



The Use of the Finger-Grip Technique in Post-C-Section Mothers with Acute Pain as a Nursing Issue

Linda Mariana Beru Ginting^{1*}, Lia Leonita², Sri Saptiningsih³, Yuli Kurnia Purwasih⁴, Veny Fitriyanti⁵, Heny Prasetyorini⁶

¹⁻⁶ Universitas Widya Husada Semarang, Indonesia

Email: lindaginting2504@gmail.com¹

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Abstract

This study described the implementation of finger-grip relaxation as a complementary nursing intervention for acute pain in post-cesarean mothers. A descriptive case study design involved five patients treated in the postpartum wards of Bendan Regional General Hospital, Pekalongan City, and Kajen Regional General Hospital. Finger-grip relaxation was administered once daily for approximately 15 minutes over three consecutive days alongside routine analgesic management. Pain intensity was assessed using the Numeric Rating Scale, while mobility, self-care ability, and wound condition were observed descriptively. Initial pain scores ranged from 5 to 7, with a mean of 6.2, and decreased to 1–4 by day three, with a mean of 2.6. All patients demonstrated improved mobility, while those with self-care deficits showed greater independence in daily activities. No clinical signs of postoperative wound infection were observed during the evaluation period. These findings indicate that finger-grip relaxation is feasible, simple, and potentially beneficial as an adjunct to multimodal post-cesarean pain management and recovery-focused nursing care. The intervention was well tolerated and may support patient comfort, willingness to mobilize, and participation in early postpartum functional recovery activities.

Keywords: *Finger-grip relaxation, Acute pain, Cesarean section, Nursing intervention, Postoperative recovery.*



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INTRODUCTION

Cesarean section (CS) is an obstetric surgical procedure performed to complete childbirth when vaginal delivery is considered unfeasible or potentially increases risks to the mother or fetus. Although this procedure plays an important role in managing various obstetric conditions, surgical incisions involving the abdominal wall and uterus cause tissue damage that may lead to several problems during the postoperative period. One of the most common clinical problems experienced by mothers after CS is acute pain at the surgical site, which may persist during the early recovery phase and significantly affect patient comfort. Systematic evidence indicates that acute postoperative pain is an important outcome among women following CS and requires appropriate assessment and management from the early postpartum period (Demilew et al., 2024).

Acute pain following CS occurs as a response to tissue damage caused by surgery, which activates nociceptive pathways and inflammatory responses around the incision site. Pain intensity may increase when mothers change position, cough, laugh, breastfeed, stand, or begin mobilization, thereby encouraging patients to limit physical activity to avoid worsening discomfort. Inadequately controlled pain may inhibit early mobilization, disturb rest, reduce the mother's ability to perform self-care, and interfere with her involvement in caring for and breastfeeding the newborn. These consequences demonstrate that pain control is not merely associated with improved comfort but also constitutes an important component of efforts to accelerate functional recovery after cesarean surgery (Ciechanowicz et al., 2024; Demilew et al., 2024).

Post-cesarean pain management is an integral component of the nursing process because nurses interact directly and continuously with patients throughout the recovery period. Systematic pain assessment is required to identify the location, characteristics, intensity, precipitating factors, and changes in pain after an intervention so that nursing decisions can be adjusted to individual patient

needs. The Numeric Rating Scale (NRS) can be used as a clinical instrument to quantify pain intensity and evaluate patient responses to pain-management interventions. Effective pain control also enables patients to participate more readily in mobilization and daily activities, thereby supporting enhanced recovery principles after cesarean delivery (Öztürk Özen et al., 2024; Pilch et al., 2024).

Pain management after CS in clinical practice commonly involves a multimodal approach that combines pharmacological therapy with various non-pharmacological interventions. Analgesic administration remains an important component of postoperative pain control, while non-pharmacological interventions may be used as complementary therapies to improve comfort and optimize patients' responses to pain management. Several interventions, including relaxation, music, aromatherapy, acupressure, transcutaneous electrical nerve stimulation, and touch-based therapies, have been investigated as additional approaches for controlling pain in women after CS (Kakde et al., 2023; Noura et al., 2024; Usichenko et al., 2022). Non-pharmacological approaches are particularly relevant to nursing practice because several techniques are relatively simple, can be combined with standard therapy, and allow patients to participate actively in managing their pain.

Touch-based therapy is one of the non-pharmacological approaches receiving increasing attention because stimulation applied to the hands or other parts of the body may promote relaxation and reduce the perception of postoperative pain. A meta-analysis of seven randomized controlled trials involving 581 women following CS demonstrated that hand and foot massage interventions significantly reduced pain immediately after treatment and continued to provide benefits at subsequent measurements (Zhang et al., 2025). These findings suggest that tactile stimulation may be considered a complementary component of maternal pain management when applied according to the patient's clinical condition and combined with standard therapy. This evidence also provides a basis for developing simpler touch-based interventions in nursing practice, including finger-grip relaxation as an independent nursing intervention.

The finger-grip technique is a relaxation intervention performed by providing tactile stimulation through gently holding the patient's fingers alternately and may be combined with controlled breathing to promote a more relaxed state. The sensory stimulation generated during the intervention is assumed to modulate pain perception through attentional distraction, relaxation, and modulation of sensory impulse transmission, thereby reducing the patient's perceived pain. Kiptiah et al. (2024) reported that finger-hold relaxation in post-cesarean patients was associated with a reduction in pain intensity after the intervention, indicating its potential use as a complementary therapy in maternity nursing care. Its characteristics, including the absence of special equipment, ease of learning, and relatively short implementation time, make finger-grip relaxation relevant for application in nursing care for post-cesarean patients (Kiptiah et al., 2024).

