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Implementation of endorphin massage for maternal care: A narrative literature review

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Abstract

Background: Endorphin massage is one of the non-pharmacological interventions in maternal care used to help reduce mothers' physical and psychological discomfort during pregnancy, labor, and postpartum.

Purpose: To Implementation of endorphin massage for maternal care.

Method: This study used a narrative literature review method with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach. Literature searching was conducted through Google Scholar, PubMed, and ScienceDirect databases using the keywords "endorphin massage", "maternal care", "labor pain", "postpartum", and "non-pharmacological therapy". The articles included quantitative studies published in Indonesian and English from 2020–2025. Based on the selection process, 10 articles met the inclusion criteria.

Results: The review showed that endorphin massage was effective in reducing labor pain, decreasing anxiety, improving maternal comfort, supporting breast milk production, and facilitating the labor process. In addition, this therapy was considered safe, easy to apply, cost-effective, and had minimal side effects.

Conclusion: Therefore, endorphin massage has the potential to become a complementary intervention in holistic and mother-centered midwifery care (woman-centered care).

Keywords: Anxiety; Endorphin massage; Maternal; Pain; Postpartum.

INTRODUCTION

Maternal care is a crucial part of efforts to improve the health of mothers and babies. During pregnancy, childbirth, and postpartum, mothers often experience various physical and psychological complaints that can affect their comfort and quality of life (Kasmiati, Purnamasari, Ernawati, Juwita, Salina, Puspita, Ernawati, Rikhaniarti, Syahriana, Asmirati, Oka, & Makmun, 2023). Among the most common complaints are labor pain, back pain during pregnancy, anxiety leading up to labor or cesarean section, and impaired breast milk production in the postpartum period. These conditions not only impact maternal comfort but can also affect the physiological process of labor and the success of breastfeeding (Sitepu, Furwasyyih, Yuliana, & Qonitun, 2024).

Labor pain is a physiological experience experienced by nearly all women giving birth, especially during the active phase of the first stage.

Pain occurs due to uterine contractions, cervical dilation, and fetal descent during labor (Ningdiah, Ningsih, Iskandiani, & Lawra, 2022). Unresolved pain intensity can increase maternal stress, trigger increased catecholamine levels, inhibit uterine contractions, and prolong labor. Furthermore, anxiety and fear during labor can exacerbate pain perception and impact the mother's psychological well-being (Nurbaeti, Dewi, & Ciptiasrini, 2024).

Maternal problems don't just occur during labor. In the third trimester of pregnancy, many mothers experience back pain due to changes in posture and the increased weight of the uterus (Rahayu, 2023). If left untreated, this condition can disrupt daily activities, sleep quality, and the mother's well-being. Furthermore, postpartum mothers still experience irregular breast milk production due to stress, anxiety, and hormonal disturbances that affect the oxytocin

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reflex (Yanti & Fatmasari, 2023).

Various efforts have been made to address these maternal complaints, both pharmacologically and non-pharmacologically. However, pharmacological therapy often causes certain side effects and is not always available in primary healthcare facilities. Therefore, non-pharmacological interventions are becoming an increasingly popular alternative in obstetric care because they are considered safer, simpler, more economical, and easier to implement. One non-pharmacological method developing in maternal care is endorphin massage (Dahlan, Yanti, Suralaga, & Aulia, 2023). Endorphin massage is a light touch or massage technique that aims to stimulate the release of endorphins, the body's natural analgesic, thereby providing a sense of comfort, relaxation, and reducing pain intensity. In addition to helping reduce labor pain, endorphin massage has also been reported to reduce maternal anxiety, increase comfort during pregnancy, help stimulate breast milk production, and support the labor process (Sartika, Hevriani, Daiyah, & Kundarti, 2024).

Several studies have shown that endorphin massage is effective in maternal care. Previous research has shown a significant effect of endorphin massage on reducing pain during the active phase of first-stage labor, with a p-value of 0.004 (Astuti & Sari, 2022). Other research reports that endorphin massage can reduce pain and anxiety in primigravida mothers undergoing cesarean sections. Furthermore, this therapy is also known to increase breast milk production in postpartum mothers.

RESEARCH METHOD

This study used a narrative literature review method with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach to identify and select articles. The search

design was conducted by formulating PICOS (Problem, Patient, or Population), I (Intervention, Prognostic Factor, or Exposure), C (Comparison or Control), O (Outcome), and S (Study). The PICOS formulation in this study was P: pregnant women, women giving birth, and postpartum women; I: endorphin massage; C: no intervention or other non-pharmacological interventions; O: pain reduction, anxiety reduction, increased maternal comfort, increased breast milk production, and successful delivery; and S: quantitative research articles.

