

The Effectiveness of Deep Back Massage in Reducing Pain During the First Stage of Active Labor at Weda Regional Hospital

Noni Abu¹, Raden Maria Veronika Widiatrilupi^{2*}

¹⁻² Bachelor Midwifery Study Program, Institut Teknologi, Sains, dan Kesehatan RS.DR. Soepraoen Kesdam V/BRW, Indonesia

* Corresponding Author: mariawidia@itsk-soepraoen.ac.id

Abstract. This study analyzed the effectiveness of deep back massage in reducing labor pain during the active phase of the first stage of labor at RSUD Weda. The article was developed from a tabulated dataset containing paired pain scores before and after intervention in 30 primigravida women. A quantitative pre-experimental approach with a one-group pretest-posttest format was used because each respondent had repeated measurements on the same pain scale. Pain intensity was assessed with a 0–10 numerical rating scale and then grouped into clinical categories for interpretation. Descriptive analysis was used to summarize respondent characteristics, pain distribution, and the magnitude of change, while inferential analysis used the Wilcoxon signed-rank test because the paired difference scores were not normally distributed. The mean pain score decreased from 8.17 before intervention to 5.83 after intervention, with an average reduction of 2.33 points. Before massage, 93.3% of respondents were in severe to very severe pain categories; after massage, 66.7% shifted to mild to moderate pain. The Wilcoxon test showed a statistically significant difference ($p < 0.001$), and the effect size was large (Cohen's $d_z = 1.19$). These findings indicate that deep back massage is a relevant, simple, and clinically useful non-pharmacological intervention for reducing labor pain in primigravida women during the active phase of labor. The method can be considered as supportive intrapartum care in maternity services, especially in settings that prioritize comfort, humanized care, and safe non-drug pain management.

Keywords: Active Phase; Deep Back Massage; Labor Pain; Non-Pharmacological Therapy; Primigravida.

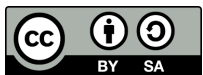
Received: November 26, 2025

Revised: Desember 28, 2025

Accepted: February 28, 2026

Availbale: April 30, 2026

Curr. Ver.: April 30, 2026



Copyright: © 2026 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY SA) license (<https://creativecommons.org/licenses/by-sa/4.0/>)

1. Background

Labor pain is a physiological experience that almost always accompanies the process of cervical dilation, descent of the presenting part of the fetus, and the increasing strength of uterine contractions during the active phase of stage I. During this phase, contractions increase in frequency, lengthen in duration, and increase pressure on the cervix and lower uterine segment, thus increasing pain perception. For primigravida mothers, the first experience of regular contractions, cervical changes, and the demands of psychological adaptation often exacerbate the pain response, especially when the mother has no prior experience recognizing labor pain patterns. Unmanaged pain not only causes subjective suffering but also has the potential to affect the mother's cooperation in following health care providers' instructions, interfere with breathing, lower pain tolerance, and increase muscle tension, which can ultimately worsen pain perception.

The justification for the importance of this study is clearly evident in the available tabulated data. Of the 30 respondents, all in the active phase of the first stage, 23 (76.7%) experienced severe pain before the intervention, 5 (16.7%) experienced very severe pain, 1 (3.3%) experienced moderate pain, and only 1 (3.3%) was in the mild pain category. This means that 93.3% of respondents entered the intervention with severe to very severe pain intensity. The average pain score before the intervention was 8.17 on a scale of 0–10, confirming that pain in this group is not a minor issue, but rather a real clinical problem requiring prompt, safe, and easily implemented treatment in the delivery room. The large proportion of mothers with severe pain also demonstrates that midwifery services should not

only focus on biological safety but also focus on the comfort, comfort, and quality of the mother's labor experience.

Physiologically, intense labor pain can trigger a stress response through increased catecholamines and neuromuscular tension. This can make it difficult for the mother to relax, resulting in ineffective breathing patterns, increased oxygen consumption, and suboptimal coordination of pushing and following instructions. In a clinical context, excessive pain can also exacerbate anxiety, fear, and fatigue. This causal relationship is important because pain and anxiety exacerbate each other; the more anxious a mother is, the lower her pain tolerance, and the higher the perceived pain, the more difficult it is for her to maintain relaxation. If left untreated, this condition can lead to a traumatic birth experience, decreased maternal satisfaction with care, and increased need for pharmacological interventions, even though not all facilities have the same resources to provide optimal medical analgesia options.

