

# The Effect of Oxytocin and Marmet Massage on Exclusive Breastfeeding: A Continuity of Care Case Study

Mareza Yolanda Umar\*, Psiari Kusuma Wardani

Faculty of Health, Universitas Aisyah Pringsewu, Pringsewu, Indonesia

Corresponding Author: [marezaumar@gmail.com](mailto:marezaumar@gmail.com)

## ARTICLE INFO

### Article history

Submitted:  
06 May 2025

Revised:  
12 May 2025

Accepted:  
20 Jun 2025

### Keywords:

Maternal mortality rate;  
Pregnant women;  
Postpartum mothers.

## ABSTRACT

Continuity of care (COC) represents comprehensive midwifery services throughout pregnancy, childbirth, postpartum, and family planning. The perinatal period, spanning from conception to 12 months postpartum, is associated with a higher probability of health complications. A fundamental strategy to decrease the maternal mortality rate is to alleviate the labor pain experienced by women, as almost one-fifth of all maternal deaths occur more than six weeks post-delivery. Midwife-led continuity of care diminishes women's apprehension around labor and postpartum depression, while simultaneously promoting exclusive breastfeeding. The objective is to deliver uninterrupted midwifery care to moms by employing Oxytocin Massage and Marmet Massage during the postpartum phase. This is a case study using qualitative analysis involving three pregnant women in the third trimester who received continuous midwifery care throughout pregnancy, labor, the immediate postpartum period, and family planning from October 2023 to February 2024. Qualitative data analysis was conducted thoroughly and persistently till finalization. The administration of oxytocin massage and the Marmet technique to mothers following observational assessments resulted in an augmentation of breast milk production volume, consistent with previous literature and demonstrating alignment between theory and practice. The midwifery profession aspires to advance sustainable midwifery care grounded in existing evidence and to adopt sustainable therapeutic practices alongside complementary interventions.



*This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.*

## INTRODUCTION

Continuity of Care (COC) in midwifery is a sequence of uninterrupted and complete activities that span pregnancy, childbirth, postpartum, newborn care, and family planning services, addressing the health requirements of women and the unique circumstances of each individual. The Continuity Of Care (COC) model in midwifery services has been demonstrated to be advantageous for women and infants, and is strongly endorsed by the WHO as a crucial element in fostering a pleasant, woman-centered birthing experience during pregnancy and the postpartum period (Hildingsson et al., 2021).

Global trends conceal significant differences in maternal survival rates among different areas and countries within those regions. In 2020, the World Health Organization (WHO) reported a global maternal mortality rate (MMR) of 218 deaths per 100,000 live births. In the regional analysis of SDG 3 for 2020, sub-Saharan Africa had the highest maternal mortality ratio, estimated at 545 maternal deaths per 100,000 live births. This figure is 136 times greater than the maternal mortality ratio (MMR) in Australia and New Zealand, which possess the lowest MMR rates, but Indonesia's MMR in 2020 was 322 deaths per 100,000 live birth (WHO, 2021). In Lampung Province, maternal mortality cases declined in 2022, from 187 cases in 2021 to 96 instances (Dinas Kesehatan Propinsi Lampung, 2022).

Providing continuity of care is one method to preserve the lives of mothers and infants. Continuity of care encompasses comprehensive midwifery services throughout pregnancy, childbirth, and the postpartum phase (McInnes et al., 2020). The perinatal period, spanning from

conception to 12 months postpartum, is associated with an elevated risk of health complications (Cummins et al., 2023). Indicate that approximately one-fifth of maternal deaths occur beyond six weeks post-delivery (Wang et al., 2023). Assert that midwife-led continuity of care diminishes women's apprehension around childbirth and postpartum depression, while also promoting exclusive breastfeeding (Mose et al., 2023).

The production of breast milk involves a complicated interplay of mechanical stimulation, neural activity, and numerous hormones. One reason a mother may be unable to provide exclusive breast milk to her infant is irregular breast milk production (Umar et al., 2020). According to the WHO, while 98% of mothers initiate breastfeeding, this percentage declines to 35% within the first five months due to challenges encountered during the breastfeeding process (Evereklioglu, Cem & Mehmet, 2022). Furthermore, only 54.5% of infants aged 0–6 months in Indonesia receive exclusive breastfeeding, despite a target of 80% (Triansyah et al., 2021).

