform, and does not interfere with the physiological labor process. A multimodal approach provides a more positive childbirth experience and enhances the mother's ability to cope with contractions.

Keywords: benson relaxation; mother in labor; warm compress relaxation

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### INTRODUCTION

The childbirth process is a complex physiological and emotional experience, in which the first stage is often the most challenging phase for the mother due to the increased intensity of contractions that trigger the transmission of pain impulses to the spinal cord and cerebral cortex. This aligns with the explanation by Kheiri et al. (2022), who stated that pain in the first stage originates from cervical and uterine distension, while Putri (2023) added that bodily responses such as increased pulse and blood pressure occur due to sympathetic nerve activation. These findings are reinforced by Wilson et al. (2024), who explained that labor pain tends to increase as cervical dilation and contraction intensity progress.

In addition to pain, anxiety is a psychological factor that often arises in mothers during childbirth due to the uncertainty of the delivery process and concerns about the safety of the fetus. (Duarte, 2022) states that anxiety can trigger an increase in stress hormones such as cortisol, which

subsequently intensifies the perception of pain. Research (Lestari, 2023) also shows that excessive anxiety affects the effectiveness of uterine contractions, while (Rahimi et al., 2024) explains the concept of the pain–anxiety–tension cycle, which illustrates how anxiety worsens muscle tension and the perception of pain. Non-pharmacological approaches are the primary choice in labor pain management as they are considered safe and do not interfere with physiological processes. Warm compresses are one of the most widely used techniques, where heat works to increase vasodilation and reduce muscle spasms.

According to (Ningsih et al. 2022), the application of a warm compress is effective in reducing pain intensity in a short period of time, while (Arifin 2023) explains that its mechanism follows the gate control theory. The same is stated by (Banerjee et al. 2024), who found that warm compresses help reduce muscle tension during labor. In the psychological aspect, Benson's relaxation technique has been proven to reduce anxiety through the activation of the parasympathetic nervous system. (Hidayah et al. 2022) found that repeating simple mantras and regulating breathing can create a stable relaxation response. (Santoso 2023) adds that Benson relaxation helps reduce emotional tension and improves the mother's ability to control her breathing during contractions.

Although research on warm compresses and Benson relaxation separately has been widely conducted, studies on the effectiveness of combining the two are still very limited. (Pratiwi and Yardina 2023) emphasized that a multimodal approach is more effective because it addresses both physiological and psychological aspects simultaneously. (Kim et al. 2024) also showed that combined interventions often result in greater effects compared to a single therapy. In addition, (Hanum et al. 2025) stated that combining two non-pharmacological techniques has the potential to accelerate maternal adaptation to contractions and reduce pain perception more optimally. Therefore, this study was conducted to evaluate changes in the condition of laboring mothers before and after the combined warm compress and Benson relaxation intervention.

## **METHOD**

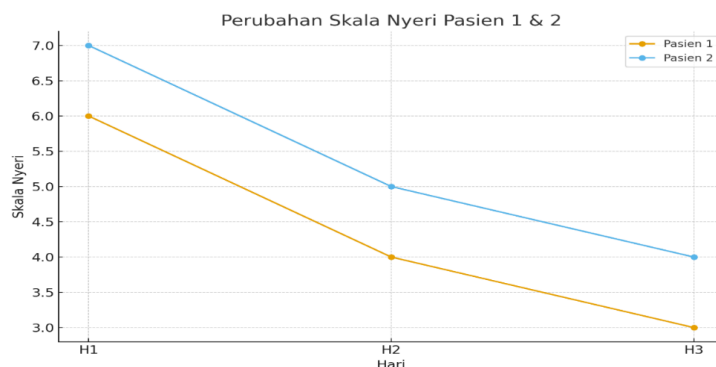
Data collection was conducted directly with two postpartum mothers, namely Mrs. N and Mrs. W, with pain intensity measured using the Visual Analog Scale (VAS) on a scale of 0–10, which shows very high reliability with an Intraclass Correlation Coefficient (ICC) of 0.97, as well as good validity in clinical pain measurement (Hawker, 2022). Anxiety levels were measured using the Hamilton Anxiety Rating Scale (HARS), which consists of 14 items to assess physical and psychological anxiety, with internal reliability (Cronbach's alpha) of 0.88 and good construct validity (Hamilton, 2021). Measurements were taken before (pre-test) and after (post-test) the intervention, which consisted of a warm compress for 15 minutes and Benson relaxation for 15–20 minutes. Data analysis was conducted descriptively and comparatively by comparing changes in pain and anxiety scores before and after the intervention for each patient, presented in the form of tables and graphs.

