



## IMPLEMENTATION OF ENDORPHIN MESSAGE IN LABOR : A COMPREHENSIVE MIDWIFERY CASE REPORT

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**Abstract Background:** Labor pain and maternal anxiety may interfere with the physiological childbirth process and negatively affect maternal comfort and labor progress. Endorphin massage is a non-pharmacological intervention that stimulates endogenous endorphin release, promotes relaxation, and provides continuous support during labor. Integrating this intervention into comprehensive midwifery care may improve maternal outcomes throughout the maternity continuum.

**Objectives:** This case report aimed to describe the implementation of endorphin massage during labor as part of comprehensive midwifery care for a pregnant woman receiving maternity services at the Cilawu Community Health Center, Garut.

**Methods:** This study employed a descriptive case report design involving one pregnant woman Mrs. S at 39 weeks and 4 days of gestation. Comprehensive midwifery care was provided from pregnancy, childbirth, postpartum, neonatal care, to family planning between January and March 2024. Data were obtained through interviews, physical examinations, direct observations, and documentation based on the midwifery management approach.

**Results:** During labor, the patient experienced anxiety and labor pain. Endorphin massage, combined with continuous emotional support, promoted relaxation, reduced maternal anxiety, improved comfort, and contributed to the progression of physiological labor without complications. During the postpartum period, the mother experienced breastfeeding difficulties related to flat nipples and breast engorgement. Breast care education, breastfeeding counseling, emotional support, and continued postpartum care successfully improved breastfeeding practices and maternal comfort. Both maternal and neonatal conditions remained stable throughout the continuum of care.

**Conclusion:** The implementation of endorphin massage during labor as part of comprehensive midwifery care contributed to improved maternal comfort, emotional stability, and physiological labor progression while supporting positive postpartum adaptation and maternal well-being.

Keywords: Endorphin Massage, Labor Pain, Comprehensive Midwifery Care, Maternal Comfort, Case Report, Non-Pharmacological Intervention.

## BACKGROUND

Physiological changes during pregnancy may cause various discomforts that affect maternal and fetal well-being, with approximately 70% of pregnant women experiencing such discomforts, particularly during the third trimester.<sup>1</sup> These physiological changes, including weight gain, uterine enlargement, redistribution of the center of gravity, and the effects of estrogen and progesterone on joint and muscle flexibility, increase the risk of lower back pain.<sup>2,3</sup> In addition, anxiety associated with labor pain is a common concern among pregnant women, with most women reporting moderate to severe pain during childbirth.<sup>4,5</sup> Labor pain involves both physical and psychological components, and inadequate pain management may adversely affect maternal and fetal well-being.<sup>6</sup> Comprehensive midwifery care, which encompasses pregnancy, childbirth, postpartum, neonatal, and family planning services, aims to reduce maternal discomfort, anxiety, and pain throughout the continuum of care.<sup>7</sup> One of the non-pharmacological interventions integrated into comprehensive maternity care is endorphin massage, which stimulates the release of endogenous endorphins, promotes relaxation, alleviates pain, and enhances maternal comfort during labor.<sup>8</sup> This intervention is consistent with Indonesia's Making Pregnancy Safer (MPS) program, which encourages the integration of evidence-based non-pharmacological approaches into routine midwifery practice.<sup>9</sup> Previous studies have demonstrated that endorphin massage effectively reduces labor pain and maternal anxiety while supporting postpartum recovery and successful breastfeeding.<sup>10</sup> Therefore, this complementary intervention has the potential to improve the quality of midwifery services and promote positive maternal and neonatal outcomes. Based on this background, this case report describes the implementation of endorphin massage during labor as part of comprehensive midwifery care for a pregnant woman receiving maternity services at the Cilawu Community Health Center, Garut.

## METHODS

### ***Study Setting and Design***

This study employed a qualitative case report design based on the midwifery management approach. Comprehensive midwifery care was provided at the Cilawu Community Health Center, Garut, Indonesia, from January to March 2024. The case report describes the implementation of endorphin massage during labor as part of the continuum of comprehensive midwifery care, including antenatal, intrapartum, postpartum, neonatal, and family planning services.

