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Analysis of Nursing Care for Acute Pain with Swedish Massage Intervention in Post-Caesarean Section Patients

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Abstract:
Acute pain is a common problem experienced by patients after cesarean section, especially in cases with transverse fetal position that often require complex surgery. Effective and safe pain management is critical to improve the comfort and recovery of mothers. Nonpharmacological approaches such as Swedish massage are still underexplored in postpartum pain management but offer holistic therapeutic benefits. This study aims to evaluate the effectiveness of Swedish massage in reducing acute pain after cesarean section with transverse indication. A case study design was employed, involving a single participant. Swedish massage was administered for 15 minutes per session using five techniques (effleurage, petrissage, friction, tapotement, vibration). Pain intensity was measured using the Numeric Rating Scale (NRS). Results showed a decrease in pain from NRS 6 to NRS 3 after three sessions, indicating a 50% reduction in pain. Swedish massage has been shown to have positive effects by promoting relaxation and stimulating the release of endorphins, thereby reducing pain perception. These findings suggest that Swedish massage can be considered a safe, cost-effective, and nonpharmacological nursing intervention for post-cesarean section patients. Further research with a larger sample size is recommended to confirm its effectiveness and strengthen generalizability.

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INTRODUCTION

Childbirth is a critical phase of pregnancy that, while natural, can be accompanied by various complications requiring medical intervention (Lupu et al., 2023). Among the most common obstetric challenges is fetal malpresentation, such as breech or transverse lie, which significantly increases the risk of maternal and neonatal morbidity and mortality (Richmond & Ashworth, 2023). In such cases, cesarean section (CS) becomes a necessary surgical intervention to ensure safe delivery and prevent life-threatening complications. Despite its life-saving benefits, CS is associated with postoperative pain that can hinder early recovery and affect multiple aspects of maternal well-being (Duch et al., 2025; Novelia et al., 2023).

Post-cesarean acute pain is a multifaceted issue that extends beyond physical discomfort. It can impair early ambulation, delay the initiation of breastfeeding, disrupt mother-infant bonding, and interfere with daily activities (Kiliçli & Zeyneloglu, 2024). Unmanaged or poorly controlled pain may also contribute to prolonged hospital stays, an increased risk of infection, and higher healthcare costs (Teshome & Seifu, 2022). Therefore, effective pain management following cesarean delivery

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is essential not only for patient comfort but also for promoting optimal postpartum outcomes and enhancing overall maternal quality of life (Sangkum et al., 2020; Rojaye, 2024).

While pharmacological analgesics remain the cornerstone of postoperative pain relief, their use is often limited by side effects such as drowsiness, nausea, constipation, and potential transfer to breast milk, which may affect the newborn (Veef & Van de Velde, 2022). As a result, there is growing interest in nonpharmacological interventions that are safe, cost-effective, and compatible with breastfeeding. Complementary therapies, particularly those integrated into routine nursing care, offer promising alternatives to support holistic postpartum recovery (Hu et al., 2021).

One such nonpharmacological approach gaining attention is Swedish massage, a form of soft tissue manipulation characterized by five primary techniques: effleurage, petrissage, friction, tapotement, and vibration. These techniques are designed to promote muscle relaxation, improve circulation, and reduce tension (Sung & Liu, 2022). Swedish massage can stimulate the release of endogenous opioids such as beta-endorphins, as well as neurotransmitters like oxytocin and dopamine, which play key roles in pain modulation and emotional well-being. Additionally, it may inhibit pain transmission through the gate control theory mechanism, offering a physiological basis for its analgesic effects (Eskandari et al., 2022).

Swedish massage is particularly relevant in the post-cesarean context due to its minimal invasiveness, low risk of adverse effects, and ease of integration into standard postoperative nursing care (Fadlalmola et al., 2023). Its application can be tailored to the patient's condition, focusing on areas of tension without interfering with the surgical site. Furthermore, the tactile stimulation involved in massage therapy may enhance maternal relaxation and psychological comfort, contributing to improved recovery experiences after major abdominal surgery (Chen et al., 2024).