The literature search was conducted through Google Scholar, PubMed, and ScienceDirect databases using the keywords "endorphin massage" AND "maternal care" AND "labor pain" AND "pregnant women" AND "postpartum" AND "breast milk production" AND "non-pharmacological therapy." The publication period of the articles used was 2020–2025, with articles in both Indonesian and English.

Inclusion criteria for this study included articles discussing the implementation or effectiveness of endorphin massage in maternal care, using a quantitative research design, published between 2020–2025, available in full-text format, and written in either Indonesian or English. Exclusion criteria included articles that were not fully accessible, duplicate articles, articles irrelevant to the research objectives, and articles that were not original research.

Based on database identification results, 5,680 articles were obtained, consisting of Google Scholar (n=5,330), PubMed (n=266), and ScienceDirect (n=84). After screening based on title, abstract, article duplication, and compliance with the inclusion criteria, 58 articles were deemed worthy of further review. A full-text feasibility assessment was then conducted, resulting in 10 articles meeting the criteria for use in this narrative literature review. The article selection process was conducted using a PRISMA flowchart.

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RESEARCH RESULTS

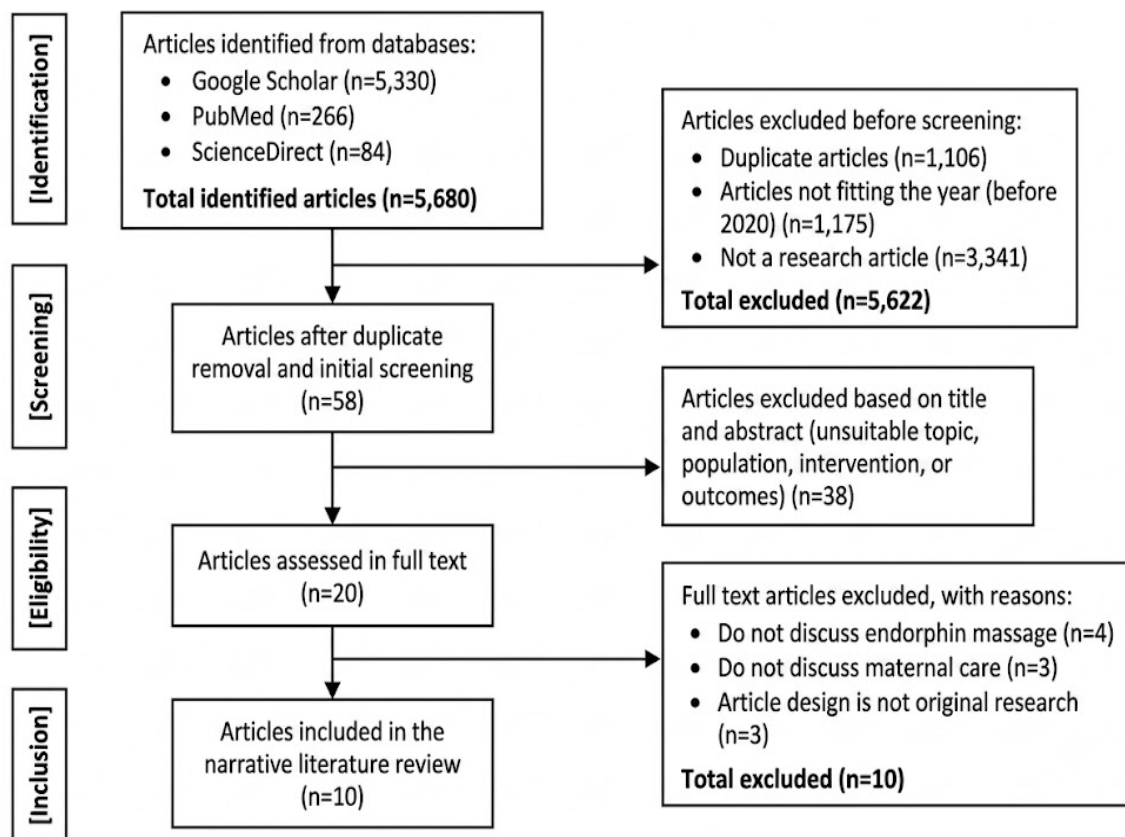


Figure 1. PRISMA Flowchart

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Table Summary of Selected Articles