One widely recommended non-pharmacological approach is deep back massage. This technique involves applying pressure and targeted massage to the lower back or sacrum to help reduce pain impulse transmission, promote muscle relaxation, improve local circulation, and stimulate the release of endorphins, the body's natural analgesic. The advantages of deep back massage lie in its simplicity, affordability, non-invasiveness, ease of learning for midwives and birth attendants, and its ability to be performed without disrupting routine obstetric monitoring. In maternity services that emphasize the principle of compassionate care for the mother, this technique is highly relevant because it focuses not only on pain reduction but also on a sense of care, emotional support, and strengthening the therapeutic relationship between the mother and the healthcare provider.

This research interest arose from the need to assess the effectiveness of deep back massage in the context of real-world data at Weda Regional Hospital. While various studies have demonstrated the benefits of massage techniques for labor pain, each service facility has unique patient characteristics, service contexts, and response patterns. Therefore, analysis based on available data is crucial to determine the extent of pain reduction that actually occurs, how pain categories shift before and after the intervention, and its clinical significance for midwifery practice. Based on this background, this study aims to analyze the effectiveness of deep back massage in reducing pain during the active phase of first-stage labor in primigravida mothers at Weda Regional Hospital, while also integrating the results into a scientific discussion relevant to previous research.

2. Theoretical Study

Labor pain during the active phase of the first stage of labor originates primarily from uterine contractions, cervical dilation, stretching of the lower uterine segment, and pressure on the tissues surrounding the birth canal. In obstetric practice, pain intensity is often assessed using a numeric rating scale of 0–10 because it is simple, quick, and easy for laboring mothers to understand. In this study, the categories used were 0, no pain; 1–3, mild pain; 4–6, moderate pain; 7–9, severe pain; and 10, very severe pain. This categorical approach is useful because it not only reflects changes in average scores but also indicates clinical shifts that are more easily interpreted in care decision-making. When a woman moves from severe to moderate pain, for example, health care providers can assess that interventions have resulted not only in statistical changes but also in clinically meaningful improvements in comfort.

Theoretically, deep back massage can be explained through the gate control theory and the activation of endogenous analgesia. Massage or pressure on the lower back stimulates large-diameter sensory nerve fibers, which can inhibit the transmission of pain impulses at the spinal cord level. Furthermore, massage performed with the right rhythm and pressure helps reduce muscle tension, promote relaxation, and stimulate the release of endorphins, thus reducing pain perception. These mechanical and neurophysiological effects are often reinforced by psychological factors, namely the feeling of being accompanied and cared for during contractions. In obstetric care, this combination of biological effects and emotional support makes massage techniques a frequently effective non-pharmacological intervention.

Previous research has shown consistent results. Khadijah and Marjoni (2021) compared deep back massage with and without the Al-Fatihah spiritual approach in primigravida in the active phase of the first stage and found that both were able to reduce pain, suggesting that deep back massage itself has significant benefits. Pratiwi, Zuliyati, and Fatimatasari (2021) also reported that abdominal lifting, effleurage, and deep back massage were all equally effective in reducing labor pain in the active phase of the first stage, although no significant differences were found between the techniques. Ariani and Suryanti (2021) showed that back massage was

associated with reduced physiological labor pain in the active phase of the first stage, while Apriani and Sari (2021) showed that counter pressure was able to reduce the average pain from 7.27 to 5.47 with a highly significant *p* value. Irianti and Israyati (2022) reported that most mothers who initially had moderate pain shifted to mild pain after counter pressure, confirming that back stimulation is indeed relevant for labor pain management.