Marmet massage is a technique that combines breast milk expression with breast massage to enhance the milk ejection response. Enhanced marmot massage administered by healthcare professionals correlates with increased breast milk production in postpartum moms (Simorangkir et al., 2024). Oxytocin massage serves as an effective intervention to address irregular breast milk production, alleviate engorgement, and mitigate milk blockages (Puspita et al., 2020).

There are still many studies that have not conducted research on the effectiveness of marmet massage and oxytocin massage simultaneously; many studies only examine one of marmet massage and oxytocin massage on the smoothness of breast milk production. Based on the data above, the author is interested in providing midwifery care for oxytocin massage and marmet massage to breastfeeding mothers.

## METHOD

This case report examines three pregnant women in their third trimester who received comprehensive midwifery care encompassing pregnancy, childbirth, BBL, postpartum, and family planning at the Cahaya Sehat Clinic. The care was implemented using Varney's 7-step midwifery framework during the initial assessment and the SOAP method (subjective, objective, analysis, management). The execution of this continuous midwifery care occurred from October 2023 to February 2024. This study employed a qualitative data analysis of the three cases, conducted meticulously and persistently till completion.

Several stages in this study are the Preparation Stage consisting of a preliminary study and documentation study on the pregnant women's register, conducting preliminary preparation, reviewing theories and data collection methods, determining respondents and conducting informed consent, the Implementation Stage consisting of providing pregnancy care 2 times, providing delivery and newborn care, providing neonatal care 3 times, providing postpartum care 4 times and family planning care. The last stage is the stage of compiling the report.

In this case study, the data were taken from primary and secondary sources. Primary data was obtained from respondents who underwent midwifery care, and interventions given to respondents; secondary data was obtained from respondents' KIA books. Respondents were recorded in the medical records at the Klinik Cahaya Sehat, Case Study Ethics, namely by distributing Informed Consent (Consent Sheet), ensuring respondent confidentiality, and ensuring respondent security.

## RESULTS

### Pregnancy

Clients regularly conduct pregnancy assessments in alignment with the antenatal visit guidelines established by the Indonesian Ministry of Health. The management for the mother involves counseling regarding the signs of labor, specifically increasingly frequent and regular contractions, mucus and blood discharge from the birth canal, rupture of the amniotic membrane, and sensations akin to the urge to defecate. The examination emphasizes counseling for discomfort during the third trimester in pregnant women and encourages mothers to visit

the clinic upon experiencing any of these signs. Instruct the mother to schedule a follow-up appointment in one week or sooner if labor signs manifest

### Labor

The initial stage endured for 8 hours and 30 minutes; the subsequent stage persisted for 25 minutes; the third stage continued for 15 minutes; and the fourth stage lasted for 2 hours, with the first hour subjected to examination 4 times at 15-minute intervals, while the second hour was examined 2 times at 30-minute intervals. The outcomes of the acts are documented in a partograph.

### Postnatal

During the postpartum period, care is provided regarding exclusive breastfeeding for 6 months. after giving birth, mothers are recommended to Encourage the mother to do early mobilization, encourage the mother to maintain personal hygiene especially the perineum area, Encourage the mother to get enough rest, avoid heavy work, and return to household routines gradually, Give the mother Vitamin A 200,000 IU 1x1 taken immediately and 1 capsule taken after 24 hours of taking the first capsule, then 350 mg iron supplement 1x1 taken at night as many as 30 tablets, teach the mother good breastfeeding techniques. On the third day of the visit, postpartum mothers and their families were taught oxytocin massage and the Marmet technique to increase breast milk production.

