December 2025; 16(2): 134-146
Jurnal Kesehatan Reproduksi
DOI: 10.58185/jkr.v16i2.389
ISSN: 2354-8762 (Online)
https://journaliakmitangsel2.iakmi.or.id/index.php/kespro

COMPARING HYPNOBREASTFEEDING AND OXYTOCIN MASSAGE EFFECTIVENESS ON BREAST MILK PRODUCTION

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Article Info

Keywords:
Breast Milk Production;
Hypnobreastfeeding;
Nursing Mothers;
Oxytocin massage;

Abstract

Background: Low exclusive breastfeeding rates are driven by maternal stress, fatigue, and low confidence, which hinder milk production. Non-pharmacological interventions are essential to enhance production. **Objective**: This study aims to determine the effectiveness of hypnobreastfeeding and oxytocin massage on breast milk production in nursing mothers. **Method**: The study design used a quasi-experimental two-group pretest–posttest design. The sample consisted of 32 breastfeeding mothers with infants aged 0–6 months, selected using consecutive sampling, with 16 respondents in each intervention group. The hypnobreastfeeding and oxytocin massage interventions were given for 15–20 minutes per day for 10 days. Breast milk production was measured through the frequency of urination and the increase in infant weight. Data were analyzed using an independent t-test. **Results**: The results showed the average weight of infants in the hypnobreastfeeding group was 5826.255 grams, while that in the oxytocin massage group was 6080.00 grams (p=0.001). The frequency of urination in the hypnobreastfeeding group was 8.71 times and in the oxytocin massage group was 8.81 times (p=0.000). **Conclusion**: Hypnobreastfeeding and oxytocin massage are effective in increasing breast milk production, but oxytocin massage results in a higher increase in infant weight gain, making it more recommended to support successful breastfeeding.

Received 29/09/2025 Revised 23/11/2025 Accepted 02/03/2026

How to Cite:

Sari PP, Aninora NR, Wikarya R. COMPARISON OF THE EFFECTIVENESS OF HYPNOBREASTFEEDING AND OXYTOCIN MASSAGE ON BREAST MILK PRODUCTION IN BREASTFEEDING MOTHERS. J. Kesehat. Reproduksi [Internet]. 2025 Dec. 16(2):134-146. Available from: https://doi.org/10.58185/jkr.v16i2.389

INTRODUCTION

Breast milk production is a key determinant of the success of exclusive breastfeeding; however, many mothers still face challenges in producing optimal amounts of breast milk. Breast

milk plays a crucial role in fulfilling infant nutritional needs, improving maternal and child health, and supporting the achievement of Sustainable Development Goals (SDGs) number 2 and 3 related to hunger eradication, health, and well-being. In addition, children who receive breastfeeding according to the global "gold standard" demonstrate better cognitive development, which contributes to improved education outcomes and long-term quality of life, aligning with SDG number 4 on equitable access to quality education.[1]

Although the benefits of exclusive breastfeeding have been widely proven, its coverage remains far below global targets. WHO data from 2015–2020 show that only 44% of infants aged 0–6 months worldwide are exclusively breastfed, with Southeast Asia showing a similar rate of 45%. These figures remain below the WHO minimum target of 50% by 2025.[2] In Indonesia, the exclusive breastfeeding rate in 2021 reached 56.9%, while in West Sumatra it reached 69.7%. In 2024, the City of Padang achieved 83.3%, although previous data showed fluctuations from 69.7% (2021), decreasing to 67.96% (2022), and then rising again to 72.3% (2023).[3,4] In the service area of Andalas Health Center, where Independent midwife practice Midwife Rahma Putri Idaman is located, the exclusive breastfeeding coverage in 2024 was 79.8%.[5]

Various factors such as household workload, stress, fatigue, depression, lack of spousal support, employment, and low maternal confidence are major contributors to the failure of exclusive breastfeeding. These factors directly affect the hormones prolactin and oxytocin play a very important role in the process of producing and releasing breast milk in breastfeeding mothers. Consequently, interventions that address both psychological and physiological aspects are needed to create optimal conditions for successful breastfeeding.[6]