Despite the potential benefits, evidence on the effectiveness of Swedish massage specifically for acute pain management in post-cesarean patients remains limited, particularly in low- and middle-income countries such as Indonesia. Most existing studies have focused on massage during labor or in general postoperative settings, with few addressing the unique needs of women undergoing CS due to fetal malpresentation (Değirmenci & Erkal, 2025). This gap in the literature highlights the need for targeted research to assess how complementary therapies, such as Swedish massage, can be effectively integrated into maternity care protocols.

Therefore, this study aims to analyze the effectiveness of Swedish massage as a nursing intervention in reducing acute postoperative pain among women who have undergone cesarean section due to fetal malpresentation. By providing evidence-based insights into nonpharmacological pain management, this research seeks to support the development of integrative care models that enhance recovery, promote patient satisfaction, and align with the principles of safe, compassionate, and holistic nursing practice (Niyonkuru et al., 2025).

STUDY DESIGN

This study employed a descriptive case study with a pre-post test design within the framework of the nursing process. This design was chosen to explore in detail the changes in pain intensity before and after Swedish massage intervention in post-cesarean section patients. The study was conducted at Dr. Soebandi General Hospital in Jember in December 2024. The study population consisted of postpartum mothers who underwent cesarean section due to transverse lie and were treated at Dr. Soebandi General Hospital in Jember. Inclusion criteria included postpartum mothers diagnosed with transverse lie who underwent CS. Exclusion criteria included patients with certain medical conditions that could interfere with the intervention, such as contagious skin infections, heart

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disease, bleeding disorders, and preeclampsia. The study sample consisted of one respondent selected purposively.

The respondent was Mrs. R, a 24-year-old mother with a G2P1A0 obstetric history, with no history of previous transverse lie pregnancies. A single case was selected because this study was exploratory in nature and aimed to provide an in-depth description of the application of Swedish massage in specific clinical conditions. The intervention was performed in a quiet and comfortable inpatient room. The patient was placed in a supine position with slight head elevation for comfort. The areas of the body that were massaged included the back, arms, and legs, in accordance with the Swedish massage protocol. The massage techniques used included five main components: effleurage, petrissage, friction, tapotement, and vibration. Natural massage oil was used to reduce friction and increase patient comfort. The intervention lasted for 20–30 minutes per session, followed by pre- and post-intervention pain measurements.

Pain intensity was measured using the Numeric Rating Scale (NRS), a subjective assessment instrument with a score range of 0–10, where a score of 0 indicates no pain and a score of 10 indicates severe pain. The NRS is a simple, valid, and reliable tool for assessing acute and chronic pain and is widely used in clinical research and nursing practice.

This study has obtained ethical approval from the ethics committee of Dr. Soebandi Jember General Hospital. Respondents were provided with a thorough explanation of the study's objectives, procedures, benefits, and potential risks, and they signed an informed consent form as a form of informed agreement. Data confidentiality was guaranteed, and respondents had the full right to withdraw from participation at any time without consequences for the health services they received.

PATIENT INFORMATION

The research respondent was Mrs. R, a 24-year-old mother with an obstetric history of G2P1A0. The patient was referred to Dr. Soebandi General Hospital in Jember due to difficult labor, with ultrasound results showing a transverse fetal position. The patient was then scheduled to undergo a caesarean section on December 16, 2024.

CLINICAL FINDINGS

In the first hour after the cesarean section, the patient reported pain in the lower abdomen with a burning sensation radiating to the incision site, with a pain score of 3 (NRS). Six hours later, the pain intensity increased to 6 on the Numerical Rating Scale (NRS). These findings were consistent with acute pain data, where the patient grimaced as an expression of discomfort, exhibited protective behavior by shielding the wound area during examination, and appeared restless with a pale face and difficulty making eye contact. The patient also showed signs of agitation, as evidenced by attempts to locate family members as a form of emotional support.

The physical examination revealed the patient to be in a weak general condition, with a pale face, a surgical wound covered by a clean dressing without leakage, and vital signs within normal limits (BP 119/87 mmHg, HR 68 bpm, RR 22 bpm, T 36.6°C, SpO_2 97%). These findings reinforce the presence of acute pain based on Table 1 of the focus data: complaints of pain, grimacing facial expression, protective behavior, agitation, and postoperative clinical condition.

Table 1. Focus Data on Acute Pain in Mrs. R.