Before the intervention was administered, the researchers conducted a subjective data assessment through structured interviews to identify pain complaints during contractions, the level of anxiety felt, and the mother's perception of the childbirth process. Next, objective data were collected, including age, obstetric status, cervical dilation, and vital signs (blood pressure, pulse rate, and respiratory rate). After all initial data were documented, the researchers provided interventions in the form of warm compresses and Benson relaxation for three days in three cycles according to the recommended maternity nursing procedures (Hidayah et al., 2022). After the final intervention on the third day (post-test), pain, anxiety, vital signs, and the mother's verbal and non-verbal responses were re-measured using the same instruments to maintain measurement consistency and minimize bias. The pre-test and post-test data obtained were then analyzed descriptively and comparatively within subjects by comparing scores before and after the intervention for each patient, and were reviewed narratively to illustrate changes in physiological and behavioral responses of mothers in

labor, in accordance with the principles of case study analysis in nursing research (Polit & Beck, 2021).

## RESULT

The following illustration shows changes in pain intensity and anxiety in Mrs. N (patient 1) and Mrs. W (patient 2). The researcher conducted this to see whether the Benson relaxation therapy and warm compress relaxation therapy interventions implemented by the researcher over 3 days, using pre- and post-references, would produce what kind of results.



The graph shows a consistent decrease in pain intensity from Day 1 to Day 3 in both patients.

### Discussion for Patient 1:

1. Mrs. N experienced a rapid and stable decrease in pain, especially after the second day.
2. This is caused by several factors:
  - a. No history of complications or trauma from previous childbirths.
  - b. A more adaptive psychological response after the first day's intervention.
  - c. The effectiveness of warm compresses that directly target
3. Breathing and relaxation techniques make strengthens the body's pain control mechanisms.

### Discussion for Patient 2:

1. Mrs. W experienced a slower reduction in pain compared to Mrs. N.
2. Influencing factors:
  - a. History of preeclampsia and anemia, conditions that increase pain sensitivity.
  - b. Severe anxiety before the cesarean section, triggering activation of the sympathetic nervous system.
  - c. Mental unpreparedness for childbirth, resulting in decreased ability to follow relaxation instructions on the first day.

However, after repeated Benson relaxation sessions, the mother began to adjust and showed a decrease in anxiety that correlated with the reduction in pain.

### Supporting graph theory:

1. Gate Control Theory  
A warm compress stimulates large nerve fibers, thereby reducing the transmission of pain impulses.
2. Pain–Anxiety–Tension Cycle
  - a. High anxiety causes muscle tension, and tense muscles can increase pain.
  - b. Benson relaxation breaks this cycle through activation of the parasympathetic system.
3. Previous Research  
In line with the findings of Sun (2024), Astuti (2024), Lakshmi (2024), which state that warm compresses and Benson relaxation have significant analgesic and anxiolytic effects.

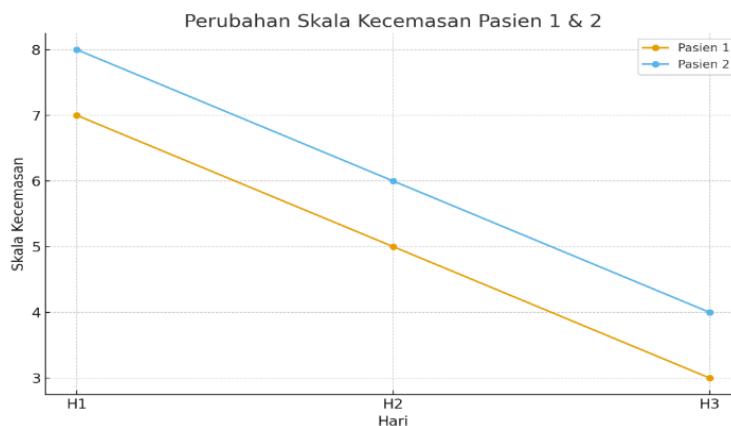
**Comparison**

When compared, the decrease in pain intensity in Mrs. N was faster than in Mrs. W. This indicates that psychological condition and health history greatly influence the pain perception of postpartum mothers.

**The main differentiating factor :**

Factor	Ny. N	Ny. W
Anxiety	Currently	Heavy
Medical history	None	Preeclampsia, anemia
Labor experience	First, not traumatic	Yes, but it was traumatic
Response to relaxation	Fast	Slow but improving
Pain reduction	6 turns into 3	7 turns into 4

From the table, it can be concluded that psychological factors have a significant impact on pain control. Benson's relaxation intervention is very helpful in reducing anxiety, which in turn affects pain perception and the body's reactivity to contractions.



The graph shows a clear decrease in anxiety from Day 1 to Day 3 in both patients.