Although various non-pharmacological methods for relieving post-cesarean pain have been developed, recent evidence has predominantly focused on massage, acupressure, aromatherapy, music, electrical stimulation, and regional techniques rather than on the specific implementation of finger-grip relaxation as a nursing intervention. Meta-analytic evidence concerning hand and foot massage supports the benefits of tactile stimulation for reducing post-cesarean pain, while also indicating the need for studies with more standardized designs and intervention procedures to strengthen clinical implementation (Zhang et al., 2025). Research specifically evaluating finger-hold relaxation among post-cesarean patients also remains relatively limited, although available findings indicate a tendency toward reduced pain intensity following the intervention (Kiptiah et al., 2024). This condition highlights the need to document the implementation of the finger-grip technique more systematically within the nursing process while evaluating changes in patient outcomes before and after the intervention.

Based on these considerations, the application of finger-grip relaxation is relevant for investigation among post-cesarean mothers experiencing acute pain as a nursing problem because pain control may influence comfort, mobility, and the patient's ability to perform activities independently. A case-study approach allows the processes of nursing assessment, nursing diagnosis, intervention implementation, and evaluation of patient responses to be described systematically according to each individual's clinical condition during hospitalization. This study applied finger-grip relaxation to five post-cesarean patients treated in the postpartum wards of Bendan Regional General Hospital, Pekalongan City, and Kajen Regional General Hospital and evaluated changes in pain intensity and functional condition after the intervention. The study aimed to describe the

implementation of the finger-grip technique among post-cesarean mothers with acute pain as a non-pharmacological nursing intervention that may support pain management and recovery in maternity nursing practice.

RESEARCH METHODS

This study employed a descriptive case study design to describe the implementation of the finger-grip relaxation technique in post-cesarean section (CS) mothers experiencing acute pain as a nursing problem. The study was conducted in the postpartum wards of Bendan Regional General Hospital, Pekalongan City, and Kajen Regional General Hospital, involving five post-CS patients who met the predetermined inclusion criteria. The nursing intervention consisted of finger-grip relaxation therapy administered once daily for three consecutive days, with each session lasting approximately 15 minutes. The intervention was integrated with pain-management measures based on the Indonesian Nursing Intervention Standards (*Standar Intervensi Keperawatan Indonesia* [SIKI]) and adjusted to each patient's clinical condition.

Data were collected through interviews, direct observation, physical examination, nursing documentation, and pain assessment using the Numeric Rating Scale (NRS). Patient conditions were assessed before and after the intervention to identify changes in pain intensity, physical mobility, ability to perform activities of daily living, and the condition of the surgical wound. The collected data were analyzed descriptively by comparing clinical findings and nursing responses across the three-day intervention period. The results of these assessments were then used to evaluate the patients' responses to finger-grip relaxation as a complementary non-pharmacological nursing intervention for managing acute pain and supporting postoperative recovery.

RESULTS AND DISCUSSION

Clinical Pain Profile and Response to Finger-Grip Relaxation

The assessment of five post-cesarean mothers demonstrated that acute pain was the principal nursing problem during the early postoperative period. Initial Numeric Rating Scale (NRS) scores ranged from 5 to 7, indicating moderate to severe pain across all participants, although the obstetric indications for cesarean delivery differed among cases. This pattern is clinically relevant because acute postoperative pain following cesarean delivery remains a major concern that may affect maternal comfort, functional recovery, and early postpartum activities. Demilew et al. (2024) similarly identified acute postoperative pain as a substantial problem among women undergoing cesarean section, emphasizing the importance of systematic pain assessment and appropriate pain-management strategies.

Differences in baseline pain intensity were evident between the participants, suggesting that postoperative pain should not be regarded as a uniform experience. Two participants presented with an initial NRS score of 7, two reported a score of 6, and one reported a score of 5, producing a mean baseline score of 6.2. Variations in postoperative pain may reflect multiple interacting factors, including previous surgical exposure, individual pain sensitivity, characteristics of the surgical procedure, psychological responses, and the timing of analgesic administration. Ciechanowicz et al. (2024) emphasized that post-cesarean pain outcomes are multidimensional and require consistent outcome measurement to permit meaningful assessment of treatment responses.

Clinical observation further indicated that pain influenced the participants' willingness to move and participate in routine postpartum activities. Patients with moderate-to-severe pain tended to restrict changes in body position and demonstrated concern that movement could intensify discomfort at the surgical incision. Such responses have implications beyond the subjective experience of pain because insufficiently controlled postoperative discomfort may interfere with early mobilization, breastfeeding, rest, and maternal self-care. Recent prospective evidence has likewise highlighted the clinical importance of assessing both pain intensity and pain-related adverse outcomes during recovery after cesarean delivery (Duch et al., 2026).

Finger-grip relaxation was administered once daily for approximately 15 minutes over three consecutive days as a complementary nursing intervention alongside routine analgesic management. Pain was evaluated using the NRS, allowing changes in each participant's pain experience to be followed descriptively throughout the intervention period. The intervention did not replace pharmacological treatment; therefore, its clinical interpretation should be positioned within a

multimodal pain-management framework rather than viewed as an isolated analgesic treatment. This interpretation is consistent with contemporary approaches to cesarean pain management, which emphasize the integration of pharmacological and non-pharmacological strategies according to individual clinical needs (Sharpe & Landau, 2025).

A consistent decline in pain intensity was observed across all five cases by the third day of intervention. The mean NRS score decreased from 6.2 at baseline to 2.6 on day 3, corresponding to an average absolute reduction of 3.6 points, although the magnitude of improvement differed among patients. These results provide a descriptive indication that finger-grip relaxation, when incorporated into routine postoperative nursing care, may contribute to greater relaxation and improved subjective pain control. Comparable findings were reported by Novelia et al. (2023), who demonstrated a reduction in post-cesarean pain following the application of a finger-grip relaxation technique.

