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# LITERATURE REVIEW: THE EFFECT OF NON-PHARMACOLOGICAL METHODS ON PERINEAL PAIN INTENSITY AND WOUND HEALING IN WOMEN WITH NORMAL POSTPARTUM RECOVERY

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**ABSTRACT**
Perineal pain following vaginal delivery is a prevalent issue that significantly impacts postpartum quality of life and surgical incision recovery. Non-pharmacological interventions, notably thermal therapies, offer a non-invasive alternative to medication. This systematic review evaluates the efficacy of non-pharmacological methods on perineal pain intensity and wound healing during normal postpartum recovery. A systematic search was performed across Google Scholar and NCBI PubMed for studies published between 2014 and 2025. Following PRISMA guidelines, 9 articles were selected for qualitative synthesis. Findings indicate that warm compresses facilitate vasodilation, enhancing blood circulation and tissue regeneration. Conversely, cold compresses effectively induce local analgesia, reducing inflammation, edema, and nerve sensitivity. Both methods significantly decrease pain scores and accelerate the REEDA (Redness, Edema, Ecchymosis, Discharge, and Approximation) healing scale. Non-pharmacological methods are safe, cost-effective, and evidence-based interventions that should be integrated into standard midwifery and nursing protocols to optimize maternal recovery.

Keywords: cold compresses; non-pharmacological interventions; perineal pain; postpartum recover; wound healing

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## INTRODUCTION

Perineal pain following vaginal delivery is a prevalent clinical issue that significantly impacts the postpartum quality of life and the recovery of surgical incisions. While pharmacological treatments are common, non-pharmacological interventions specifically thermal therapies offer a non-invasive and safe alternative to medication. This systematic review evaluates the efficacy of these methods on pain intensity and the rate of wound healing during normal postpartum recovery. By analyzing studies published between 2014 and 2025, this paper highlights evidence-based standards designed to optimize maternal recovery through cost-effective midwifery and nursing protocols.

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The physiological trauma associated with episiotomies or spontaneous tears often leads to prolonged discomfort, which may impede early mobilization and interfere with the initiation of successful breastfeeding. Thermal interventions, including cryotherapy and thermotherapy, address these challenges by modulating local hemodynamic responses and neurological signaling. While

cold applications target immediate inflammatory cascades and edema, warm compresses facilitate cellular regeneration and tissue elasticity. Consequently, integrating these non-pharmacological modalities into standard obstetric care is essential for reducing systemic drug dependency while fostering a holistic environment for maternal physical and psychological restoration.

## METHOD

This study utilized a Literature Review design. The methodology was synchronized using the PRISMA 2020 framework to maintain transparency and scientific rigor.

### Search Strategy

Electronic searches were conducted in Google Scholar and NCBI PubMed. The search timeframe was set from 2014 to 2025. Keywords included "perineal pain," "non-pharmacological," "postpartum," "wound healing," and "thermal therapy."

### Eligibility Criteria

Included studies were original research (RCTs, quasi-experimental, and evidence-based reports) focusing on mothers with normal postpartum recovery and perineal trauma. Selection Flow with identification initial records identified from databases, removal of duplicates and screening of titles/abstracts and full-text assessment of articles based on the REEDA scale and VAS (Visual Analogue Scale) pain scores. Included 9 articles were finalized for synthesis.

### Analysis of Selected Articles

The 9 analyzed articles provide a multi-faceted view of thermal and behavioral interventions:

