



## Research Article

# The Impact of the Deep Back Massage Technique on Labour Pain Intensity during the Active Phase of Stage I at TPMB Asna Gonibala, Inobonto Village, Bolaang District

Jihan Putri Utami Ningsih Modeong<sup>1</sup>, Tut Rayani Aksohini Wijayanti<sup>2\*</sup>

<sup>1-2</sup> Bachelor of Midwifery Program, Faculty of Health Sciences, Institute of Science and Health Technology RS dr. Soepraoen, Indonesia

\*Corresponding Author: [tutrayani@itsk-soepraoen.ac.id](mailto:tutrayani@itsk-soepraoen.ac.id)

**Abstract.** During the active phase of the first stage of labor, mothers experience discomfort caused by uterine contractions, cervical dilation, and fetal pressure on the birth canal. Unmanaged pain may increase anxiety, tension, and distress during labor. One non-pharmacological method for reducing labor pain is deep back massage. This study aimed to determine the effect of deep back massage on labor pain intensity during the active phase of the first stage of labor at TPMB Asna Gonibala, Inobonto Village, Inobonto District. This study used a quasi-experimental design with a one-group pretest-posttest approach. A total of 27 mothers in the active phase of the first stage of labor were selected based on inclusion and exclusion criteria. Pain intensity was assessed before and after the intervention using the Numeric Rating Scale (NRS). Data were analyzed using univariate and bivariate analyses with a paired-sample t-test at a significance level of 0.05. The results showed that the mean pain intensity decreased from 7.26 before the intervention to 4.41 after the intervention, with a reduction of 2.85 points. A total of 25 respondents (92.6%) experienced reduced pain intensity. Analysis showed a p-value of 0.000, indicating a significant effect of deep back massage on reducing pain intensity. In conclusion, deep back massage is effective in reducing labor pain intensity during the active phase of the first stage of labor at TPMB Asna Gonibala, Inobonto Village, Inobonto District.

**Keywords:** Active Period of the First Stage; Deep Back Massage; Labor Discomfort; NRS; Postpartum Mother.

## 1. Introduction

Labor is a physiological process undergone by the mother to expel the fetus, placenta, and amniotic membranes through the birth canal. Despite being a natural procedure, birthing frequently entails pain that may induce discomfort, worry, tiredness, and stress in the mother. Labor pain is predominantly experienced during the initial period, characterized by uterine contractions and gradual cervical dilatation. The active phase of the first stage of labor occurs when uterine contractions intensify, become more regular, and increase in frequency, resulting in heightened pain for the mother. Discomfort during this stage arises from uterine muscle contractions, cervical effacement and dilation, stretching of the perineal tissues, and pressure exerted by the fetal presenting part. If pain is inadequately handled, the mother may have heightened anxiety, muscle tension, tiredness, and diminished capacity to cope with the labor process.

Uncontrolled labor pain can impact the physical and psychological well-being of the mother. Intense discomfort may impede the mother's ability to breathe, hinder her capacity to rest, and reduce her cooperation during labor. This syndrome can exacerbate pain perception, as anxiety and tension heighten the body's response to pain stimuli. Consequently, the treatment of labor pain is a crucial aspect of midwifery care, enabling mothers to experience greater comfort and effectively navigate the labor process.

Quality childbirth services prioritize the safety of moms and infants while also ensuring a positive childbirth experience. The World Health Organization underscores that intrapartum care must be delivered in a quality, evidence-based, and woman-centered approach to facilitate a pleasant birthing experience (WHO, 2018). The WHO advises manual treatments, including massage or warm compresses, for healthy pregnant women seeking pain relief during labor, based on the mother's preferences (WHO, 2018).

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Labour pain management can be achieved using pharmaceutical and non-pharmacological methods. Pharmacological therapy can alleviate pain; however, it is neither universally accessible or consistently the preferred option in all birthing care facilities. Simultaneously, non-pharmacological approaches like as breathing techniques, relaxation, warm compresses, tactile stimulation, and massage may serve as adjunctive strategies to augment maternal comfort during labor. An examination of non-pharmacological pain management indicates that methods like as breathing exercises, massage, water immersion, and relaxation can foster a tranquil environment and alleviate stress during labor (Nori et al., 2023).