Table 1. Clinical Characteristics and Changes in Pain Intensity During Finger-Grip Relaxation

Participant	Age	Indication for CS	Previous CS	Initial NRS	Analgesic Schedule	Finger-Grip Timing	Day-3 NRS	NRS Reduction
P1	24	Preeclampsia	No	6	Ketorolac, 08:00	09:00; approximately 1 h after analgesic	2	4
P2	36	Macrosomia	Second CS	7	Ketorolac, 08:00	09:00; approximately 1 h after analgesic	3	4
P3	22	Cephalopelvic disproportion	No	6	Ketorolac, 14:00	17:00; approximately 3 h after analgesic	3	3
P4	27	Fetal distress	No	5	Ketorolac, 08:00	08:30; approximately 30 min after analgesic	1	4
P5	34	Premature rupture of membranes	Second CS	7	Ketorolac, 20:00	23:00; approximately 3 h after analgesic	4	3
Mean	28.6	—	—	6.2	—	—	2.6	3.6

Source: Primary case-study data, 2026

The largest relative improvement was observed in P4, whose NRS score decreased from 5 to 1 after three days, while P1 and P2 each demonstrated a four-point reduction. P3 and P5 showed three-point reductions, indicating that all cases improved despite differences in age, obstetric indication, surgical history, and timing of the intervention. Kiptiah et al. (2024) also reported decreased pain intensity among post-cesarean patients receiving finger-hold relaxation, supporting the clinical plausibility of the present pattern. Nevertheless, the variation among participants indicates that individual responses should remain central to nursing evaluation rather than assuming an identical analgesic effect in every patient.

The improvement observed after finger-grip relaxation may partly be understood through the broader effects of tactile stimulation and relaxation on pain perception. Physical touch provides competing sensory input, promotes attentional redirection, and may facilitate a state of relaxation that modifies the subjective experience of postoperative pain. A meta-analysis by Zhang et al. (2025) found that hand and foot massage significantly reduced pain among women after cesarean section, providing higher-level evidence that structured tactile interventions can contribute to postoperative

comfort. The present case findings extend this principle to a simpler finger-focused intervention that can be incorporated into bedside nursing care without specialized equipment.

The clinical relevance of hand-based stimulation is also supported by randomized evidence investigating massage after cesarean delivery. Değirmenci and Erkal Aksoy (2025) reported beneficial effects of hand massage on pain and comfort among women following cesarean section, suggesting that localized tactile interventions may influence both physical discomfort and subjective well-being. In the present cases, patients were described as becoming more relaxed as pain intensity decreased, which is compatible with the concept that touch-based interventions may affect more than pain scores alone. This interpretation remains descriptive, however, because comfort and relaxation were not quantified using separate validated instruments in the current study.

Evidence from related touch-based approaches provides additional support for interpreting the observed improvement as clinically meaningful rather than solely numerical. Joseph et al. (2024) reported postoperative pain reduction among cesarean mothers receiving hand and foot massage, reinforcing the potential role of non-pharmacological sensory stimulation as an adjunct to conventional pain treatment. Handholding has also been associated with emotion-regulation effects, indicating that interpersonal touch may influence affective responses that contribute to the subjective experience of pain (Sened et al., 2023). Finger-grip relaxation may therefore operate through interconnected sensory, attentional, emotional, and relaxation pathways rather than through a single mechanism.

The timing of finger-grip relaxation relative to ketorolac administration represents an important feature of the present findings. P4, who received finger-grip relaxation approximately 30 minutes after analgesic administration, demonstrated the lowest day-3 pain score, whereas P3 and P5 received the intervention approximately three hours after analgesic administration and showed comparatively smaller reductions; however, these descriptive differences cannot establish that timing itself caused the observed variation. All participants received concurrent pharmacological pain management, and the study did not include a control group or standardized analgesic-to-intervention interval, meaning that the independent contribution of finger-grip relaxation cannot be isolated. Accordingly, the results should be interpreted as evidence of feasibility and a favorable clinical pattern within multimodal nursing care rather than definitive proof of efficacy.

The overall pattern nevertheless demonstrates that finger-grip relaxation was feasible to implement repeatedly in five post-cesarean patients and was accompanied by lower pain scores in every case after three days. The findings are particularly relevant to nursing practice because the technique requires no specialized device and can be integrated into routine bedside interaction while maintaining standard pharmacological pain management. The consistency of improvement across heterogeneous obstetric indications provides an empirical basis for further investigation using larger samples, standardized intervention timing, comparison groups, and more rigorous experimental designs. Taken together, the present findings and existing literature on finger-grip, hand massage, and therapeutic touch support further evaluation of finger-grip relaxation as a complementary nursing intervention for acute post-cesarean pain.

Functional Recovery, Early Mobilization, and Self-Care Independence

Impaired physical mobility was identified in all five post-cesarean patients during the initial nursing assessment, indicating that functional limitation accompanied acute postoperative pain across the cases. The patients initially required assistance from nurses or family members to change position, sit at the bedside, stand, and walk because movement was perceived as capable of aggravating incisional pain. Such limitations are clinically important because prolonged postoperative inactivity can delay functional recovery and increase dependence during the early postpartum period. Aksu et al. (2025) demonstrated that non-pharmacological pain-control interventions after cesarean delivery may influence not only perceived pain but also early mobilization outcomes, emphasizing the close relationship between effective symptom management and functional recovery.

Pain appeared to constitute an important barrier to mobility because the patients tended to avoid movement when discomfort increased during changes in position or ambulation. This relationship indicates that postoperative pain should be evaluated not merely as an isolated sensory complaint but also as a factor that affects the patient's capacity to perform essential physical activities. Reduced movement may subsequently interfere with circulation, gastrointestinal function, muscular activity,

and the ability of mothers to perform routine postpartum tasks. Pilch et al. (2024) similarly highlighted the relevance of combining postoperative pain management with physiotherapeutic strategies because adequate mobility contributes to broader physiological recovery following cesarean birth.

Early mobilization in the present cases was implemented progressively according to each patient's tolerance and clinical condition. Initial activities included simple movements of the upper and lower extremities, ankle flexion and extension, breathing exercises, and gradual changes from the supine to lateral position before progressing to sitting, standing, and assisted walking. This staged approach allowed functional demands to increase while nurses continued to monitor pain, dizziness, weakness, and other signs of activity intolerance. The progressive nature of this intervention is consistent with contemporary postoperative care, in which mobility is promoted alongside effective pain control rather than postponed until discomfort has completely disappeared (Öztürk Özen et al., 2024).