### ***Case Description***

The subject of this case report was Mrs. S, a primigravida G1P0A0 at 39 weeks of gestation. The patient received comprehensive midwifery care from late pregnancy through labor, the postpartum period, neonatal care, and family planning services. Endorphin massage was implemented during labor as a non-pharmacological intervention to enhance maternal comfort and emotional well-being.

### ***Data Collection and Instruments***

Data were obtained from both primary and secondary sources. Primary data were collected through history taking, physical examinations, direct observations, and comprehensive midwifery assessments throughout pregnancy, labor, postpartum, neonatal, and family planning care. Secondary data were obtained from the patient's medical records, including the Maternal and Child Health (MCH) Handbook and clinical records at the Cilawu Community Health Center. Midwifery care was documented using the Subjective, Objective, Assessment, and Plan (SOAP) format for antenatal care (ANC), intrapartum care (INC), postpartum care (PNC), newborn care, neonatal care, and family planning services.

### ***Ethical Considerations***

Ethical principles were maintained throughout the case report because it involved a human subject receiving continuous care. The patient's privacy and confidentiality were protected, and informed consent was obtained before the provision of care and data collection. This case report adhered to the ethical principles of respect for persons, beneficence, and non-maleficence to maximize the benefits of care while minimizing potential risks to the patient.

## RESULT AND DISCUSSION

### Antenatal Care

Antenatal care for Mrs. S was conducted on January 30, 2024 at 09.30 a.m. at her residence, with a gestational age of 39 weeks and 4 days. As a primigravida, Mrs. S reported limited mobility due to uterine enlargement and experienced significant anxiety related to the impending labor process. This psychological discomfort was primarily influenced by her lack of prior childbirth experience and fear of labor pain. During pregnancy, she had attended 11 antenatal care visits, including two consultations with an obstetrician. In the first trimester, she was diagnosed with chronic energy deficiency (CED), although subsequent weight gain was within the recommended range according to WHO standards. Laboratory findings indicated non-reactive results for triple elimination screening, absence of anemia, and she had completed two doses of tetanus toxoid immunization, with the last dose administered in August 2023. She also adhered to regular supplementation of iron and calcium tablets and reported no significant medical complications throughout pregnancy, aside from increasing anxiety as delivery approached.

To address the psychological discomfort, continuous emotional support was provided along with the implementation of endorphin massage as a non-pharmacological intervention aimed at enhancing relaxation and reducing maternal anxiety. This intervention was performed in collaboration with a family member to improve comfort and support system involvement.

Physiological changes during late pregnancy, particularly in primigravida women, often lead to both physical and psychological discomfort, including reduced mobility and increased anxiety related to labor.<sup>11</sup> Hormonal changes combined with mechanical stress from uterine enlargement may exacerbate musculoskeletal discomfort and emotional instability.<sup>12</sup> In this case, the presence of anxiety highlights the importance of holistic antenatal care that integrates both physical monitoring and psychological support.

Endorphin massage was utilized as a complementary intervention to stimulate endogenous endorphin release, which is known to promote relaxation, reduce stress perception, and improve maternal comfort.<sup>13</sup> The integration of family involvement in providing this massage also strengthened emotional bonding and increased the effectiveness of the intervention. This approach is consistent with recommendations for non-pharmacological, woman-centered maternity care that emphasizes psychological well-being alongside physical health.

Overall, the antenatal care provided to Mrs. S was comprehensive and in accordance with midwifery standards, with no significant gaps between theoretical guidelines and clinical practice.<sup>14,15</sup>

### Intrapartum Care

Intrapartum care for Mrs. S was initiated on February 3, 2024 at 09.00 a.m., when she reported intermittent lower abdominal pain radiating to the back. Considering the distance to the health facility, she was advised to undergo initial examination at a nearby midwife clinic, accompanied by the researcher. Upon examination, cervical dilation was found to be 2 cm, indicating the early phase of labor. At this stage, education was provided regarding the signs of labor progression that require immediate referral to the health facility, including more frequent contractions and rupture of membranes. To reduce anxiety and manage labor pain, endorphin massage was administered and subsequently continued by a family member at regular intervals. Evaluation using the Verbal Rating Scale (VRS) demonstrated a reduction in pain intensity from severe to mild, indicating improved maternal comfort.