More recent literature has expanded the understanding that massage interventions affect not only pain but also psychological comfort and quality of labor. Refisiliyani, Riu, and Usman (2023) compared effleurage with rubbing massage and showed that both reduced pain intensity, although effleurage performed slightly better on average. Manikam, Risnawati, Puspitasari, and Meihartati (2024) confirmed that deep back massage combined with warm compresses significantly reduced pain during the active phase of first-stage labor. Norhapifah et al. (2024) also found reduced pain and anxiety in their randomized trial of shiatsu massage, while Tirkaz and Akbaş (2025) and Chen et al. (2025) demonstrated that massage techniques can reduce pain, reduce anxiety, and in some contexts even shorten labor. Therefore, this study's position is important because it re-examines the benefits of deep back massage in the local context of Weda Regional Hospital using available empirical data, while also adding to the evidence that simple non-pharmacological interventions can have a significant impact on laboring mothers.

3. Research Methods

This study used a quantitative approach with a pre-experimental one-group pretest-posttest design compiled based on tabulated observation data from mothers giving birth in the active phase of the first stage at Weda Regional Hospital. This design was chosen because all respondents received the same intervention, namely deep back massage, and each respondent had two measurements of the same variable, namely pain scores before and after the intervention. Methodologically, this design is appropriate for assessing changes in pain intensity that occur after the treatment is given to the same group, so the focus of the analysis is not on intergroup comparisons, but rather on the direction and magnitude of changes in the respondents' conditions after treatment. The study population is understood as all mothers giving birth in the active phase of the first stage who were the targets of the deep back massage intervention in the service context where this data was collected. Based on the available tabulation file, the study sample consisted of 30 respondents with codes R-01 to R-30. All respondents were recorded as G1P0A0 or primigravida, so the sample was relatively homogeneous in terms of childbirth experience. Respondents' ages ranged from 16 to 35 years, while cervical dilation during observation was spread between 4 cm and 8 cm, which clinically represents the active phase of the first stage. Because all available data units were used for analysis, the most appropriate sampling technique to describe the sampling process in this manuscript was total sampling of all data that met the criteria in the research tabulation. The instrument used to assess pain was a 0–10 numeric scale as shown in the source data, with interpretive groupings into no pain, mild pain, moderate pain, severe pain, and very severe pain. The primary research variable was labor pain intensity before and after deep back massage, while descriptive variables considered included age, gravidity status, and cervical dilation. The analysis procedure began with reorganizing the dataset, cleaning the cervical dilation format, and verifying the numeric scores before and after the intervention. To maintain analytical consistency, the magnitude of pain reduction was recalculated from the difference between the pre-score and the post-score for each respondent, as these two raw scores provide the most direct basis for evaluating individual changes. Descriptive analysis was conducted to obtain the frequency distribution of respondent characteristics, mean, median, standard deviation, range of values, shifts in pain categories, and the distribution of the magnitude of the score reduction. Because this study focused on paired score changes, the next step was to assess the distribution of the score difference data. The results of the examination showed that the distribution of the difference scores was not normal, so the nonparametric Wilcoxon signed-rank test was chosen as the main inferential analysis tool. The Wilcoxon test is important because it is more appropriate for paired data that does not meet the assumption of normality and is still able to show whether the difference before and after the intervention is statistically significant. In addition to the *p*-value, this study also interprets the clinical significance of the results through changes in the mean pain, shifts in intensity categories, and the proportion of respondents who experienced a decrease in score of 1 point, 2 points, or ≥ 3 points. This approach is used so that the discussion does not stop at statistical conclusions alone, but also explains the clinical use of deep back massage in daily midwifery

practice. Respondent confidentiality is maintained because all personal identities in the data are only displayed in coded form. With this design, this study is directed at answering one main question: whether deep back massage is effective in reducing pain during the active phase of first-stage labor in primigravida mothers based on changes in pain scores observed directly before and after the procedure.

4. Results And Discussion

The analysis of the research results was conducted on 30 primigravida respondents, all of whom received deep back massage intervention during the active phase of the first stage of labor. The focus of the results was not only on the presence or absence of statistical differences, but also on clinical patterns of pain changes, the distribution of respondent characteristics, and the consistency of the findings with theory and previous research.

Respondent characteristics

Table 1 shows that the largest age group was 26–30 years old (10 people or 33.3%), followed by 21–25 years old (8 people or 26.7%), 20 years old (7 people or 23.3%), and 30 years old (5 people or 16.7%). This composition shows that the majority of respondents were of healthy reproductive age, but there were still very young respondents who may be more psychologically vulnerable to anxiety and high pain perception. All respondents were primigravida, so their first experience facing childbirth was an important characteristic of this study sample.