Acute Pain		
No	Theory of SDKI	Case Mrs. R
Major Signs and Symptoms		
1.	Complaining of pain	Mrs. R says pain; P: lower abdominal pain after surgery; Q: burning; R: pain radiates to the suture area; S: pain scale 6 (NRS); T: intermittent, worsening when moving.
2.	Visible grimace	Mrs. R appeared to be grimacing, expressing the patient's discomfort with the pain.
3.	Be protective	Mrs. R protects the area of pain when the health worker examines the post SC wound area.
4.	Agitated	Mrs. R appeared agitated, indicated by a pale face, unable to maintain eye contact, and the patient focused on looking for family (the patient's mother)
Associated Clinical Conditions		
1.	Surgical conditions	Mrs. R said she had undergone a caesarean section on the indication of latitude.

THERAPEUTIC INTERVENTION

Swedish massage therapy was performed for three consecutive days, once a day for 15 minutes. Pain measurement using the Numeric Rating Scale (NRS) showed a consistent decrease in pain intensity after the intervention.

Table 2. Results of Providing Swedish Massage Therapy to Lower Pain Levels in Post-Partum Sectio-Caesarea Clients Measured Using Numeric Rating Scale (NRS)

No	Date	Pre (NRS)	Post (NRS)	Evaluation
1.	December 16, 2024	6	5	6 hours after feeding
2.	December 17, 2024	5	4	6 hours after feeding
3.	December 18, 2024	4	3	6 hours after feeding

Based on Table 2, the results show that on the first day, the pain score decreased from 6 to 5 (a 16.7% decrease). On the second day, pain decreased from 5 to 4 (a 20% decrease). On the third day, the pain score decreased from 4 to 3 (a 25% decrease). Thus, overall, there was a decrease in pain from 6 (moderate) to 3 (mild), representing a 50% reduction in pain over three intervention sessions. This reduction shows that Swedish massage is effective as a complementary therapy in reducing acute pain after cesarean section, in line with the designed intervention objectives.

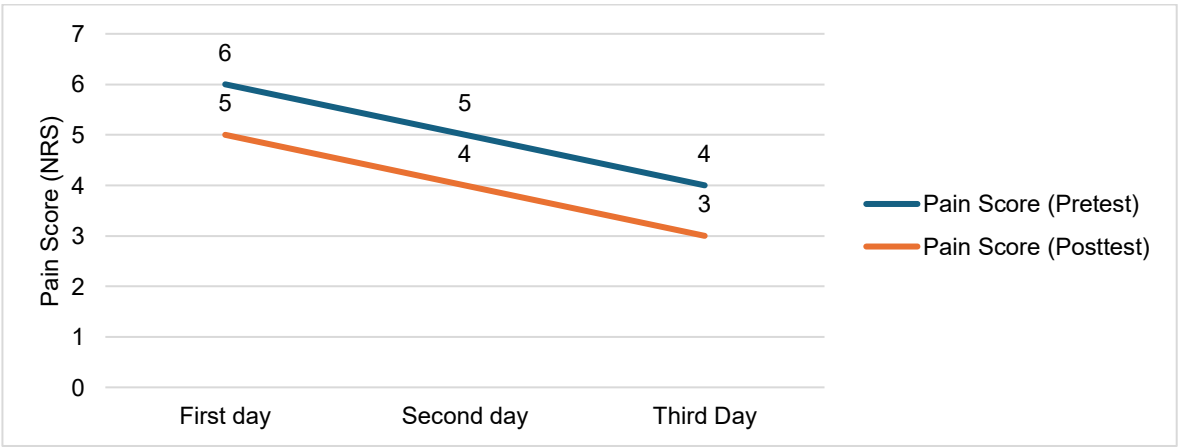

Figure 1. The Effect of Swedish Massage Therapy on Pain Levels in Postpartum Cesarean Section Clients as Measured Using a Numeric Rating Scale

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Based on Figure 1, the results show a pattern of decline in pain scores before and after the Swedish massage intervention for three consecutive days. The red line indicates the pain scores before the intervention, starting at six on the first day, decreasing to 5 on the second day, and then to 4 on the third day. Meanwhile, the blue line illustrates pain scores after the intervention, starting at five on the first day, decreasing to 4 on the second day, and reaching three on the third day. Both lines exhibit a consistent downward trend, with the distance between them indicating the effect of the intervention on pain reduction. Overall, the pain score decreased from 6 (moderate) to 3 (mild), representing a 50% reduction in three therapy sessions. This graph visualization confirms that Swedish massage has a real impact on reducing pain intensity, with a stable and progressive downward pattern from day to day.