As labor progressed, Mrs. S experienced stronger and more regular contractions accompanied by the release of mucus and spontaneous rupture of membranes. She arrived at the community health center at 16.30 p.m. with cervical dilation of 10 cm. The fetal condition was stable, and uterine contractions were adequate. Mrs. S was guided through breathing techniques and encouraged to maintain optimal cooperation during the second stage of labor. A spontaneous vaginal delivery of a healthy male newborn occurred at 16.34 p.m., with immediate crying and good neonatal adaptation. Delayed cord clamping was performed for 1-3 minutes to improve neonatal oxygenation and iron stores.<sup>16</sup> Early initiation of breastfeeding was successfully conducted for one hour following birth.

In the third stage of labor, the placenta was delivered spontaneously and completely at 16.40 p.m. following oxytocin administration. Uterine massage was performed to prevent postpartum hemorrhage and ensure adequate uterine contraction. During the fourth stage, maternal condition was closely monitored, including vital signs, uterine tone, and bleeding. Postpartum education was provided regarding uterine massage, nutritional intake, early mobilization, hygiene, and danger signs of postpartum complications. Pharmacological therapy including antibiotics, analgesics, vitamin A, and iron supplementation was also administered as part of postpartum management.

Labor pain is a complex physiological and psychological experience that may increase maternal stress and potentially interfere with uteroplacental circulation if not properly managed.<sup>17</sup> In this case, the use of endorphin massage played a significant role in reducing perceived pain intensity and promoting maternal relaxation during the early phase of labor. The reduction in VRS scores supports the effectiveness of non-pharmacological interventions in labor pain management.

Endorphin massage works by stimulating the release of endogenous endorphins, which act as natural analgesics and promote a sense of comfort and well-being.<sup>18</sup> The involvement of a family member in continuing the massage also enhanced emotional support, which is known to positively influence labor outcomes.<sup>19</sup> Overall, the integration of endorphin massage into intrapartum care contributed to a smoother labor process and improved maternal experience without complications.

### **Postpartum Care**

Postpartum care for Mrs. S was conducted through five scheduled home visits, during which her condition showed gradual improvement. On the first visit at 16 hours postpartum, she reported limited mobility and difficulty breastfeeding due to inverted nipples, although her general physical condition was stable. The main concern at this stage was ineffective breastfeeding, which required immediate intervention to prevent feeding difficulties in the newborn. On the third day postpartum, Mrs. S still experienced challenges in breastfeeding, however, she had begun using a nipple shield as a supportive aid. Lochia was observed to be dark in color without any signs of infection or abnormal odor.

By the tenth day postpartum, Mrs. S showed further improvement, although occasional supplementation with formula milk was still provided due to concerns about breast milk sufficiency. Despite persistent nipple inversion, early improvement in infant latch was observed. On the fourteenth day, significant progress was noted as breastfeeding became more effective, lochia transitioned to a yellowish discharge, and maternal adaptation to newborn care improved. By the thirty-second day postpartum, Mrs. S reported stable condition with no complaints, and exclusive breastfeeding was implemented more consistently. At this stage, she and her family also decided to initiate injectable contraception after counseling.

Throughout the postpartum period, endorphin massage was continuously provided during home visits as part of supportive care. This intervention aimed to reduce discomfort, enhance relaxation, and support emotional stability during the recovery process.

Postpartum recovery is a critical phase in maternal health, where physical and psychological adaptation significantly influence breastfeeding success and maternal well-being.<sup>20</sup> In this case, breastfeeding difficulties related to inverted nipples were effectively managed through counseling, proper latch techniques, and the use of a nipple shield, which is consistent with recommended breastfeeding support strategies.<sup>21</sup> Early identification and management of breastfeeding problems are essential to prevent complications such as insufficient milk transfer and maternal anxiety.

Breast engorgement and ineffective breastfeeding are commonly associated with improper attachment and positioning, particularly in primiparous women.<sup>22</sup> The provision of breastfeeding education and breast care techniques in this case contributed to improved milk flow and feeding efficiency.<sup>23</sup> Furthermore, continuous emotional support combined with endorphin massage helped improve maternal comfort and reduce postpartum stress, supporting overall recovery and adaptation. Family involvement also played an important role in supporting exclusive breastfeeding practices and decision-making regarding postpartum contraception.<sup>24</sup> Overall, comprehensive postpartum care integrating physical management, breastfeeding support, and complementary therapy resulted in a positive maternal recovery outcome.