Judging from cervical dilation, the highest number of respondents was at 5 cm dilation (8 people, or 26.7%), followed by 6 cm (7 people, or 23.3%), 4 cm (6 people, or 20.0%), 7 cm (5 people, or 16.7%), and 8 cm (4 people, or 13.3%). This distribution indicates that the intervention was administered within a fairly representative range of active dilation. Clinically, this variation in dilation is important because the intensity of contractions, pressure on the cervix, and pain sensations can change as labor progresses. Therefore, interpreting the effectiveness of deep back massage also needs to be interpreted as a response to the active spectrum of labor, not just a specific point of dilation.

Table 1. Characteristics of Research Respondents (n = 30).

Characteristics	Frequency	Percentage (%)
Age ≤20 years	7	23.3
Age 21–25 years	8	26.7
Age 26–30 years	10	33.3
Age >30 years	5	16.7
Gravidity G1P0A0	30	100.0
4 cm dilation	6	20.0
5 cm opening	8	26.7
6 cm dilation	7	23.3
7 cm dilation	5	16.7
8 cm dilation	4	13.3

Changes in pain scores before and after intervention

Descriptively, the mean pain score before the intervention was 8.17 with a median of 8.50, a standard deviation of 1.51, and a range of 3–10. After the intervention, the mean decreased to 5.83 with a median of 6.00, a standard deviation of 1.90, and a range of 1–9. The mean decrease in the score reached 2.33 points with a median of 2.50 and a standard deviation of 1.95. Clinically, a decrease of more than two points on the numerical scale can be considered a significant change because mothers not only experience lower pain, but also tend to be better able to regulate their breathing, relax, and cooperate during labor.

The shift in pain categories reinforces this interpretation. Before the deep back massage, 23 respondents, or 76.7%, were in the severe pain category, and 5 respondents, or 16.7%, were in the very severe pain category; only 2 respondents were in the less severe category. After the intervention, no respondents were in the very severe pain category, 17 respondents, or 56.7%, were in the moderate pain category, 3 respondents, or 10.0%, were in the mild pain category, and 10 respondents, or 33.3%, were still in the severe pain category. This pattern suggests that the intervention did not always completely eliminate pain, but significantly shifted the pain burden from the more severe category to a more tolerable one.

The Wilcoxon signed-rank test yielded a p-value of 0.000023, which, in scientific reporting, can be stated as $p < 0.001$. These results confirm a significant difference between pain scores before and after the intervention. The effect size calculated from the paired

differences was also relatively large (Cohen's $d_z = 1.19$), indicating that the pain reduction was not only statistically significant but also practically robust. Therefore, inferentially and clinically, deep back massage can be considered effective as an intervention to reduce pain during the active phase of first-stage labor.

Table 2. Summary of Pain Scores Before And After Deep Back Massage

Parameter	Average	Median	Elementary School	Range
Before intervention	8.17	8.50	1.51	3–10
After the intervention	5.83	6.00	1.90	1–9
Score drop	2.33	2.50	1.95	0–6

Table 3. Distribution of Pain Categories Before and After Intervention.

Pain categories	Before (n)	Before (%)	After (n)	After (%)
No pain	0	0.0	0	0.0
Mild pain	1	3.3	3	10.0
Moderate pain	1	3.3	17	56.7
Severe pain	23	76.7	10	33.3
Very severe pain	5	16.7	0	0.0

The results of the Wilcoxon signed-rank test showed $p < 0.001$, so there was a significant difference between pain scores before and after the deep back massage intervention.

Effectiveness analysis based on the magnitude of the score decrease

To provide a more operational overview, the magnitude of the score reduction was also regrouped into four categories: very effective if the reduction is ≥ 3 points, effective if the reduction is ≥ 2 points, less effective if the reduction is 1 point, and ineffective if there is no reduction in the score. Based on the recalculation of the before and after scores, 15 respondents or 50.0% were included in the very effective category, 3 respondents or 10.0% were included in the effective category, 5 respondents or 16.7% were included in the less effective category, and 7 respondents or 23.3% were included in the ineffective category. These findings indicate that half of the respondents experienced a very clear improvement, while almost a quarter of respondents experienced no reduction in their scores. This variation in responses is important to discuss because the effectiveness of non-pharmacological interventions is likely influenced by the intensity of contractions, individual pain threshold, maternal psychological condition, quality of massage techniques, and the phase of labor progress at the time of the intervention.