Functional restriction also affected the ability of some participants to perform activities of daily living independently. Two of the five patients were identified as having a self-care deficit during the early postoperative phase and required assistance with personal hygiene, dressing, transferring, and elimination activities. Dependence in these activities was closely associated with pain and limited mobility, suggesting that improvement in pain control could indirectly facilitate recovery of self-care capacity. Evidence from Kurata et al. (2022) supports the clinical importance of effective post-cesarean analgesia because reductions in postoperative pain can improve patients' ability to participate in activities that would otherwise be limited by discomfort.

The nursing outcomes observed during the three-day period showed a broader recovery pattern extending beyond the decline in NRS pain scores described previously. All five patients demonstrated improved mobility, while those who initially required substantial assistance were progressively able to participate more actively in position changes, sitting, standing, and walking. The two patients with self-care deficits also showed improved independence in basic daily activities as discomfort decreased and mobility improved. These findings indicate that the clinical value of pain management in post-cesarean nursing should be assessed through functional outcomes in addition to numerical pain intensity.

Table 2. Distribution of Nursing Problems and Functional Recovery Outcomes

Nursing/Functional Outcome	Initial Condition	Frequency	Proportion	Outcome During the 3-Day Nursing Period
Acute postoperative pain	Present	5/5	100%	Pain intensity decreased in all patients
Impaired physical mobility	Present	5/5	100%	Mobility improved progressively in all patients
Self-care deficit	Present	2/5	40%	Both affected patients demonstrated greater independence
Need for assistance with position change/ambulation	Present during early postoperative period	5/5	100%	Assistance requirements decreased as mobility improved
Risk of infection	Identified	1/5	20%	No clinical signs of wound infection were observed
Overall functional recovery	Initially limited by pain and postoperative	5/5	100%	Patients became increasingly able to perform daily

weakness

activities

Source: Primary case-study data, 2026

The transition from dependence toward greater mobility was particularly relevant because reduced pain appeared to make patients more willing to attempt physical activity. Patients who had initially limited their movements because of fear of worsening pain gradually became able to sit, stand, and walk with decreasing levels of assistance. This pattern supports the clinical principle that postoperative recovery is multidimensional, with symptom relief creating conditions that facilitate functional rehabilitation rather than representing an endpoint in itself. Although the current case study cannot determine the independent effect of finger-grip relaxation on mobility, its integration with analgesic therapy and progressive mobilization was accompanied by favorable functional changes throughout the observation period.

The relationship between pain relief and functional participation is also evident in research examining other non-pharmacological modalities after cesarean delivery. Öztürk Özen et al. (2024) found that progressive relaxation combined with transcutaneous electrical nerve stimulation influenced pain, comfort, and other recovery-related outcomes, while Kurata et al. (2022) demonstrated the analgesic value of transcutaneous electrical nerve stimulation after cesarean birth. These studies reinforce the broader concept that complementary interventions may support recovery when integrated into conventional postoperative management rather than used as replacements for established treatment. Finger-grip relaxation can be understood within this framework as a low-complexity nursing intervention intended to improve comfort sufficiently for patients to engage more confidently in mobilization and self-care.

Psychological readiness also deserves consideration because fear, anxiety, and anticipation of pain may discourage patients from moving even when their physiological condition permits activity. Relaxation-based interventions can potentially modify this response by reducing emotional tension and improving the patient's sense of control during recovery. Kakde et al. (2023) reported that music listening affected perioperative anxiety and acute pain among women undergoing elective cesarean delivery, whereas Nosrati Abarghooe et al. (2022) demonstrated beneficial effects of relaxation and music-based approaches on maternal anxiety. Systematic evidence reviewed by Hunter et al. (2023), together with findings from Drzymalski et al. (2023), further indicates that supportive non-pharmacological approaches may positively influence emotional and experiential aspects of cesarean care.

Comfort and anxiety reduction may consequently have indirect relevance to functional recovery because patients who feel calmer and more secure may be more willing to participate in movement and self-care activities. Cansizlar and Şahin (2025) reported that aromatherapy influenced pain, comfort, and anxiety among women following cesarean delivery, illustrating the interconnected nature of physical and psychological postoperative outcomes. Noura et al. (2024) similarly demonstrated beneficial effects of lavender aromatherapy on pain and anxiety after cesarean section. Although these interventions differ mechanistically from finger-grip relaxation, they support the broader nursing perspective that non-pharmacological care should address both sensory discomfort and emotional responses that may interfere with recovery.

The observed progression in mobility and self-care independence therefore suggests that finger-grip relaxation is best interpreted as one component of an integrated postoperative nursing strategy that includes analgesic administration, progressive mobilization, education, psychological support, and assistance with activities of daily living. The case findings indicate that all patients achieved some degree of functional improvement during the three-day observation period, while the two patients with initial self-care deficits became increasingly independent and no patient developed clinical signs of postoperative wound infection. Causal interpretation remains inappropriate because the study involved only five cases, lacked a comparison group, and simultaneously applied several nursing and medical interventions. Nevertheless, the consistency of functional improvement supports continued investigation of simple relaxation-based nursing interventions as adjuncts to multimodal post-cesarean recovery programs.

Multimodal Pain Management and Clinical Implications of Finger-Grip Relaxation

The findings of this case study indicate that finger-grip relaxation should be interpreted as a complementary component of multimodal post-cesarean pain management rather than as a substitute for pharmacological analgesia. All five patients received ketorolac according to the clinical treatment schedule, while finger-grip relaxation was administered at different intervals following analgesic administration. This combination was followed by lower pain scores in all participants after three consecutive days, suggesting that simple nursing interventions can be integrated into conventional postoperative care without disrupting established medical management. Contemporary evidence similarly supports multimodal strategies because no single intervention is sufficient to address the complex sensory, inflammatory, and functional dimensions of pain following cesarean delivery (Jing et al., 2025).

Variation in the timing of the nursing intervention provides an important clinical context for interpreting the observed reduction in pain. Participants who received finger-grip relaxation within approximately 30–60 minutes after ketorolac administration demonstrated reductions of four NRS points, whereas those receiving the intervention approximately three hours later showed reductions of three points. This pattern cannot establish a pharmacodynamic interaction because the study did not control analgesic timing, dosage-response relationships, or other confounding variables. Nevertheless, the observation is compatible with the broader principle that complementary interventions may provide greater practical benefit when coordinated with effective pharmacological analgesia within a multimodal treatment plan (Singh et al., 2022).