**Table 1. Average frequency of Breastfeeding**

Indicator	Average	
	Before	After
Babies breastfeed at least 8 times in 24 hours	8	10
Baby urinates with a frequency of 6-8 times	7	9
The color of the urine is clear yellow	The yellow is a bit cloudy	Clear Yellow
The color of the feces is golden yellow, not too runny or thick.	Yellow feces tending to be golden	Golden Yellow feces is not too liquid and thick

Continuity care for 3 clients found an increase in average breast milk production as evidenced by an increase in the average frequency of breastfeeding in infants. Before oxytocin massage and the Marmet technique, the frequency of breastfeeding in infants was an average of 8 times in 24 hours. After oxytocin massage and the Marmet technique, the frequency of breastfeeding increased to an average of 10 times in 24 hours. said that we would do a postpartum visit on the 14th and 40th days, and the last one we are doing is obstetric care documentations

### Neonatus

Upon initial assessment six hours post-delivery, the newborn was identified as a full-term neonate. The overall condition is satisfactory, with alert consciousness. Vital signs include a heart rate of 130 beats per minute, a respiratory rate of 49 breaths per minute, and a temperature of 36.5°C. The infant's weight and length are recorded at 2800 grams and 47 centimeters, respectively. The infant demonstrates robust breastfeeding capabilities, with positive indicators for urination and defecation. The skin exhibits a reddish hue, and the infant shows a desire to breastfeed from the mother. Advise the mother to exclusively breastfeed the infant for the first six months without supplementation. Instruct her to breastfeed every two hours and to awaken the infant if necessary. Bathe the infant with warm water six hours after birth. Educate the mother and family on proper umbilical cord care. Encourage the mother to schedule follow-up visits on the 3rd to 7th day postpartum, continuing until the 28th day, while ensuring comprehensive obstetric care documentation is maintained.

## **Contraception**

The evaluation performed by the mother resulted in the decision to utilize lactational amenorrhea as a contraceptive strategy after getting an explanation on its suitability for breastfeeding mothers. The mother seeks a contraceptive method that does not disrupt breastfeeding, since she intends to exclusively breastfeed her infant until he reaches 6 months of age.

## **DISCUSSION**

### **Pregnancy**

Antenatal check-ups during the first, second, and third trimesters align with the theory that these visits facilitate interactions between pregnant women and healthcare providers offering antenatal services for pregnancy assessments (Kemenkes RI, 2023). The examination emphasizes counseling regarding discomforts experienced in the third trimester, particularly frequent urination, with recommendations to increase fluid intake during the day to maintain hydration balance. If nocturnal urination does not disrupt sleep, it is inadvisable to decrease fluid intake during the night. (Elisabeth, siwi walyani., 2022) ) elucidates the warning signs of the third trimester and indicators of labor, advising the mother to schedule a follow-up visit one week later or to seek immediate attention if labor signs manifest (Umar, Nabila, 2023). The results of this study are in accordance with the care provided by (Aryanti et al., 2021), who stated that the care provided was in accordance with the diagnosis, and the author carried out a midwifery care action plan for the client in accordance with the theory. Based on the explanation above, there is no gap between theory and case.

### **Labor**

The initial phase in clients, as per the theoretical framework derived from the results, indicates that the mother has the urge to push concurrent with contractions, heightened sensations in the rectum/vagina, a pronounced perineum, and the dilation of the vulva and anal sphincter (Indrayani & Djami, 2016). Stage 1 endures for 8 hours and 30 minutes. The second stage of labor in this client lasted only 25 minutes, consistent with the hypothesis that the duration of the second stage in multigravida is 1 hour (Prawirohardjo, 2020). The third stage lasts for 15 minutes, consistent with the idea that indicates symptoms of placental expulsion include a rounded, firm uterus, elongation of the umbilical cord, and an increase in blood flow. The third stage of labor commences immediately following the birth of the infant and concludes with the expulsion of the placenta and placental membranes, typically lasting no longer than 30 minutes. (Sulikah et al., 2019). The fourth stage continued for 2 hours, with the first hour subjected to four examinations at 15-minute intervals, and the second hour subjected to two examinations at 30-minute intervals. Two hours postpartum, the mother's vital signs, uterine contractions, fundal height, bleeding, and bladder status should be monitored every 15 minutes during the first hour and every 30 minutes during the second hour. It is important to inform the mother that her current cramps are a normal physiological response. Encourage her to maintain hydration and nutrition, providing health education regarding the dietary needs of breastfeeding mothers, which should total 2900 calories distributed across three meals daily. Advise the consumption of foods rich in carbohydrates, proteins, fats, fiber, iron, iodine, vitamin A, vitamin C, and essential minerals, with a minimum fluid intake of three liters. Additionally, encourage the mother to breastfeed as frequently as the baby requires (Azizah & Rosyidah, 2019). This is in accordance with (Hildingsson et al., 2021) research that delivery care in continuity of care results in a better birth experience. The outcomes of the acts are documented in a partograph. According to the aforementioned reasoning, there exists no disparity between theory and case.