When the data were analyzed based on cervical dilation, the largest average decrease in scores was observed at 5 cm dilation, with a score of 3.25 points, followed by 8 cm dilation with a score of 2.50 points, and 6 cm dilation with a score of 2.43 points. Meanwhile, 4 cm dilation showed an average decrease of 1.33 points, and 7 cm dilation with a score of 1.80 points. These findings cannot be interpreted as causal differences between dilation levels because the study was not designed for comparative testing per stratum, but the pattern suggests that response to deep back massage may vary according to the stage of labor. Practically, these results provide healthcare providers with the opportunity to consider the most responsive massage timing for mothers with specific characteristics.

Table 4. Effectiveness Categories Based on the Reduction in Pain Scores from the Recalculation Results.

Effectiveness category	Frequency	Percentage (%)
Very effective	15	50.0
Effective	3	10.0
Less effective	5	16.7
Ineffective	7	23.3

Relationship to theory and clinical significance

From a theoretical perspective, the results of this study align with the assumption that tactile stimulation and pressure on the lower back can reduce pain intensity through two main pathways. First, massage helps divert the transmission of pain stimuli along the nerve pathways, so the mother doesn't focus entirely on the sensation of contractions. Second, massage promotes relaxation, improves comfort, and stimulates the release of endorphins, thus increasing the pain tolerance threshold. In active labor, when contractions are frequent and require rapid adaptation, this type of support is invaluable, as the mother needs interventions that can work quickly without increasing procedural burdens.

The study also showed that deep back massage is better understood as a pain-reducing intervention, not a complete pain reliever. After the intervention, 33.3% of respondents still experienced severe pain, so health workers cannot rely on a single technique for all mothers. However, the reduction in pain from a predominance of severe-very severe pain to a predominance of moderate pain after the intervention demonstrated significant benefits. In clinical practice, reducing pain from a highly bothersome level to a more tolerable level is often sufficient to improve comfort, enhance coping, and maintain maternal cooperation during labor.

Another important aspect is that all respondents in this study were primigravidas. This characteristic makes the results more focused because the experience of first-time birth is often associated with greater uncertainty, fear, and anxiety than in multiparas. In this group, therapeutic touch interventions have the potential to provide dual benefits: reducing pain and providing a sense of security. Therefore, the success of deep back massage in this data can be seen as evidence that simple touch-based interventions remain relevant for groups of mothers who need more psychological support.

Comparison with previous research

When compared with previous research, the findings of this study show a consistent trend. Several relevant national and international studies are summarized in Table 5 to illustrate the position of this study's findings within the broader evidence landscape.

Table 5. Summary of Relevant Previous Research.

Researchers	Design	Intervention	Main results	Connection
Pratiwi et al. (2021)	Pretest-posttest, 3 groups	Abdominal lifting, effleurage, deep back massage	The three techniques reduced active phase pain; deep back massage significantly	Supports that back massage is effective in reducing pain
Apriani & Sari (2021)	Quasi-experimental	Counter pressure	The average pain decreased from 7.27 to 5.47; p is very significant.	In line because they both press on the back area to reduce pain.
Irianti & Israyati (2022)	Pre-experimental	Counter pressure	Most mothers shifted from moderate to mild pain; p=0.002	Strengthening the benefits of back stimulation during the active phase of labor
Manikam et al. (2024)	Quasi-experimental	Deep back massage + warm compress	There is a significant influence on pain during the first active phase of labor.	Showing deep back massage is relevant to more recent evidence
Tırkaz & Akbaş (2025)	Randomized controlled trial	Effleurage massage	Pain, anxiety, and labor duration decreased	Demonstrating massage techniques has broader clinical benefits
Chen et al. (2025)	Experimental primipara	Massage by a couple	Pain and labor experience improved	It is consistent that therapeutic touch is effective in primigravida

Pratiwi, Zuliayati, and Fatimatasari (2021) found that deep back massage, effleurage, and abdominal lifting were all equally effective in reducing pain during the active phase of labor. This study aligns with the significant reduction in pain after the intervention, although the study emphasized that no single technique has been proven to be absolutely superior. This means that deep back massage can be positioned as an effective intervention option, not the sole method that should always be used.