The role of finger-grip relaxation becomes clearer when considered alongside more technically complex analgesic procedures used after cesarean delivery. Regional techniques such as the quadratus lumborum block have demonstrated efficacy for reducing acute postoperative pain, although they require specific clinical expertise, procedural equipment, and appropriate monitoring. Du et al. (2024), through a systematic review and meta-analysis of randomized controlled trials, reported that quadratus lumborum block can contribute to acute pain management following cesarean section. Finger-grip relaxation does not offer an equivalent anesthetic effect, but its simplicity allows it to occupy a different clinical role as a low-risk supportive intervention that nurses can perform repeatedly at the bedside.

Comparative evidence concerning regional analgesia also demonstrates that postoperative pain control following cesarean section can be achieved through several pathways with different levels of invasiveness and resource requirements. Mostafa et al. (2023) compared transmuscular quadratus lumborum block with erector spinae plane block and demonstrated that regional analgesic approaches may provide effective postoperative pain relief among women undergoing elective cesarean delivery. Such techniques are clinically valuable but depend on trained personnel and cannot always be repeated easily as part of routine nursing interaction. Finger-grip relaxation therefore has potential value not because it replaces regional anesthesia, but because it can complement analgesic strategies through a non-invasive and patient-centered form of nursing care.

The same distinction applies when finger-grip relaxation is compared with acupuncture and other procedural non-pharmacological interventions. Qin et al. (2024) compared lateral quadratus lumborum block with acupuncture for post-cesarean analgesia, illustrating that pain management increasingly incorporates interventions extending beyond conventional systemic medication. Usichenko et al. (2022) also demonstrated the effectiveness of acupuncture for pain control after cesarean delivery in a randomized clinical trial. These findings support the broader principle that non-pharmacological methods can have a legitimate role within multimodal analgesia, while the present case study contributes evidence on a markedly simpler technique requiring no needles, electrical devices, or specialist procedural competencies.

Table 3. Integration of Finger-Grip Relaxation Within Multimodal Post-Cesarean Nursing Care

Clinical Component	Findings in the Five Cases	Nursing Interpretation
Pharmacological management	All patients received ketorolac	Finger-grip relaxation was complementary, not substitutive
Finger-grip duration	Approximately 15 minutes per	Feasible for routine bedside nursing care

Intervention frequency	session	Permitted repeated non-invasive implementation
Baseline pain	Once daily for three consecutive days	Moderate-to-severe acute postoperative pain
Day-3 pain	NRS 5–7	Pain decreased in all five patients
Mean NRS change	NRS 1–4	Mean absolute reduction of 3.6 points
Physical mobility	6.2 to 2.6	Mobility progressively improved during nursing care
Self-care deficit	Initially impaired in all patients	Independence increased as recovery progressed
Infection risk	Present in 2 of 5 patients	No clinical signs of wound infection were observed
Overall clinical response	Identified in 1 of 5 patients	Supports use as an adjunct within multimodal nursing management

Source: Primary case-study data, 2026

The non-invasive nature of finger-grip relaxation represents an important advantage when compared with techniques involving injections, nerve blocks, or local anesthetic infiltration. Grape et al. (2022) demonstrated through systematic review and meta-analysis that transversus abdominis plane block and local anesthetic wound infiltration are established options for post-cesarean analgesia, but both require pharmacological agents and procedural implementation. Finger-grip relaxation can be administered without additional medication exposure and can be discontinued immediately if a patient feels uncomfortable. Its clinical function is therefore more appropriately understood as augmenting comfort and coping rather than producing the degree of nociceptive blockade expected from regional anesthetic techniques.

Evidence concerning transversus abdominis plane and related blocks further illustrates why a complementary nursing intervention may still be useful even when effective medical analgesia is available. White et al. (2025) found that transversus abdominis plane block and intrathecal morphine represent important approaches in postoperative cesarean pain management, while their comparative benefits and adverse-effect profiles require consideration in clinical decision-making. Pain management therefore involves balancing analgesic efficacy, adverse effects, invasiveness, availability, and individual patient characteristics. A simple intervention such as finger-grip relaxation adds a supportive dimension that may improve patient comfort without adding pharmacological burden.

The findings of the present case series also suggest that finger-grip relaxation may be suitable for incorporation between scheduled pharmacological treatments because it can be repeated according to patient tolerance and nursing assessment. Yörükoğlu et al. (2023) compared transversus abdominis plane block with rectus sheath block for postoperative cesarean pain, demonstrating the continuing development of procedure-specific analgesic strategies. Such regional methods primarily target nociceptive transmission, whereas relaxation-based techniques may additionally address fear, tension, attention to pain, and the subjective experience of discomfort. Combining interventions that operate through different mechanisms is conceptually consistent with multimodal pain management and may allow nursing care to address dimensions of recovery that medication alone does not fully capture.

A further clinical consideration is that interventions aimed at pain relief should not interfere with wound observation, mobilization, maternal self-care, or other components of postoperative surveillance. In this study, one patient was classified as being at risk of infection because of the surgical incision, yet no redness, abnormal discharge, or other clinical signs of wound infection were reported during the observation period. The finger-grip technique involves stimulation of the hand rather than manipulation of the abdominal surgical site, thereby avoiding direct interference with incision monitoring and wound care. The broader evidence synthesized by Wang et al. (2025) regarding complementary approaches after cesarean section likewise suggests that non-pharmacological interventions can be integrated into postoperative care when safety and patient comfort are appropriately considered.

The combined findings of all five cases therefore position finger-grip relaxation as a feasible adjunct to multimodal nursing management for acute post-cesarean pain. The reduction in NRS scores, improvement in mobility, increasing independence in self-care, and absence of observed intervention-related complications provide clinically useful descriptive evidence, although causality cannot be inferred from a five-patient case study without a control group. Future research should employ larger samples, standardized analgesic-to-intervention intervals, randomized comparison groups, and repeated pain measurements to determine the independent and additive effects of finger-grip relaxation more rigorously. Within these limitations, the findings support continued evaluation of finger-grip relaxation as a low-complexity nursing intervention that may complement evidence-based pharmacological, regional, and other non-pharmacological approaches to post-cesarean pain management.