### **Postnatal**

On the third day of the visit, the mother and family were instructed in oxytocin massage and the Marmet technique to enhance breast milk production, and the mother was urged to practice these methods to further boost milk supply. The oxytocin massage will activate the spinal cord, prompting the medulla oblongata's neurotransmitter to relay a signal to the

hypothalamus. Consequently, the posterior pituitary gland secretes the hormone oxytocin, which stimulates the production of breast milk in the mammary glands. The production of breast milk and the breastfeeding process necessitate the stimulation of breast muscles to activate the breast glands, hence inducing the contractions essential for lactation. (Triansyah et al., 2021). The Marmet technique, sometimes referred to as the milking and breast massage technique, is a method for manually expressing breast milk while emphasizing the let-down reflex (LDR). The marmet approach, which activates the LDR at the onset of milking, can yield 2-3 times more breast milk compared to the absence of this LDR method. The let-down reflex (LDR) is triggered by nipple stimulation during breastfeeding, resulting in a sudden tightening of the breast and a rapid flow of milk, necessitating the baby to increase the sucking rhythm accordingly. Breast milk will abruptly flow profusely without the necessity for massage or vigorous compression (Puspita et al., 2019). Integrates massage and pumping of the breast to enhance the secretion of prolactin and oxytocin hormones. The marmet technique enhances breast milk production, is cost-free, requires no electricity, and can be performed at any time (Azizah & Ambarika, 2022). Oxytocin massage is most effective when conducted twice daily, in the morning and evening (Triansyah et al., 2021). Postpartum mothers are advised to practice the marmet technique every 3-4 hours, repeatedly, to ensure unobstructed milk flow (Umar et al., 2020). The combination of the marmet technique and oxytocin massage significantly improves breastfeeding efficacy among postpartum mothers in PMB. The examination of the marmet technique and oxytocin massage indicates that both approaches are efficacious in enhancing breast milk flow in postpartum moms (Latifah et al., 2023). Consequently, there exists no disparity between theory and practice.

### **Nenotatus**

Based on the assessment of subjective and objective data on newborns, overall physical examination results did not indicate any problems. Management was given in accordance with the guidelines for maternal and child health books, and neonatal visits were carried out 3 times in accordance with the guidelines written in the maternal and child health book. The characteristics of BBL include: born at term between 37-42 weeks, body weight 2,500-4,000 grams, body length 45 - 52 cm, (Buda & Sajekti, 2016), chest circumference 30-38 cm, head circumference 33-35 cm, arm circumference 11-12 cm, heart rate 120-160 x/minute, breathing  $\pm$  40-60 x / minute, reddish and smooth skin due to sufficient subcutaneous tissue, active movement, the baby is born immediately crying loudly, the baby is born full term, the rooting reflex (looking for the nipple with tactile stimulation on the cheeks and mouth area) has formed well, the sucking reflex (sucking and swallowing) has formed well, the morro reflex (hugging movement when surprised) has formed well, the grasping reflex (grasping) is well formed. (Sinta B et al., 2019). According to research, (Aryanti et al., 2021) stated that neonatal visits are carried out 3 times as recommended by maternal and child health books. Based on the explanation above, there is no gap between theory and case.

### **Contraception**

The objective of family planning services is to enhance the well-being of women and children while fostering small, joyful, and prosperous households through birth control and population growth management in Indonesia (Ayu et al., 2022). The contraception accessible for breastfeeding mothers does not impede breast milk production. The lactational amenorrhea method depends on the secretion of the hormone prolactin by the anterior pituitary gland in the brain. Prolactin governs the synthesis of breast milk in the alveoli. Increased release of breast milk from the breast will lead to heightened output. This strategy does not impede lactation or the growth and development of the infant (Sutanto, 2018). Consequently, there is no discrepancy between theory and practice.