Apriani and Sari (2021) and Irianti and Israyati (2022) examined counter pressure and both found significant pain reduction. Both studies are relevant because they both utilized pressure stimulation on the back as a non-pharmacological strategy. The current study expands on these findings by showing that deep back massage is also effective in the primigravida population at Weda Regional Hospital. The similarity lies in the intervention's goal: reducing pain caused by pressure and contractions through tactile stimulation of the lower back.

Manikam et al. (2024) reported that deep back massage combined with warm compresses significantly reduced pain during the active phase of first-stage labor. The results

of this study support this conclusion, although the analysis focused on deep back massage alone in the Weda Regional Hospital data. The consistency of the findings suggests that massage interventions, both alone and in combination with other comfort modalities, have a strong clinical basis for use in the delivery room.

Türkaz and Akbaş (2025) demonstrated through a randomized controlled trial that effleurage massage reduced pain, decreased anxiety, and shortened labor duration. Chen et al. (2025) also found that partner-administered massage for primiparas improved the labor experience and reduced pain. These two studies are important because they come from stronger designs and confirm that the benefits of massage are not limited to specific local contexts. The findings of these studies are in the same vein: massage interventions produce positive outcomes in primigravida mothers, making them worthy of inclusion in evidence-based practice.

Although the direction of the results was consistent, this study also showed that not all respondents responded with the same magnitude of reduction. These findings align with systematic reviews by Choudhary et al. (2021) and Nori et al. (2023), which stated that the effectiveness of non-pharmacological methods is influenced by technique, timing, maternal characteristics, quality of support, and the service context. Therefore, deep back massage should be implemented as part of a comprehensive care package, rather than as a stand-alone intervention without considering psychological factors, therapeutic communication, and maternal readiness.

If the discussion is directed at clinical significance, then the average decrease of 2.33 points and the complete disappearance of very severe pain cases after the intervention is an important finding. In practice, health workers often encounter the situation where labor pain cannot be completely eliminated, but it can be reduced to a more bearable level. In this study, the shift from a predominance of severe-very severe pain to a predominance of moderate pain suggests that deep back massage contributed to the transition from a very stressful condition to a more manageable one. Such changes have the potential to improve communication between the mother and midwife, reduce agitation during contractions, and help the mother maintain a more regular breathing pattern. Therefore, discussions of effectiveness should not only focus on the p-value but also consider the results as improvements to a more humane birth experience.

The heterogeneity of responses across respondents is also understandable. Twenty-three percent of respondents showed no decrease in scores after the intervention, while 16.7 percent experienced only a one-point decrease. This suggests that perception of labor pain is influenced by multiple dimensions, including individual pain threshold, fatigue, fetal position, contraction strength, family support, and the skill of the massage provider. In other words, deep back massage is effective for many mothers, but optimal effectiveness depends on the quality of implementation and the preparedness of the context. Implications for practice include the need for clear standard procedures, technical training for midwives or caregivers, and repeated evaluations after the intervention so that health workers can quickly determine whether the mother needs additional support.

More broadly, the results of this study support a humanistic, evidence-based approach to maternity care. Non-pharmacological interventions such as deep back massage offer a safe option in resource-limited facilities while also aligning with efforts to improve the quality of the birth experience. Midwives play a role not only as clinical practitioners but also as providers of comfort, strengthening maternal coping, and facilitators of supportive relationships in the delivery room. When simple techniques demonstrate significant pain reduction, hospitals have a strong rationale for integrating them into their standard intrapartum care, including through antenatal education, training of birth companions, and recording of pain responses before and after the procedure. This is crucial to ensure that maternity care not only focuses on maternal and infant safety but also ensures a better quality birth experience.