Among the various complementary methods available to support lactation, hypnobreastfeeding and oxytocin massage are widely used and directly target these hormonal pathways. Hypnobreastfeeding is a psychological intervention that promotes relaxation and positive suggestion, helping mothers achieve emotional calm and thereby stimulating the release of prolactin and oxytocin. Oxytocin massage is a physiological intervention that provides direct stimulation to stimulate the milk ejection reflex by increasing the secretion of the hormone oxytocin. This method is non-invasive, affordable, safe, and can be easily performed by family members, especially husbands, who also play a crucial role in increasing their partner's involvement in the breastfeeding process. Oxytocin massage not only accelerates milk ejection but also provides emotional benefits, increasing emotional support for breastfeeding mothers. Furthermore, partner involvement in this process can strengthen family bonds and foster a sense of mutual support in maintaining the health of both mother and baby. This technique is increasingly recommended in order to support the achievement of optimal exclusive breastfeeding and strengthen the husband's role in family care.[7]

DOI: 10.58185/jkr.v16i2.389
ISSN: 2354-8762 (Online)

Hypnobreastfeeding focuses on a psychological approach aimed at reducing stress and anxiety, which in turn increases maternal comfort during breastfeeding, while oxytocin massage provides physical stimulation that stimulates the release of oxytocin to facilitate milk letdown. Both techniques aim to optimize the secretion of oxytocin and prolactin, two key hormones involved in breast milk production. Comparing these two methods is important to determine which intervention provides greater benefits in increasing breast milk production and its implications for the baby's condition of health, such as optimal growth and development. With clear comparative evidence, more effective methods can be suggested for clinical and family practice, as well as providing more precise recommendations to support the success of exclusive breastfeeding.[8]

A study on postpartum mothers less than 24 hours after delivery showed that before hypnobreastfeeding, only 48% of mothers fell into the good milk production category (with a volume of 7–123 ml). After the intervention, the percentage of mothers falling into the good milk production category remained at 48%, but with a significant increase in average milk volume ($p = 0.001$). These findings strengthen the evidence that hypnobreastfeeding can enhance hormonal responses that play a role in influencing milk production.[9]

A study showed that administering hypnotherapy 6–12 hours after a cesarean section can significantly increase maternal prolactin levels compared to standard care. The average prolactin level in the group receiving hypnotherapy was 247.6 ± 81.1 ng/mL, As for the control group, the average value was 120.1 ± 55.4 ng/mL. The difference in average prolactin levels between the two groups reached approximately 127.5 ng/mL, with statistical test results showing very high significance ($p < 0.001$, independent t-test). These results indicate that hypnotherapy can be an effective non-pharmacological intervention option to increase prolactin levels in post-cesarean mothers, which in turn can support successful breastfeeding by improving breast milk production.[10]

A study reported that oxytocin massage performed by husbands can significantly increase the amount of breast milk production. The results showed that the majority of mothers who received massage from their husbands experienced showed a significant increase in breast milk production, with a p-value of 0.007, indicating strong statistical significance. This positive effect is believed to be related to the stimulation provided along the spinal area, which plays a role in increasing the release of prolactin and oxytocin.[11]

Another study at the Sungai Bulian Community Health Center also showed similar results, showing a significant increase in breast milk production after receiving oxytocin massage. Before the massage, the average breast milk production was only 5.07 ml (with a range of 2–10 ml), but after the intervention, breast milk production increased sharply to 20.67 ml (range of 10–28 ml), with a statistically significant increase of 15.6 ml ($p = 0.000$). This indicates that oxytocin massage

directly stimulates the release of oxytocin, which is important in facilitating the milk let-down reflex.[12]

A survey conducted at the independent midwifery practice of Bidan Rahma Putri Idaman between January and March 2025 involved 53 breastfeeding mothers with infants aged 0–6 months. Interviews with these mothers revealed that 65% of them faced breastfeeding challenges, with insufficient milk production being the primary issue. As a result, some mothers opted to use formula. Other reported challenges included anxiety, babies crying while breastfeeding, lack of support from their husbands, and the absence of hypnobreastfeeding sessions or the use of rose aromatherapy to support breastfeeding.[13]

These data indicate that many mothers still have limited knowledge about effective strategies to increase breast milk production. Although various complementary interventions have been explored, comparative studies evaluating both psychological and physiological methods using objective indicators at the primary obstetric care level are still very limited. This study aims to fill this gap by comparing hypnobreastfeeding and oxytocin massage, using infant urination frequency and weight gain as objective indicators to measure the effectiveness of both methods in supporting breastfeeding success. The findings are expected to support evidence-based midwifery practice and improve the success of exclusive breastfeeding programs at the primary healthcare level.