CONCLUSION

Finger-grip relaxation implemented as a complementary nursing intervention was associated with a consistent reduction in acute pain among all five post-cesarean mothers during the three-day observation period. The mean Numeric Rating Scale score decreased from 6.2 at baseline to 2.6 on the third day, accompanied by improved comfort and greater willingness to perform physical activities. Improvements in pain control were also followed by progressive mobility and increased independence in activities of daily living, particularly among patients who initially experienced self-care deficits. These findings indicate that finger-grip relaxation can be feasibly integrated with pharmacological analgesia, early mobilization, and routine postoperative nursing care.

The findings should be interpreted within the limitations of a descriptive case study involving a small number of patients without a control group, making causal conclusions regarding the independent effect of finger-grip relaxation inappropriate. Nevertheless, the consistent clinical improvement across patients supports its potential as a simple, non-invasive, and low-complexity complementary intervention for post-cesarean pain management. Nursing practice may incorporate this technique as part of multimodal care while continuing systematic pain assessment, pharmacological treatment, mobilization, wound monitoring, and patient education. Further studies using larger samples, standardized intervention protocols, and controlled experimental designs are required to establish its effectiveness more rigorously.

REFERENCES

- Abbaspoor, Z., Akbari, M., & Najari, S. (2014). Effect of foot and hand massage in post-cesarean section pain control: A randomized control trial. *Pain Management Nursing*, 15(1), 132–136. <https://doi.org/10.1016/j.pmn.2012.07.008>
- Aeni, C. F., Purbaningsih, E. S., Khoerunissa, Ulhaq, D., Triyani, & Komalasari, S. (2022). Pengaruh teknik perawatan payudara terhadap kelancaran pengeluaran ASI pada ibu nifas: Studi kasus. *Coping: Community of Publishing in Nursing*, 10(4), 407–417. <https://doi.org/10.24843/coping.2022.v10.i04.p09>
- Aksu, A., Çam-Yanık, T., Değirmenci, F., Vefikuluçay-Yılmaz, D., Altun-Uğraş, G., & Çevikoğlu-Kılıç, M. (2025). Effects of acupressure on pain and first mobilisation distance after caesarean section: A double-blind randomised controlled study. *Explore*, 21(1), 103102. <https://doi.org/10.1016/j.explore.2024.103102>
- American College of Obstetricians and Gynecologists. (2019). ACOG Committee Opinion No. 761: Cesarean delivery on maternal request. *Obstetrics & Gynecology*, 133(1), e73–e77. <https://doi.org/10.1097/AOG.0000000000003006>
- Arda, D., & Hartaty, H. (2021). Penerapan asuhan keperawatan post op section caesarea dalam indikasi preeklampsia berat. *Jurnal Ilmiah Kesehatan Sandi Husada*, 10(2), 447–451. <https://doi.org/10.35816/jiskh.v10i2.631>
- Cansizlar, G. A., & Şahin, N. H. (2025). The impact of aromatherapy on pain, comfort, and anxiety in post-cesarean women: A randomized controlled study. *Explore*, 21(3), 103161. <https://doi.org/10.1016/j.explore.2025.103161>
- Ciechanowicz, S., Kim, J., Mak, K., Blake, L., Carvalho, B., & Sultan, P. (2024). Outcomes and outcome measures utilised in randomised controlled trials of postoperative caesarean delivery