(Author, Year) (Country)	Purpose	Design & Method	Results
(Astuti & Sari, 2022) (Indonesia)	To research endorphin massage's influence on suppressing pain during the active phase of normal labor of multiparous mothers.	This quasi-experimental, cross-sectional study was conducted on 132 multiparous mothers in the first active phase of normal labor. The intervention included endorphin massage to help reduce labor pain.	Endorphin massage has been shown to reduce the intensity of pain in the active phase of first-stage labor with a p-value of 0.004. The majority of pain changed from severe to moderate after the intervention.
(Dahlan et al., 2023) (Indonesia)	To determine the effect of endorphin massage on pain intensity during the first stage of active labor.	Quasi-experimental pretest-posttest with control group. The sample consisted of 30 mothers in the active phase of first stage labor who were divided into intervention and control groups. The intervention group was given endorphin massage.	There was a significant difference in pain intensity between the intervention and control groups with a p value of 0.000, so endorphin massage was effective in reducing labor pain.
(Nurhasanah, & Triwahyuningsih, 2024). (Indonesia)	To investigate endorphin massage's impact on smoothness development in postpartum women.	Quasi-experimental pretest-posttest control group design. The study was conducted on 28 postpartum mothers divided into intervention and control groups. The intervention consisted of a three-day endorphin massage to help smooth breast milk production.	Endorphin massage has a significant effect on increasing breast milk production with a p value of 0.000 and shows a very strong relationship between the intervention and the smooth flow of breast milk.
(Fitrianingsih et al., 2025) (Indonesia)	To examined the effectiveness of endorphine massage as a non-pharmacological technique for reducing pain experienced by women in the active phase of first-stage labor.	A quasi-experimental one-group pretest-posttest design was conducted with sixteen consecutively recruited participants from a community health center. The intervention consisted of a structured endorphine-massage	The average pain score decreased from 7.40 to 6.13 after the intervention with a p value of 0.001 so that endorphin massage was considered effective as a non-pharmacological therapy for labor pain.

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		protocol delivered by trained midwives, involving gentle rhythmic strokes and light pressure applied for approximately 15 minutes to the lower back, shoulders, and pelvic area.	
(Subriah et al., 2022) (Indonesia)	Research and Development (RnD) by adopting the development steps of the Borg and Gall models. This research was carried out.	Research and Development (R&D) The study was conducted on 40 midwives to assess the feasibility of the endorphin massage module as a learning medium to increase breast milk production in postpartum mothers.	The endorphin massage module is considered very suitable for use as a learning medium and supports the implementation of non-pharmacological therapy for postpartum mothers.
(Dewanti et al., 2024) (Indonesia)	To overview nursing care for third-trimester pregnant women experiencing acute pain issues through the application of endorphin massage.	Case study: The research was conducted on pregnant women in their third trimester experiencing back pain. The intervention consisted of a 15-minute daily endorphin massage.	The intensity of back pain decreased significantly from an average scale of 8 to 1 after six visits, so the therapy was deemed effective in increasing the comfort of pregnant women.
(Sartika& Noorlinda, 2025) (Indonesia)	To reduce labor pain through endorphin massage: Clinical Evidence from Indonesia.	Quasi-experimental research was conducted on 15 mothers in the active first stage of labor at primary health care facilities who were given endorphin massage.	There was a significant decrease in labor pain scores with a p value of 0.011 and the majority of respondents experienced a change from moderate/severe pain to mild pain after the intervention.
(Azissah et al., 2024) (Indonesia)	To enhance Maternal Comfort: The Impact of Endorphin Massage Therapy on Reducing Preoperative Pain and Anxiety in Primigravida Mothers Undergoing Cesarean Section.	The quasi-experimental sample consisted of 21 primigravida mothers undergoing cesarean section. The intervention group received endorphin massage twice daily for three days before surgery.	Endorphin massage has been proven to significantly reduce preoperative pain and anxiety with a p value <0.001 so it can be used as a non-pharmacological support therapy.

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(Sartika et al., 2024) (Indonesia)	To evaluate the effect of healing touch therapy on endorphin levels and the duration of the active phase of the first stage of labor.	A pre-experimental one-group pre-post-test design was used. A total of 40 pregnant women were divided into control (n= 20) and intervention (n= 20) groups. The intervention group received healing touch therapy three times for 30 minutes. Blood samples were taken before and after the therapy to measure endorphin levels, and labor duration was recorded.	Healing touch therapy did not provide significant changes in endorphin levels, but was able to shorten the duration of the first stage of active labor with a p value of 0.005.
(Safitri et al., 2022) (Indonesia)	To determine the effectiveness of endorphin massage on the success of induction.	Quasi-experimental non-equivalent control group pretest-posttest the study was conducted on 30 pregnant women undergoing misoprostol labor induction. The intervention group received a combination of induction and endorphin massage.	Endorphin massage significantly increased the success of labor induction compared to the group without intervention with a p value of 0.000.