**Patient 1 – Mrs. N**

On the first day, anxiety was at a level 7, indicated by: tense face; rapid breathing; difficulty focusing; fear due to being a first-time mother. After interventions were provided: Benson relaxation; education on the childbirth process; support from husband; calming the delivery room environment. Anxiety decreased steadily, from 7 to 5 and finally to 3. On the third day, the patient showed a calm facial expression, deep breathing, and was able to follow the nurse's instructions well.

**Interpretation:**

First-time pregnant patients usually experience high anxiety due to lack of experience. However, Mrs. N's relaxation response was very good, causing her anxiety to decrease quickly.

**Patient 2 – Mrs. W**

On the first day, the level of anxiety was higher (8) compared to Mrs. N. This was caused by several factors: history of preeclampsia; previous childbirth experience, but it was traumatic; concern about undergoing a cesarean section; high blood pressure that exacerbates anxiety. After the interventions were carried out: a. Benson relaxation b. Education about the surgical procedure c. Support from her husband and mother d. Therapeutic touch e. Slow breathing techniques Anxiety decreased from 8 to 6 and finally to 4.

**Interpretation:**

The decline occurs more slowly compared to Mrs. N due to more complex psychological and medical conditions. However, relaxation therapy still shows effective results.

Supporting Theories for the Graph:

1. Lazarus' Stress and Coping Theory
  - Anxiety arises when an individual appraises a situation as a threat.
  - Benson's relaxation helps make the perception of threat more controllable.
2. Response-Based Stress Theory (Selye)
  - A decrease in anxiety indicates a transition from the alarm phase to the resistance phase.
3. Effects of Benson's Relaxation
  - a. Activates the parasympathetic nerves
  - b. Reduces heart rate
  - c. Regulates stress hormones
  - d. Rapidly produces a sense of calm
4. Family Involvement
  - Family support reduces anxiety through the hormone oxytocin, which generates a feeling of security.

**Comparison**

Aspect	Patient 1	Patient 2
Reduction of anxiety	7 to 3 (down 4 numbers)	8 to 4 (down 4 numbers)
Rate of decrease	Faster	Slower
Inhibitor factor	Primigravida	Preeclampsia, history of trauma
Response to Benson relaxation therapy	Very good	Alright, but it needs to be repeated

**DISCUSSION**

The pre–post results in both patients showed that the combination of warm compress and Benson relaxation provided a synergistic effect in reducing pain and anxiety. The reductions observed in Mrs. N and Mrs. W reinforce the concept that multimodal methods are capable of addressing two different components of discomfort, namely physiological and psychological, as explained by Kheiri (2022). This aligns with Wilson's (2024) opinion that combination therapy can enhance maternal comfort because it works more comprehensively compared to a single intervention that targets only one aspect. Physiologically, warm compresses increase vasodilation, reduce muscle spasms, and decrease pain signal transmission through the gate control theory mechanism, as described by Ningsih (2022). The effectiveness of this technique is also demonstrated in the research by Arifin and Laila (2023), which found that the application of gentle heat can reduce peripheral nerve sensitivity, allowing mothers in labor to better tolerate contractions. The administration of warm compresses to both patients was proven to reduce pain by three levels, indicating that this intervention can work quickly and consistently in real cases in the delivery room.

Benson relaxation plays an important role in reducing anxiety through parasympathetic nervous system activation, which in turn affects a decrease in heart rate, muscle relaxation, and more regular breathing. Hidayah (2022) explains that this technique helps break the tension–anxiety–pain cycle that often occurs in postpartum mothers. Santoso and Wibowo (2023) also show that Benson relaxation provides a greater sense of self-control in mothers, allowing them to face contractions more calmly and with focus. The difference in the level of anxiety reduction in the two patients indicates that the underlying psychological condition greatly affects the effectiveness of the intervention. In Mrs. W, the higher level of anxiety related to the planned surgical procedure resulted in a relaxation response that was not as optimal as in the first patient. Rahimi (2024) emphasizes that pre-procedural anxiety usually triggers an increase in stress hormones, making individuals less responsive to relaxation therapy. Furthermore, Lestari and Nurhayati (2023) state that factors such as previous experiences and risk perception can strengthen anxiety, thereby affecting the outcomes of non-pharmacological interventions.

## **CONCLUSION**

Labor pain before intervention in both patients was at a moderate to severe level, whereas after the intervention it decreased by 2–3 levels. Pre-intervention anxiety was at a moderate to severe level, and post-intervention showed a significant decrease, especially in the first patient. The combination of warm compress and Benson relaxation was proven effective in reducing pain intensity, anxiety, muscle tension, and sympathetic responses (pulse, blood pressure, respiration rate). This intervention is suitable to be applied in the delivery room because it is safe, inexpensive, easy to perform, and does not interfere with the physiological labor process. A multimodal approach provides a more positive childbirth experience and enhances the mother's ability to cope with contractions.

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