A non-pharmacological way for alleviating labor pain is deep back massage. This technique involves administering massage or pressure to the lower back, particularly the lumbosacral region, to alleviate muscular tension and alter pain perception. A back massage during labor is seen as a straightforward, cost-effective, non-invasive method that can be readily integrated into midwifery practices. Prior studies indicate that back massage significantly alleviates discomfort during the initial stage of labor when compared to standard care (Pawale et al., 2020).

Massage of the back region can physiologically stimulate big nerve fibers, hence inhibiting the transmission of pain impulses to the central nervous system. Massage can boost relaxation, improve comfort, assist the mother in regulating her breathing, and alleviate stress during contractions. Research indicates that mechanical or heated massage applied to the lumbosacral region might markedly diminish labor pain intensity following the intervention (Kaçar et al., 2021).

Additional research findings corroborate the efficacy of massage therapy as an adjunctive intervention during parturition. A meta-analysis on massage therapy for labor pain determined that massage can alleviate labor pain in primiparous moms (Ranjbaran et al., 2017). Furthermore, studies indicate that massage therapy during labor may reduce the duration of both the first and second stages of labor and enhance infant outcomes as measured by Apgar scores at one and five minutes (Bolbol-Haghighi et al., 2016).

At TPMB Asna Gonibala, Inobonto Village, Inobonto District, mothers in the active first stage of labor require treatment that is both safe and conducive to comfort throughout the labor process. The deep back massage technique is a viable non-pharmacological solution for independent midwifery practice, as it necessitates no specialized equipment, is straightforward to execute, and may be tailored to the mother's health. This intervention can enhance the midwife's role in delivering maternal care during labor.

The study on "The Effect of Deep Back Massage Method on the Intensity of Labour Pain in the Active Phase of First Stage Labour at TPMB Asna Gonibala, Inobonto Village, Inobonto District" is essential to undertake. This study aims to furnish empirical evidence on the efficacy of deep back massage in alleviating labor pain intensity and to offer guidance for midwives in executing straightforward, safe, and easily administered non-pharmacological interventions to improve the comfort of parturient women.

## 2. Research Method

This study employs a quantitative methodology utilizing a quasi-experimental design characterized by a one-group pretest-posttest framework. The study was carried out at TPMB Asna Gonibala, located in Inobonto Village, Inobonto District, focusing on mothers in the active first stage of labor. The study population comprised all moms in the active first stage of labor at TPMB Asna Gonibala. The sample was established according to inclusion and exclusion criteria: moms in the active first stage of labor, willing to participate as responders, not experiencing labor problems, and capable of completing the intervention.

The independent variable in this study is the deep back massage technique, whereas the dependent variable is the degree of labor pain during the active part of the first stage. The technique involved rubbing the mother's lower back during contractions, following the prescribed procedure. The pain intensity was assessed prior to and during the intervention utilizing the Numeric Rating Scale (NRS).

The data were analyzed univariately to delineate the characteristics of the respondents and the intensity of pain prior to and following the intervention. Bivariate analysis assesses the impact of deep back massage on the intensity of labor pain during the active phase of the first stage. The paired sample t-test is employed for regularly distributed data, while the Wilcoxon test is utilized for non-normally distributed data, with a significance threshold set at 0.05.

### 3. Research Method

Table 1. Distribution of Respondent Attributes

| Characteristic      | Category           | n  | %     |
|---------------------|--------------------|----|-------|
| Age                 | <20 years          | 3  | 11,1  |
|                     | 20–35 years        | 21 | 77,8  |
|                     | >35 years          | 3  | 11,1  |
| Educational level   | Junior high school | 7  | 25,9  |
|                     | Senior high school | 16 | 59,3  |
|                     | Higher education   | 4  | 14,8  |
| Parity              | Primipara          | 12 | 44,4  |
|                     | Multipara          | 15 | 55,6  |
| Cervical dilatation | 4–6 cm             | 18 | 66,7  |
|                     | 7–9 cm             | 9  | 33,3  |
| Total               |                    | 27 | 100,0 |

According to Table 1, the predominant age group among responders is 20–35 years, including 21 individuals or 77.8% of the total. This demographic is within the healthy reproductive age; nonetheless, moms in labor may encounter differing intensities of labor pain influenced by uterine contractions, cervical dilation, and psychological factors during labor.