### **CONCLUSION**

The evaluation results indicated a beneficial impact for mothers who received oxytocin massage and Marmet techniques, as evidenced by an observed increase in breast milk

production volume post-intervention. This finding aligns with existing literature and demonstrates consistency between theoretical frameworks and practical applications in midwifery care pertaining to pregnancy, childbirth, postpartum, newborns, and family planning. The midwifery profession aspires to establish sustainable midwifery care grounded in existing evidence and to implement sustainable therapeutic practices alongside complementary interventions.

## AUTHOR'S DECLARATION

### Authors' contributions and responsibilities

**MYU:** Writing original, draft, visualization, funding acquisition, conceptualization; **PKW:** Writing original draft (supporting) and editing.

### Availability of data and materials

All data are available from the authors.

### Competing interests

The authors declare no competing interests.

## ACKNOWLEDGEMENT

Thanks to Universitas Aisyah Pringsewu for the opportunity given to the author so that the author can complete this Continuity of Care report.

## REFERENCES

- Aryanti, L., Umar, M. Y., Rohani, S., & Puspita, L. (2021). *Studi Kasus Asuhan Kebidanan Komprehensif Pada Ny.N Di Praktik Mandiri Bidan "Sri Harningsih,Amd.Keb" Kecamatan Ambarawa Kabupaten Pringsewu*. 1, 176–185.
- Ayu, J. D., Rohani, S., Mariza, A., Qonitun, U., Umar, M. Y., Kes, M., Wardani, P. K., & Wahyuni, R. (2022). *Pelayanan Keluarga Berencana (Pertama)*. Tahta Media Group.
- Azizah, N., & Ambarika, R. (2022). The Effectiveness Of Marmet Techniques, Oxytocin Massage, And Endorphin Massage To Breast-Milk Production On Post Cesarean Section At Rsia Puri Bunda, *Journal For Quality In Public Health*.  
<https://www.jqph.org/index.php/jqph/article/view/406>
- Azizah, Nurul, & Rosyidah, R. (2019). *Buku Ajar Mata Kuliah Asuhan Kebidanan Nifas Dan Menyusui*. Universitas Muhammadiyah Sidoarjo.
- Buda, E., & Sajekti, S. (2016). *Buku Ajar: Asuhan Kebidanan Pada Neonatus, Bayi Dan Balita. Akademi Kebidanan Griya Husada*, 1-332.
- Cummins, A., Baird, K., Melov, S. J., Melhem, L., Hilsabeck, C., & ... (2023). Does Midwifery Continuity Of Care Make A Difference To Women With Perinatal Mental Health Conditions: A Cohort Study, From Australia. In *Women And Birth*. Elsevier.  
<https://www.sciencedirect.com/science/article/pii/S1871519222003055>
- Elisabeth, Siwi Walyani, A. K. (2022). *Asuhan Kebidanan Pada Kehamilan*. Pustaka Baru Press.
- Evereklioglu, Cem, E., & Mehmet. (2022). *Current Research In Health Sciences*. Gece Publishing.
- Hildingsson, I., Karlström, A., & Larsson, B. (2021). Childbirth Experience In Women Participating In A Continuity Of Midwifery Care Project. In *Women And Birth*. Elsevier.  
<https://www.sciencedirect.com/science/article/pii/S1871519220302390>
- Indrayani, & Djami, M. E. U. (2016). *Update Asuhan Persalinan Dan Bayi Baru Lahir*. Cv. Trans Info Media.
- Kemenkes RI. (2023). *Buku KIA Kesehatan Ibu Dan Anak. Kementrian Kesehatan RI*.
- Latifah, Y., Susanti, K., & Rahayu, A. O. S. (2023). Efektifitas Teknik Marmet Dan Pijat Oksitosin Terhadap Kelancaran Asi Pada Ibu Nifas Di Pmb Dince Safrina Kota Pekanbaru. *Innovative:*