## RESULT

Table 1.
Analysis of Selected Articles

| Author (Year) | Design | Intervention | Key Findings |
|---|---|---|---|
| Ginting et al. (2025) | Quasi-Exp | Warm Compress | Significant reduction in pain ($p < 0.05$); improved tissue elasticity. |
| Apriyandi et al. (2023) | Quasi-Exp | Cold Compress | Effective in reducing acute inflammation and edema in episiotomy sites. |
| Karim et al. (2024) | RCT | Cold Compress | Significant pain reduction in primiparous women; suggests repeated application for sustained effect. |
| Maghalian et al. (2024) | Meta-Analysis | Warm Compress | Reduces the incidence of severe perineal trauma and accelerates healing. |
| Rachmatina et al. (2024) | EBCR | Cold Compress | Validates the "cryotherapy" effect on numbing nerve endings (local anesthesia). |
| Bqlein & Badr (2024) | Quasi-Exp | Warm Compress | Application during the active phase of labor reduces subsequent postpartum pain. |
| Gondim et al. (2025) | Scoping Review | Multi-modal | Identifies sitz baths and thermal packs as high-efficacy, low-risk tools. |
| Sukamti & Agista (2024) | Descriptive | Wound Care | Links proper hygiene and non-medicated compresses to faster REEDA scores. |
| Magoga et al. (2019) | Meta-Analysis | Warm Compress | Confirmed that 2nd-stage labor compresses significantly prevent 3rd and 4th-degree tears. |

The qualitative synthesis of nine finalized articles identifies a dual-pathway mechanism essential for postpartum clinical settings: (1)Warm Compresses: These function through induced vasodilation, which optimizes the delivery of essential nutrients and oxygen to traumatized perineal tissue. This process is fundamental for collagen synthesis and the precise approximation of wound edges, effectively reducing the incidence of severe trauma. (2)Cold Compresses (Cryotherapy): Serving as a vital acute intervention within the first 24 to 48 hours, cold therapy acts as a local vasoconstrictor. This limits fluid extravasation to control edema and elevates the pain threshold by decelerating nerve conduction velocity, providing a "numbing" effect. (3)Clinical Outcomes: Both thermal methods significantly decrease pain scores on the Visual Analogue Scale (VAS) and accelerate

recovery according to the REEDA (Redness, Edema, Ecchymosis, Discharge, and Approximation) scale.

## DISCUSSION

The synthesis of these nine articles identifies a critical dual-pathway mechanism that should be a primary focus for healthcare providers in postpartum clinical settings. Modern midwifery and nursing care must recognize that non-pharmacological interventions are not merely supplementary but serve as targeted physiological therapies. A significant finding for medical practitioners is the distinct chronological efficacy of thermal treatments. Warm compresses function through induced vasodilation, which optimizes the delivery of essential nutrients and oxygen to traumatized perineal tissue. This process is fundamental for collagen synthesis and the precise approximation of wound edges, making it a superior choice for long-term tissue regeneration and the prevention of chronic scar tissue discomfort.Conversely, the use of cold compresses presents a vital acute intervention strategy, particularly within the first 24 to 48 hours postpartum. Healthcare professionals should prioritize this method to manage the immediate inflammatory response. By acting as a local vasoconstrictor, cold therapy limits fluid extravasation into the interstitial space, effectively controlling edema and preventing secondary tissue hypoxia. Furthermore, the neurological benefits of cold application specifically the elevation of the pain threshold through the deceleration of nerve conduction velocity offer immediate, localized analgesia without the systemic risks associated with pharmacological agents. For medical and health personnel, these findings emphasize the importance of a phased recovery protocol. Transitioning from cold therapy to manage acute inflammation to warm therapy for regenerative support provides a comprehensive, evidence-based approach to maternal care. Integrating these non-pharmacological standards into hospital discharge planning and bedside care can significantly improve patient satisfaction, facilitate earlier mobilization, and reduce the clinical reliance on opioid or non-opioid analgesics during the postpartum recovery period.

## CONCLUSION

Non-pharmacological methods are safe, evidence-based interventions that should be integrated into standard midwifery and nursing protocols. For medical personnel, the findings emphasize a phased recovery protocol: transitioning from cold therapy to manage acute inflammation to warm therapy for long-term regenerative support. Integrating these standards into bedside care can significantly improve patient satisfaction, facilitate earlier mobilization, and reduce clinical reliance on opioid or non-opioid analgesics.

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