The majority of responders, 16 individuals or 59.3%, possessed a high school education. A mother's educational attainment can affect her comprehension of information related to the delivery process and non-pharmacological pain management methods. The majority of respondents were multiparous, comprising 15 individuals or 55.6% of the total. Prior delivery experiences can influence the mother's capacity to cope with labor discomfort.

The bulk of answers, 18 individuals or 66.7%, were at a cervical dilatation of 4–6 cm. During the active part of stage I, uterine contractions intensify and become more rhythmic, resulting in an escalation of pain for the mother. This illness necessitates uncomplicated therapies, such as deep back massage, to alleviate discomfort severity.

Table 2. Intensity of Labour Pain Pre- and Post-Intervention.

| Labour Pain Intensity | Mean $\pm$ SD   | Median | Minimum | Maximum |
|-----------------------|-----------------|--------|---------|---------|
| Before intervention   | 7,26 $\pm$ 0,86 | 7,00   | 6,00    | 9,00    |
| After intervention    | 4,41 $\pm$ 0,80 | 4,00   | 3,00    | 6,00    |
| Reduction difference  | 2,85 $\pm$ 0,77 | 3,00   | 1,00    | 4,00    |

According to Table 2, the mean labor pain intensity before to deep back massage was 7.26, with a standard deviation of 0.86. Post-intervention, the mean pain intensity diminished to 4.41, with a standard deviation of 0.80. The mean disparity in pain alleviation was 2.85. The results demonstrate a reduction in the severity of labor pain during the active portion of the first stage following the use of the deep back massage technique.

The alleviation of pain may result from massage in the lower back region, which offers tactile stimulation that might distract from pain perception, diminish muscular tension, and enhance comfort for the laboring woman. Furthermore, a thorough back massage can facilitate maternal relaxation during contractions, so rendering her pain response more controllable.

Table 3. Distribution of Alterations in Pain Intensity Post-Intervention.

| Change in Pain Intensity | n  | %     |
|--------------------------|----|-------|
| Decreased                | 25 | 92,6  |
| Unchanged                | 2  | 7,4   |
| Increased                | 0  | 0,0   |
| Total                    | 27 | 100,0 |

According to Table 3, the predominant number of respondents, 25 individuals or 92.6%, reported a reduction in pain severity following a deep back massage. Two respondents, representing 7.4%, reported unchanged pain intensity, and no respondents observed an increase in pain.

The results suggest that the deep back massage technique positively influences the reduction of labor pain. The presence of responders who did not feel a shift in pain may be affected by various factors, including pain threshold, anxiety level, contraction intensity, cervical dilation, weariness, and the mother's capacity to adjust to the labor process.

**Table 4.** Outcomes of the Pain Intensity Difference Assessment Pre- and Post-Intervention.

| Variabel             | Pre-intervention Mean | Post-test Mean | Mean Difference | p-value |
|----------------------|-----------------------|----------------|-----------------|---------|
| Labor pain intensity | 7,26                  | 4,41           | 2,85            | 0,000   |

According to Table 4, the mean labor pain intensity prior to the intervention was 7.26, which diminished to 4.41 post-intervention. The mean reduction in pain intensity is 2.85. The statistical test yielded a p-value of 0.000. The result is less than the significance level of 0.05, indicating a significant benefit of the deep back massage method on pain intensity decrease during the active phase of the first stage of labor at TPMB Asna Gonibala, Inobonto Village, Inobonto District.

Consequently, the deep back massage technique may serve as an effective, straightforward, and easily implementable non-pharmacological intervention by midwives to alleviate pain during the active part of the first stage of labor. This strategy can enhance maternal affectionate care by increasing the mother's comfort during labor.

#### 4. Conclusion and Recommendations

The deep back massage technique markedly alleviates the intensity of labor pain during the active period of the first stage of labor at TPMB Asna Gonibala, Inobonto Village, Inobonto District. The mean pain intensity diminished from 7.26 prior to the intervention to 4.41 subsequent to the intervention, resulting in a reduction of 2.85 and a p-value of 0.000.

Midwives are anticipated to utilize the deep back massage technique as a non-pharmacological intervention to alleviate labor pain throughout the active portion of the first stage. Parturient mothers might be instructed in relaxation techniques and basic massage methods to enhance their comfort during labor. Researchers are encouraged to utilize a greater sample size and incorporate a control group.

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