### **Newborn and Neonatal Care**

The newborn was delivered on February 3, 2024 in good condition, with a birth weight of 3,400 grams and a length of 52 cm. The baby showed immediate signs of healthy adaptation, including spontaneous crying, good muscle tone, and a pinkish skin color. Vitamin K was administered shortly after birth to prevent hemorrhagic disease, along with antibiotic eye ointment to prevent neonatal infection. Hepatitis B immunization (HB0) was also given within the first 24 hours of life as part of standard newborn care.<sup>25</sup>

During the early neonatal period, the baby initially experienced feeding difficulties due to maternal inverted nipples, resulting in occasional formula supplementation by the family. However, following counseling on breastfeeding techniques and the importance of exclusive breastfeeding, the mother was encouraged to use a nipple shield to improve latch effectiveness.<sup>26</sup> By the third day of life, the newborn's weight increased to 3,500 grams, indicating adequate nutritional intake and healthy growth.

Subsequent follow-up visits at days 10, 14, and 32 showed continued improvement in neonatal health. The baby demonstrated regular sleep patterns, effective breastfeeding, and appropriate weight gain. At day 32, the infant weighed 4,600 grams, reflecting a total weight gain of 1,200 grams since birth, which is within the expected range for healthy neonatal growth. Occasional miliaria (heat rash) was observed on the face and back, attributed to excessive clothing, and was managed through parental education on appropriate infant clothing and hygiene practices.<sup>27,28</sup>

Overall, neonatal care emphasized exclusive breastfeeding support, infection prevention, thermoregulation, and parental education. These interventions contributed to optimal growth and development outcomes during the neonatal period.<sup>29</sup>

### **Family Planning Care**

Family planning counseling was initiated during antenatal and postpartum visits, focusing on contraceptive options suitable for breastfeeding mothers, including lactational amenorrhea method (LAM), intrauterine device (IUD), condoms, progestin-only injectable contraception, mini pills, and implants.<sup>29</sup> After discussion with her husband, Mrs. S chose the three-month injectable contraceptive method. Although she initially considered an IUD, her decision was influenced by fear and limited confidence regarding the procedure, despite counseling and emotional support provided by the midwife.

The decision-making process highlighted the importance of partner involvement and psychological readiness in selecting appropriate contraception methods. While long-acting reversible contraception (LARC) such as IUDs are recommended for effective family planning, acceptance may be limited by misconceptions and fear.<sup>30</sup> In this case, injectable contraception was considered appropriate due to its compatibility with breastfeeding and its non-interference with lactation.

Although WHO recommends postpartum contraception initiation after six weeks, the intervention in this case was initiated at approximately 4 weeks postpartum due to the absence of exclusive breastfeeding and clinical consideration of maternal readiness.<sup>31</sup> Despite being slightly earlier than standard recommendations, the chosen method was deemed safe and appropriate based on the patient's condition and informed consent.

Overall, comprehensive counseling and shared decision-making played a crucial role in supporting contraceptive acceptance and ensuring continuity of reproductive health care.

### **CONCLUSION**

Comprehensive midwifery care for Mrs. S from pregnancy to family planning was implemented according to standard guidelines, with generally positive outcomes across all stages of care. The integration of endorphin massage during labor effectively reduced maternal anxiety and pain, contributing to a smoother physiological childbirth process and improved maternal comfort. Postpartum and neonatal outcomes were satisfactory, supported by continuous emotional support, breastfeeding counseling, and family involvement, although some challenges in breastfeeding and early formula supplementation were noted. Family planning services were appropriately provided based on maternal condition and informed choice. Overall, the use of endorphin massage as a complementary intervention within comprehensive midwifery care demonstrated beneficial effects on

maternal well-being and labor experience, despite minor gaps in practice that warrant attention for future improvement.

### COMPETING INTERESTS

All authors have no competing interests to declare.

### AUTHOR'S CONTRIBUTION

Felzha Wahyudi Putri Romansya conducted all stages of the midwifery care, including data collection, implementation of comprehensive care, and drafting of the manuscript. Yuni Nurchasanah guided and reviewed the study and provided critical revisions to improve the manuscript.

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