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DISCUSSION

Based on the results of a narrative literature review, most articles indicate that endorphin massage is most commonly used by women in the active phase of the first stage of labor as a non-pharmacological intervention to reduce labor pain. Previous research has consistently shown that endorphin massage is effective in reducing the intensity of labor pain. These consistent results indicate that touch therapy has a significant influence on the mother's physiological and psychological responses during labor (Astuti & Sari, 2022; Dahlan et al., 2023; Fitrianiingsih et al., 2025; Sartika & Noorlinda, 2025).

Labor pain is a physiological response resulting from uterine contractions, cervical dilation, stretching of the lower uterine segment, and fetal descent. Pain intensity generally increases during the active phase of the first stage because contractions become stronger, more frequent, and last longer. This condition can trigger an increase in stress hormones such as catecholamines and cortisol, causing the mother to become tense, anxious, and even struggle to control her emotions. This tension and anxiety increase the perception of pain, making labor longer and more tiring for the mother. The endorphin massage implemented in these studies involved light touch and gentle massage on the mother's back, shoulders, arms, or waist. The massage technique aims to stimulate the release of endorphins, the body's natural analgesic. Endorphins work by inhibiting the transmission of pain impulses to the central nervous system, thus reducing pain. Furthermore, massage helps promote muscle relaxation, improve blood circulation, and provide a sense of comfort during labor. Although the results point in the same direction, there are some differences in the study characteristics. Another study used a relatively large sample size of 132 multiparous mothers, thus providing a more representative picture of the broader maternal population (Astuti & Sari, 2022). This study demonstrated a change in pain intensity from severe to moderate after endorphin massage. Meanwhile, previous researchers used a pretest-posttest design with a control group, enabling clearer differences between the intervention and control groups (Dahlan et al., 2023).

In contrast to these two studies, another study focused more on the application of endorphin massage, performed in a structured manner by

trained midwives for approximately 15 minutes (Fitrianiingsih et al., 2025). This study showed that, despite the relatively short duration of the intervention, there was a significant reduction in pain scores. This suggests that the effectiveness of endorphin massage is influenced not only by the duration of the intervention, but also by the quality of the technique and the mother's comfort during the therapy.

Previous research also corroborates these findings by showing a change in pain levels from moderate and severe to mild after endorphin massage (Sartika & Noorlinda, 2025). This study was conducted in a primary healthcare facility, demonstrating that endorphin massage interventions can be practically implemented in daily midwifery care, particularly in facilities with limited pharmacological analgesia.

The main similarity across all these studies is the reduction in labor pain after endorphin massage. This suggests that touch therapy can be an effective and safe alternative non-pharmacological intervention to improve maternal comfort during labor. Furthermore, endorphin massage has the advantage of not causing side effects like pharmacological therapy and can be performed by healthcare professionals or birth attendants after receiving appropriate education.

In addition to reducing labor pain, several studies in this review indicate that endorphin massage also impacts the mother's psychological state, particularly by reducing anxiety and increasing maternal comfort. Other research indicates that endorphin massage effectively reduces preoperative anxiety in primigravida mothers undergoing cesarean sections. The reduction in anxiety in this study was even more significant than the reduction in pain (Azissah et al., 2024).

These results indicate that endorphin massage not only works through physiological mechanisms but also has significant emotional effects. The gentle, rhythmic touch during therapy can provide a sense of security, comfort, and increase the mother's sense of calm. When the mother feels more relaxed, sympathetic nervous system activity decreases, thereby reducing stress hormone production. This helps the mother feel calmer during labor and surgery.

Other research also shows that endorphin massage is effective in improving the comfort of third-

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trimester pregnant women experiencing back pain. The dramatic reduction in pain levels suggests that this therapy can help mothers adapt to the physiological changes during pregnancy. In the third trimester, the enlarging uterus causes a shift in the body's center of gravity, increasing pressure on the lower back and causing discomfort. If left untreated, mothers can experience sleep disturbances, fatigue, and decreased daily activities (Dewanti et al., 2024).