DISCUSSION

This study shows that patients with transverse lie indications must undergo cesarean section surgery. These results are in line with the findings of Siagian et al. (2023), which confirm the association between fetal malposition and an increased rate of CS. Physiologically, expected delivery occurs when the fetal head enters the pelvic cavity first, facilitating the exit of other parts of the body. However, if there are presentation abnormalities such as transverse, breech, or foot presentation, the delivery process becomes more difficult and high-risk. Fetal position abnormalities that are not handled properly can cause serious complications, such as birth trauma, bleeding, infection, neonatal asphyxia, and even bone fractures in babies (Barrowclough et al., 2022).

The patient complained of pain after undergoing SC surgery. Complaints of pain in the surgical scar, burning pain, pain spread in the suture area, scale 6, pain occurs and worsens when moving, appears to grimace, protect the pain area, and appears restless. Post SC arises from tissue damage that triggers the activation of pain receptors and pain perception in the brain. Postoperative immobilization can exacerbate pain through cellular hypoxia and the activation of the inflammatory system, which subsequently triggers the release of pain mediators, such as prostaglandins and cytokines. The patient's fear of moving also exacerbates the condition, as tissue hypoxia further stimulates the secretion of pain mediators (Langenaeken & Lavand'homme, 2025).

Swedish massage has been shown to reduce pain intensity through several physiological mechanisms. It enhances blood circulation, promotes myofascial release by alleviating muscle tension, and improves lymphatic drainage, all of which contribute to decreased inflammation and faster tissue recovery. The technique also modulates the autonomic nervous system by reducing sympathetic activity and enhancing parasympathetic tone, leading to a state of deep relaxation. This shift stimulates the release of hormones such as aldosterone, which induces vasodilation and further increases physical comfort, thereby supporting the body’s natural healing process (Dingding et al., 2022; Ismarina et al., 2023).

Swedish massage enhances tissue perfusion by promoting blood flow to muscles and soft tissues, which accelerates cell metabolism and ensures efficient delivery of oxygen and nutrients necessary for tissue repair. This improved physiological environment supports faster recovery from surgical trauma and contributes to a measurable reduction in postoperative pain intensity. From a psychological standpoint, the rhythmic and soothing nature of the massage helps reduce stress, anxiety, and muscle tension, fostering a sense of relaxation and well-being in postpartum women. Additionally, the therapy stimulates the release of endorphins—natural analgesic compounds in the body—that bind to opioid receptors in the brain and spinal cord, effectively inhibiting the transmission of pain signals at the synaptic level and enhancing overall pain relief (Marchand, 2024; Dahlan et al., 2023).

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In this study, Swedish massage administered over three days, with a duration of 15 minutes per session, showed a decrease in pain scores from 6 to 3 (a 50% reduction). Although these results support previous evidence, the limitations of the study must be acknowledged, particularly given the small sample size of only one respondent. This limits the generalization of the findings to a broader population. Therefore, further research with a larger sample size and a more rigorous experimental design is needed to strengthen the validity of the results. These findings imply that Swedish massage can be used as a complementary intervention in the management of post-cesarean section pain in hospitals. Nurses can integrate this therapy into postpartum care protocols, given its safe, inexpensive, and nonpharmacological nature. Thus, Swedish massage not only helps reduce pain intensity but also improves patient comfort and holistic well-being.

CONCLUSION

This study proves that Swedish massage is effective in reducing acute pain after cesarean section with transverse lie, as indicated by a decrease in NRS scores from 6 to 3 after three therapy sessions. This intervention can be used as a complementary approach in postpartum pain management in hospitals because it is safe, inexpensive, and nonpharmacological. However, the limitation of this study, with only one respondent, requires further studies with larger samples and experimental designs to strengthen the generalizability. These results are also relevant as teaching materials in nursing education, particularly in the practice of nonpharmacological pain management, which supports holistic care.

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