- Journal Of Social Science Research*, 3(5), 2797-2805. <http://j-innovative.org/index.php/innovative/article/view/5088>
- McInnes, R. J., Aitken-Arbuckle, A., Lake, S (2020). Implementing Continuity Of Midwife Carer-Just A Friendly Face? A Realist Evaluation. In *BMC Health Services* Springer. <https://doi.org/10.1186/s12913-020-05159-9>
- Mose, A., Fikadu, Y., Zewdie, A., Haile, K., Shitu, S. (2023). Pregnant Women's Perception Of Midwifery-Led Continuity Care Model In Ethiopia: A Qualitative Study *BMC Women's* Springer. <https://doi.org/10.1186/s12905-023-0245>
- Prawirohardjo, S. (2020). *Ilmu Kebidanan*. Jakarta:EGC.
- Dinas Kesehatan Propinsi Lampung, (2022), *Profil Kesehatan Kota Bandar Lampung*
- Puspita, L., Umar, M. Y., & Wardani, P. K. (2019). Pengaruh Teknik Marmet Terhadap Kelancaran Asi Pada Ibu Post Partum. *Wellness And Healthy Magazine*, 1(1), 87-92.
- Puspita, L., Wardani, P. K., & Umar, M. Y. (2020). Edukasi Dan Praktik Pijat Oksitosin Di Desa Tulung Agung Kecamatan Gadingrejo Kabupaten Pringsewu. *Jurnal Pengabdian Kepada Masyarakat UAP*, 2(1), 27-30.
- Simorangkir, L. M., Silaban, V. F., & ... (2024). The Effect Of A Combination Of Marmet Techniques And Post Partum Mothers' Breast Care On The Slow Delivery Of Breast Milk. *Indonesian* <https://www.jurnal.globalhealthsciencegroup.com/index.php/ijghr/article/view/2693>
- Sinta B, L. El, Andriani, F., Yulizawati, & Insani, A. A. (2019). Buku Ajar Asuhan Kebidanan Pada Neonatus, Bayi Dan Balita. *Buku Asuhan Kebidanan Pada Bbl, Neonatus Dan Balita*. Indomedia Pustaka.
- Sulikah, Usnawati, N., N.Surtinah, & Sumaningsih, R. (2019). *Modul Ajar Kebidanan Asuhan Persalinan Dan Bayi Baru Lahir*. Poltekkes Kemenkes Surabaya.
- Sutanto, A. V. (2018). *Asuhan Kebidanan Nifas Dan Menyusui*. Pustaka Baru Press.
- Triansyah, A., Indarty, A., Tahir, M., Sabir, M., Nur, R., (2021). The Effect Of Oxytocin Massage And Breast Care On The Increased Production Of Breast Milk Of Breastfeeding Mothers In The Working Area Of The Public Health In *Gaceta Sanitaria*. Elsevier. <https://www.sciencedirect.com/science/article/pii/S0213911121001989>
- Umar, Nabila, Et Al. (2023). *Kenali Dan Proteksi Kehamilan Dari Malformasi Kongenital* (D. D. A. K. P. A. Rooswita (Ed.); Pertama). Itera Press. Gedung Kuliah Umum (Gku) Lantai 1 Institut Teknologi Sumatera (Itera), Terusan Ryacudu, Way Hui, Kecamatan Jati Agung, Lampung Selatan 35365
- Umar, M. Y., Puspita, L., & Wardani, P. K. (2020). *Penyuluhan Dan Praktik Teknik Marmet Pada Ibu Menyusui Di Desa Tulung Agung Kecamatan Gadingrejo Kabupaten Pringsewu 2020*. 2(1), 48-51.
- Wang, S., Rexrode, K. M., Florio, A. A., Rich-Edwards, J. W., & Chavarro, J. E. (2023). Maternal mortality in the United States: trends and opportunities for prevention. *Annual review of medicine*, 74(1), 199-216. <https://doi.org/10.1146/annurev-med-042921-123851>
- WHO. (2021). *Trends In Maternal Mortality 2000 To 2020: Estimates*. Geneva. <https://www.who.int/reproductivehealth/publications/maternal-mortality-2000-2017/en/>