Implications for midwifery practice

The practical implications of this research are clear. Health workers in the delivery room can use deep back massage as a safe, affordable, and easy-to-perform initial intervention to help primigravida mothers cope with active first-stage pain. Training in proper pressure techniques, timing during contractions, and the involvement of a birth companion have the potential to enhance the intervention's benefits. For hospitals, these results support the strengthening of more humane labor care standards, as pain control does not always require medication but can also utilize evidence-based and easily implemented non-pharmacological techniques.

Research limitations

This study has several limitations. The data analyzed were derived from secondary tabulation, so detailed information on the duration of the intervention, massage frequency, maternal emotional state, and other clinical variables was not fully available. Furthermore, the study used a single-group design without a control group, so changes in pain could not be directly compared with a group that did not receive the intervention. The study also focused on 30 primigravida in a single service setting, so generalizations should be made with caution. Nevertheless, because the data included paired scores before and after the intervention for the same respondents, the results still provide meaningful empirical evidence of the benefits of deep back massage in a real-life clinical setting.

5. Conclusion And Suggestions

Based on an analysis of 30 primigravida mothers in the active phase of first stage labor at Weda Regional Hospital, deep back massage was proven effective in reducing labor pain. The mean pain score decreased from 8.17 to 5.83, with a mean decrease of 2.33 points, and the Wilcoxon test showed a statistically significant difference ($p < 0.001$). Before the intervention, almost all respondents were in the severe to very severe pain category, whereas after the intervention there was a significant shift to the moderate and mild pain categories. Half of the respondents even experienced a reduction in their scores of at least three points, which can be operationally categorized as very effective. These findings confirm that deep back massage is not only theoretically relevant through its mechanisms of relaxation, sensory stimulation, and increased comfort, but also clinically meaningful in helping mothers better tolerate labor pain. The results of this study align with various previous studies that have identified back massage, counter pressure, effleurage, and other therapeutic touch techniques as beneficial non-pharmacological interventions during labor. Therefore, deep back massage is worthy of recommendation as part of intrapartum midwifery care that is humane, safe, affordable, and easily implemented in maternity services. However, interpretation of the results still requires consideration of the limitations of the single-group design and secondary data sources. Therefore, future research is recommended to use a control group, a larger sample size, and more detailed recording of intervention procedures to further strengthen the evidence.

Reference List

- Apriani, S., & Sari, E. (2021). The effect of counter-pressure massage techniques on the intensity of reducing labor pain during the active phase of the first stage of labor in BPM Herasdiana. *Jurnal Delima Harapan*, 8(2), 34–39. <https://doi.org/10.31935/delima.v8i2.131>
- Ariani, DUS, & Suryanti, D. (2021). Back massage to reduce pain during the first stage of active physiological labor. *Malahayati Midwifery Journal*, 7(3), 441–452. <https://doi.org/10.33024/jkm.v7i3.4276>
- Astuti, H., & Syafriani. (2025). Effleurage massage and acupressure's effectiveness in reducing labor pain in active phase of first-stage labor at Tembilahan Hulu Health Center, Riau. *Journal of Health and Nutrition Research*, 4(1), 62–72. <https://doi.org/10.56303/jhnresearch.v4i1.346>
- Baljon, K., Romli, MH, Ismail, AH, Khuan, L., & Chew, B.-H. (2022). Effectiveness of breathing exercises, foot reflexology and massage (BRM) on maternal and newborn outcomes among primigravidae in Saudi Arabia: A randomized controlled trial. *International Journal of Women's Health*, 14, 279–295. <https://doi.org/10.2147/IJWH.S347971>
- Chen, P.-H., Kao, C.-H., Gou, S.-C., Liu, C.-Y., Wang, P., & Shih, C.-L. (2025). Effects of massages administered by spouses on labor pain and delivery duration among primiparous women. *SAGE Open Nursing*, 11, 23779608251366751. <https://doi.org/10.1177/23779608251366751>
- Choudhary, S., Jelly, P., Mahala, P., & Mery, A. (2021). Effect of back massage on relieving pain during labor: A systemic review. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 10(6), 2466–2472. <https://doi.org/10.18203/2320-1770.ijrcog20212194>
- Huda, S., Syahriani, S., Syamson, MM, Hamdiyah, H., & Hasriani, S. (2024). Counterpressure technique reduces pain intensity in the active phase of first stage of labor. *Malakbi Midwifery Journal*, 5(2), 86–94. <https://doi.org/10.33490/b.v5i2.925>
- Indrayani, T., Syamsiah, S., & Septiari, D. (2024). The effectiveness of counterpressure techniques in reducing labor pain levels of the first stage active phase. *Jurnal Kebidanan Malahayati*, 10(4). <https://doi.org/10.33024/jkm.v10i4.14558>
- Irianti, B., & Israyati, N. (2022). The effect of counter pressure on pain during the active phase of first stage of labor. *Indonesian Online Journal of Nursing*, 5(2), 88–93. <https://doi.org/10.51544/keperawatan.v5i2.3503>
- Khadijah, S., & Marjoni, MR (2021). Comparison of efficacy of the deep back massage method with and without Al-Fatihah for pain management in primigravida during active first stage of labor. *National Journal of Physiology, Pharmacy and Pharmacology*, 11(3), 337–340. <https://doi.org/10.5455/njppp.2021.11.01032202101022021>