- pain: A scoping review. *International Journal of Obstetric Anesthesia*, 57, 103927. <https://doi.org/10.1016/j.ijoa.2023.103927>
- Değirmenci, S., & Erkal Aksoy, Y. (2025). Effects of hand massage on women's pain, comfort levels and flatulence times after caesarean section: A randomized controlled study. *Advances in Integrative Medicine*, 12(3), 100415. <https://doi.org/10.1016/j.aimed.2024.09.001>
- Demilew, B. C., Zurbachew, N., Getachew, N., Mekete, G., & Lema, D. T. (2024). Prevalence and associated factors of postoperative acute pain for mothers who gave birth with cesarean section: A systematic review and meta-analysis. *Pain Management Nursing*, 25(6), e452–e464. <https://doi.org/10.1016/j.pmn.2024.05.010>
- Drzymalski, D. M., Dahlawi, M., Hall, R. R., Ranjan, S., & Best, C. L. (2023). The effect of Mozart music on patient satisfaction during caesarean delivery: A randomised controlled trial. *Anaesthesiology Intensive Therapy*, 55(2), 114–119. <https://doi.org/10.5114/ait.2023.129007>
- Du, H., Luo, X., Chen, M., Shi, S., & Zhao, J. (2024). Efficacy of quadratus lumborum block in the treatment of acute and chronic pain after cesarean section: A systematic review and meta-analysis based on randomized controlled trials. *Medicine*, 103(4), e36652. <https://doi.org/10.1097/MD.00000000000036652>
- Duch, P., Wikkelsø, A., Jørgensen, C. C., Jakobsen, J. C., Mathiesen, O., Nørskov, A. K., & Nedergaard, H. (2026). Pain and adverse effects after caesarean delivery: A nationwide prospective cohort study. *European Journal of Anaesthesiology*, 43(1), 34–44. <https://doi.org/10.1097/EJA.0000000000002277>
- Fatrin, T., Soleha, M., & Herbiatun, N. (2022). Perbedaan efektivitas pijat oksitosin dan breast care terhadap peningkatan kelancaran produksi ASI pada ibu nifas (post partum). *Jurnal Penelitian Perawat Profesional*, 4(2), 549–556. <https://doi.org/10.37287/jppp.v4i2.942>
- Gizzo, S., Andrisani, A., Noventa, M., Di Gangi, S., Quaranta, M., Cosmi, E., D'Antona, D., Nardelli, G. B., & Ambrosini, G. (2015). Caesarean section: Could different transverse abdominal incision techniques influence postpartum pain and subsequent quality of life? A systematic review. *PLOS ONE*, 10(2), e0114190. <https://doi.org/10.1371/journal.pone.0114190>
- Grape, S., Kirkham, K. R., & Albrecht, E. (2022). Transversus abdominis plane block versus local anaesthetic wound infiltration for analgesia after caesarean section: A systematic review and meta-analysis with trial sequential analysis. *European Journal of Anaesthesiology*, 39(3), 244–251. <https://doi.org/10.1097/EJA.0000000000001552>
- Harahap, S., Sianturi, S. I., Dalimunthe, D. Y., & Lestari, L. (2023). The effect of early mobilization on the inflammatory phase wound healing process post sectio caesarea at Sufina Aziz Hospital. *Asian Journal of Engineering, Social and Health*, 2(10), 1055–1065. <https://doi.org/10.46799/ajesh.v2i10.141>
- Hunter, A. R., Heiderscheit, A., Galbally, M., Gravina, D., Mutwalli, H., & Himmerich, H. (2023). The effects of music-based interventions for pain and anxiety management during vaginal labour and caesarean delivery: A systematic review and narrative synthesis of randomised controlled trials. *International Journal of Environmental Research and Public Health*, 20(23), 7120. <https://doi.org/10.3390/ijerph20237120>
- Ituk, U., & Habib, A. S. (2018). Enhanced recovery after caesarean delivery. *F1000Research*, 7, 513. <https://doi.org/10.12688/f1000research.13895.1>
- Jaya, H., Amin, M., Putra, S. A., & Zannati. (2023). Mobilisasi dini pasien post sectio caesarea dengan masalah gangguan mobilitas fisik. *JKM: Jurnal Keperawatan Merdeka*, 3(1), 21–27. <https://doi.org/10.36086/jkm.v3i1.1563>
- Jing, Y., Zhao, S., Guo, W., Qin, L., Li, Y., & You, D. (2025). Comparison of analgesic modalities after caesarean section: A network meta-analysis and systematic review. *International Journal of Surgery*, 111(5), 3599–3612. <https://doi.org/10.1097/JS9.0000000000002352>
- Joseph, A., Frank, R. W., & Ramyashree, S. (2024). Postoperative pain reduction in “cesarean mothers” with hand and foot massage. *Journal of Health and Allied Sciences NU*, 14(S1), S18–S20. <https://doi.org/10.1055/s-0044-1782637>
- Kakde, A., Lim, M. J., Shen, H., Tan, H. S., Tan, C. W., Sultana, R., & Sng, B. L. (2023). Effect of music listening on perioperative anxiety, acute pain and pain catastrophizing in women undergoing elective caesarean delivery: A randomized controlled trial. *BMC Anesthesiology*, 23, 109. <https://doi.org/10.1186/s12871-023-02060-w>

- Khatiban, M., Mirzaie, M., Fazeli, A., Tapak, L., & Khalili, Z. (2022). Effect of cardamom inhalation therapy on intra- and postoperative nausea and vomiting of mothers undergoing spinal anesthesia for elective cesarean section. *Journal of PeriAnesthesia Nursing*, 37(4), 452–457. <https://doi.org/10.1016/j.jopan.2021.09.008>
- Kiptiah, M., Purwanti, H., Meihartati, T., & Hadiningsih, E. F. (2024). The effect of finger hold relaxation technique on pain intensity in post-caesarean section surgery patients in the Crysant Room at Dr. Abdul Rivai Hospital Berau Regency. *Journal of Midwifery and Nursing*, 6(2), 461–469. <https://doi.org/10.35335/jmn.v6i2.4980>
- Kurata, N. B., Ghatnekar, R. J., Mercer, E., Chin, J. M., Kaneshiro, B., & Yamasato, K. S. (2022). Transcutaneous electrical nerve stimulation for post-cesarean birth pain control: A randomized controlled trial. *Obstetrics & Gynecology*, 140(2), 174–180. <https://doi.org/10.1097/AOG.0000000000004798>
- Liu, Z.-Q., Du, W.-J., & Yao, S.-L. (2020). Enhanced recovery after cesarean delivery: A challenge for anesthesiologists. *Chinese Medical Journal*, 133(5), 590–596. <https://doi.org/10.1097/CM9.0000000000000644>
- Mostafa, M., Nasr, M. A., Fawzy, M., Awad, A. E., & Waheeb, M. M. (2023). The analgesic effect of transmuscular quadratus lumborum block versus erector spinae plane block for women undergoing elective Caesarean section: A randomized controlled trial. *British Journal of Pain*, 17(5), 438–446. <https://doi.org/10.1177/20494637231181513>
- Nosrati Abarghooe, S., Mardani, A., Baha, R., Fadaee Aghdam, N., Khajeh, M., Eskandari, F., & Vaismoradi, M. (2022). Effects of Benson relaxation technique and music therapy on the anxiety of primiparous women prior to cesarean section: A randomized controlled trial. *Anesthesiology Research and Practice*, 2022, 9986587. <https://doi.org/10.1155/2022/9986587>
- Nouira, M., Souayeh, N., Kanzari, S. A., Rouis, H., Lika, A., Mbarki, C., Rahali, F. Z., & Bettaieb, H. (2024). Aromatherapy using lavender oil effectiveness on pain and anxiety after C-section: A randomized controlled trial. *Journal of Epidemiology and Global Health*, 14(4), 1536–1544. <https://doi.org/10.1007/s44197-024-00305-6>
- Novelia, S., Wowor, T. J., & Mulia, N. (2023). The effect of finger-grip relaxation technique on post cesarean section pain. *Health and Technology Journal*, 1(5), 534–539. <https://doi.org/10.53713/htechj.v1i5.115>
- Nurlaelasari, D., Herawati, I., & Ermanto, B. (2023). Perbedaan efektifitas edukasi media leaflet dan audiovisual terhadap pengetahuan perawatan luka operasi pada ibu nifas post sectio caesarea. *Jurnal Ilmiah Keperawatan (Scientific Journal of Nursing)*, 9(Suppl. 1), 62–73. <https://doi.org/10.33023/jikep.v9i3.1591>
- Öztürk Özen, D., Koç, G., & Nacir, B. (2024). The effect of progressive relaxation exercises and transcutaneous electrical neural stimulation administered to women delivering via cesarean delivery on pain, breastfeeding success, and comfort levels: A randomized controlled study. *Journal of Obstetrics and Gynaecology Research*, 50(3), 438–447. <https://doi.org/10.1111/jog.15869>
- Pilch, A., Jekielek, M., Stach, B., Zyznawska, J., & Klimek, M. (2024). Impact of obstetric physiotherapy and transcutaneous electrical nerve stimulation (TENS) on pain management and gastrointestinal function following cesarean birth: A randomized controlled trial. *European Journal of Midwifery*, 8, 50. <https://doi.org/10.18332/ejm/191740>
- Qin, P.-P., Zou, B.-Y., Liu, D., Li, M.-X., Liu, X.-N., & Wei, K. (2024). Lateral quadratus lumborum block vs acupuncture for postcesarean analgesia: A randomized clinical trial. *American Journal of Obstetrics & Gynecology MFM*, 6(8), 101433. <https://doi.org/10.1016/j.ajogmf.2024.101433>
- Rangkuti, N. A., Zein, Y., Batubara, N. S., Harahap, M. A., & Sodikin, M. A. (2023). Hubungan mobilisasi dini post sectio caesarea dengan proses penyembuhan luka operasi di RSUD Pandan. *Jurnal Education and Development*, 11(1), 570–575. <https://doi.org/10.37081/ed.v11i1.4563>
- Rini, S., & Susanti, I. H. (2018). Penurunan nyeri pada ibu post sectio caesaria pasca intervensi biologic nurturing baby led feeding. *MEDISAINS: Jurnal Ilmiah Ilmu-Ilmu Kesehatan*, 16(2), 83–88. <https://doi.org/10.30595/medisains.v16i2.2801>