The similarities between the two studies lie in the benefits of endorphin massage on maternal psychological well-being. For both pregnant women and those undergoing surgery, this therapy helps create a state of relaxation and reduce emotional tension. However, there are differences in the focus of the study outcomes. Other studies have focused more on preoperative anxiety, while Dewanti et al. (2024) focused more on the physical well-being of pregnant women in the third trimester (Azissah et al., 2024).

The implications of these research results suggest that implementing endorphin massage in maternal care can support a woman-centered care approach. Maternal care not only focuses on the clinical condition of the mother and fetus but also considers the emotional comfort and experiences of the mother during pregnancy and childbirth. Thus, endorphin massage can be part of holistic midwifery care oriented towards the overall well-being of mothers.

The review results indicate that endorphin massage is also widely used in the postpartum period, particularly to help increase breast milk production. Previous research has shown that endorphin massage significantly influences breast milk production in postpartum mothers. The study found an increase in average breast milk production after three days of intervention (Kartini et al., 2024).

Breast milk production is influenced by various factors, one of which is the mother's psychological state. Postpartum mothers experiencing stress, anxiety, fatigue, or discomfort tend to experience inhibition of the oxytocin reflex, resulting in suboptimal milk release. Endorphin massage helps create a state of relaxation, increasing the production of oxytocin and prolactin. Both hormones play a crucial role in breast milk production and release.

Other studies offer a different perspective, focusing more on the development of an endorphin massage module as a learning tool for midwives. This

study indicates that implementing endorphin massage requires not only evidence of clinical effectiveness but also standardization of procedures for consistent application in healthcare (Subriah et al., 2022).

The difference between the two studies is evident in their focus. Kartini et al. (2024) assessed the effectiveness directly for postpartum mothers, focusing on education and improving the competence of healthcare workers. However, both have similarities in supporting the implementation of endorphin massage as part of more comprehensive postpartum care (Subriah et al., 2022).

The implications of these research results indicate that endorphin massage has the potential to be a complementary therapy to support the success of exclusive breastfeeding. Besides being easy to implement, this therapy can also be performed by the mother's family after receiving education from a healthcare professional, thus optimizing family involvement in postpartum care.

Endorphin massage plays a role in supporting the labor process. Previous research has shown that endorphin massage can increase the success of labor induction in mothers receiving misoprostol. This study demonstrated a greater increase in Bishop scores in the group receiving endorphin massage compared to the control group (Safitri et al., 2022).

These results indicate that endorphin massage not only functions as a relaxation therapy but also helps support the physiological process of labor by stimulating the hormone oxytocin. Oxytocin plays a role in increasing uterine contractions, thus optimizing cervical ripening and labor progress.

Other studies have also shown that touch therapy can shorten the duration of the first stage of labor, the active phase, despite not producing significant changes in endorphin levels. This finding is interesting because it suggests that the effectiveness of non-pharmacological therapies does not always have to be proven through measurable biological changes, but can be seen through the mother's clinical response during labor (Sartika et al., 2024).

The similarities between these two studies lie in the effect of touch therapy on the labor process. However, there are differences in the outcomes measured. One focused more on successful labor induction (Safitri et al., 2022). Meanwhile, other researchers assessed the duration of the first stage of

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labor, the active phase (Sartika et al., 2024).

Overall, the results of this narrative literature review indicate that the implementation of endorphin massage has multidimensional benefits in maternal care. This intervention is not only effective in reducing pain but also increases maternal comfort, reduces anxiety, promotes breast milk production, and supports the labor process. With these various benefits, endorphin massage has the potential to be more widely integrated into maternal care practices.

CONCLUSION

Based on a narrative literature review of 10 research articles, it was found that implementing endorphin massage in maternal care provides positive benefits during pregnancy, childbirth, and the postpartum period. Endorphin massage has been shown to be effective in reducing labor pain, reducing anxiety, increasing maternal comfort, promoting breast milk production, and supporting the labor process. Furthermore, this therapy is non-pharmacological, safe, easy to implement, and has minimal side effects, making it a potential complementary intervention in holistic, woman-centered midwifery care.

SUGGESTION

Based on the research findings, healthcare workers, particularly midwives, are expected to implement endorphin massage as a non-pharmacological intervention in maternal care. Healthcare institutions are also expected to support the development of complementary midwifery services through the development of standard operating procedures (SOPs) and training related to endorphin massage. Furthermore, further research is expected to utilize more robust research designs and larger sample sizes to strengthen the evidence regarding the effectiveness of endorphin massage in maternal care.

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