- Manikam, RH, Risnawati, Puspitasari, DI, & Meihartati, T. (2024). The effect of deep back massage and warm compresses on labor pain during active phase I. *Jurnal Kebidanan Malahayati*, 10(6), 607–614. <https://doi.org/10.33024/jkm.v10i6.14486>
- Norhapifah, H., Isa, M.R., Abdullah, B., & Mohamed, S. (2024). The impact of shiatsu massage on labor pain and anxiety: A randomized controlled trial. *International Journal of Community Based Nursing and Midwifery*, 12(4), 243–253. <https://doi.org/10.30476/ijcbnm.2024.101509.2432>
- Nori, W., Kassim, MAK, Helmi, ZR, Pantazi, AC, Brezeanu, D., Brezeanu, AM, Penciu, RC, & Serbanescu, L. (2023). Non-pharmacological pain management in labor: A systematic review. *Journal of Clinical Medicine*, 12(23), 7203. <https://doi.org/10.3390/jcm12237203>
- Pratiwi, AM, Zuliyati, IC, & Fatimatasari. (2021). Abdominal lifting, effleurage, and deep back massages are effective in reducing pain during the active phase of first-stage labor. *JNKI (Jurnal Ners dan Kebidanan Indonesia)*, 9(3), 175–182. [https://doi.org/10.21927/jnki.2021.9\(3\).175-182](https://doi.org/10.21927/jnki.2021.9(3).175-182)
- Refisiliyani, M., Riu, DS, & Usman, AN (2023). The effectiveness of the effleurage massage method compared with rubbing massage in reducing pain intensity during the first stage of normal labor during the active phase. *Window of Health*, 6(3), 317–330. <https://doi.org/10.33096/woh.vi.702>
- Shahbazzadegan, S., & Nikjou, R. (2022). The most appropriate cervical dilatation for massage to reduce labor pain and anxiety: A randomized clinical trial. *BMC Women's Health*, 22, 282. <https://doi.org/10.1186/s12905-022-01864-1>
- Soleha, UM, & Puspitasari, AI (2025). The effect of effleurage massage on reducing pain during the first active stage of labor in PMB in the Babelan II Bekasi work area. *MAHESA: Malahayati Health Student Journal*, 5(3). <https://doi.org/10.33024/mahesa.v5i3.16793>
- Tırkaz, E., & Akbaş, M. (2025). The effect of effleurage massage on labor pain, anxiety level, and duration of labor: A randomized controlled trial. *Kocaeli Üniversitesi Sağlık Bilimleri Dergisi*, 11(2), 78–88. <https://doi.org/10.30934/kusbed.1367689>
- Wahyuni, R., Supriadi, S., Susanti, D., Syukur, NA, & Putri, RA (2024). The effect of deep breath relaxation and counterpressure massage on pain reduction during labor. *Healthcare in Low-Resource Settings*, 12(1). <https://doi.org/10.4081/hls.2024.11917>
- Yudha, IN, & Kurniawati, HF (2023). The effect of effleurage massage on the level of labor pain in normal laboring women during the active phase I at PKU Muhammadiyah Gamping Hospital of Yogyakarta. *Tower Journal of Health Science*, 2(1), 56–67.