- Risyanti, S., Carolin, B. T., & Dinengsih, S. (2021). Analisis faktor yang mempengaruhi produksi ASI ibu nifas post sectio caesarea. *JKM (Jurnal Kebidanan Malahayati)*, 7(4), 607–612. <https://doi.org/10.33024/jkm.v7i4.3855>
- Roofthoof, E., Joshi, G. P., Rawal, N., & Van de Velde, M. (2021). PROSPECT guideline for elective caesarean section: Updated systematic review and procedure-specific postoperative pain management recommendations. *Anaesthesia*, 76(5), 665–680. <https://doi.org/10.1111/anae.15339>
- Sened, H., Levin, C., Shehab, M., Eisenberger, N., & Shamay-Tsoory, S. (2023). I wanna hold your hand: Handholding is preferred over gentle stroking for emotion regulation. *PLOS ONE*, 18(4), e0284161. <https://doi.org/10.1371/journal.pone.0284161>
- Sharpe, E. E., & Landau, R. (2025). Pain during cesarean delivery: Risk factors, mitigation, and current approaches. *Current Opinion in Anaesthesiology*, 38(3), 169–178. <https://doi.org/10.1097/ACO.0000000000001488>
- Singh, N. P., Monks, D., Makkar, J. K., Palanisamy, A., Sultan, P., & Singh, P. M. (2022). Efficacy of regional blocks or local anaesthetic infiltration for analgesia after caesarean delivery: A network meta-analysis of randomised controlled trials. *Anaesthesia*, 77(4), 463–474. <https://doi.org/10.1111/anae.15645>
- Sultan, P., Patel, S. D., Jadin, S., Carvalho, B., & Halpern, S. H. (2020). Transversus abdominis plane block compared with wound infiltration for postoperative analgesia following cesarean delivery: A systematic review and network meta-analysis. *Canadian Journal of Anesthesia/Journal canadien d'anesthésie*, 67(12), 1710–1727. <https://doi.org/10.1007/s12630-020-01818-x>
- Usichenko, T. I., Henkel, B. J., Klausenitz, C., Hesse, T., Pierdant, G., Cummings, M., & Hahnenkamp, K. (2022). Effectiveness of acupuncture for pain control after cesarean delivery: A randomized clinical trial. *JAMA Network Open*, 5(2), e220517. <https://doi.org/10.1001/jamanetworkopen.2022.0517>
- Wang, X., Liu, Y., Yan, Y., Mao, J., & Wang, Z. (2025). Effects of aromatherapy on discomfort in mothers undergoing cesarean section: A systematic review and meta-analysis of randomized controlled trials. *Complementary Therapies in Clinical Practice*, 58, 101935. <https://doi.org/10.1016/j.ctcp.2024.101935>
- White, T. D., Matthew, S. K., & Tubog, T. D. (2025). Postoperative cesarean section pain management using transversus abdominis plane block versus intrathecal morphine: A systematic review and meta-analysis. *Journal of PeriAnesthesia Nursing*, 40(1), 213–224. <https://doi.org/10.1016/j.jopan.2024.03.027>
- Yörükoğlu, H. U., Şahin, T., & Öge Kula, A. (2023). Transversus abdominis plane block versus rectus sheath block for postoperative pain after caesarean delivery: A randomised controlled trial. *Turkish Journal of Anaesthesiology and Reanimation*, 51(1), 43–48. <https://doi.org/10.5152/TJAR.2023.22724>
- Zhang, Y., Qin, X., Li, Q., Ma, J., Rao, L., & Zhou, J. (2025). Hand and foot massage on pain management after cesarean section: A meta-analysis. *Pain Management Nursing*, 26(2), 237–244. <https://doi.org/10.1016/j.pmn.2024.10.017>
- Zimpel, S. A., Torloni, M. R., Porfírio, G. J. M., Flumignan, R. L. G., & da Silva, E. M. K. (2020). Complementary and alternative therapies for post-caesarean pain. *Cochrane Database of Systematic Reviews*, 2020(9), CD011216. <https://doi.org/10.1002/14651858.CD011216.pub2>