METHODS

This study was a quasi-experimental research employing a two group pretest posttest Design, which aimed to compare changes before and after the intervention in two treatment groups. The research was conducted at the Independent Midwife Practice of Midwife Rahma Putri Idaman from May to September 2025. The study population consisted of all breastfeeding mothers with infants aged 0–6 months, totaling 55 individuals.

The sampling method used in this study was sequential sampling, resulting in 32 respondents who met the inclusion criteria. These criteria included breastfeeding mothers with infants aged 0–6 months, mothers in good physical and mental health, having healthy infants, not experiencing complications during breastfeeding, and willing to participate in the study. The sample was divided into two groups: a hypnobreastfeeding intervention group consisting of 16 mothers, and an oxytocin massage intervention group also consisting of 16 mothers. Each intervention session lasted 15–20 minutes.

Data collection in this study was conducted by assessing breast milk production through two objective proxy indicators: infant urination frequency and weight gain. These indicators were chosen because they directly reflect the adequacy of breast milk intake, with urination frequency indicating adequate hydration, while weight gain reflects the adequacy of nutrition obtained by the infant

through breast milk consumption. Both indicators are practical and reliable measures, especially in primary healthcare settings where direct measurement of breast milk volume is difficult.

In the pre-test phase, the infants' urination frequency and weight were recorded for three consecutive days before the intervention. Urination frequency was measured by counting the number of wet diapers in a 24-hour period, while the infants' weight was measured using a precisely calibrated digital baby scale. After the pre-test phase, both interventions—hypnobreastfeeding and oxytocin massage—were administered daily for ten consecutive days. On the eleventh day, the post-test phase was conducted by reassessing the infants' urination frequency and weight for the following three days, using the same measurement procedures to ensure the consistency and accuracy of the data obtained.

The collected data were analyzed using parametric statistical tests, including the paired t-test to evaluate within-group changes before and after the intervention, and the independent t-test to compare outcomes between the two intervention groups. This analytical approach was employed to determine the relative effectiveness of hypnobreastfeeding and oxytocin massage in enhancing breast milk production and infant growth.

The research ethics were approved by the Research Ethics Committee of the Institute for Research and Community Service, Padang State University, with decree number 025/KEPK-UNP/7/2025. The researcher obtained permission from the owner of independent midwife practice Bdn.Rahma Putri Idaman, M.Keb, and received a letter of completion of the research numbered 14/KB-BPM/RD-III-2025. The researcher is a midwife therapist who has a certificate in baby and mom spa training.

RESULTS

Table 1. Breast Milk Production Based on Baby's Feeding Frequency on Weight Before on After Hypnobreastfeeding

Group	N	Mean	Mean difference	SD	P value
Infant weight					
Pre Hypnobreastfeeding	16	5466.88	359.37	167.9	<0.001
Post Hypnobreastfeeding	16	5826.25			
Urinate					
Pre hypnobreastfeeding	16	5.44	3.31	1.195	<0.001
Post hypnobreastfeeding	16	8.75			

Based on Table 1, it can be seen that the average weight of babies before the intervention was 5466.88 grams (SD = 167.9) and after the intervention increased to 5826.25 grams, with an average difference of 359.7 grams. The results of the paired sample t-test showed a significance value of p = 0.000 (p < 0.05), so it can be concluded that there was a significant increase in infant weight after the hypnobreastfeeding intervention. Meanwhile, the frequency of urination of infants before and after the hypnobreastfeeding intervention showed an average frequency of urination before the

intervention of 5.44 times (SD = 1.195). After the intervention, the average increased to 8.75 times, with an average difference of 3.31 times. Statistical tests showed a significance value of p = 0.000 (p < 0.05), which means that there was a significant difference between the frequency of urination in infants before and after hypnobreastfeeding.

Table 2. Breast milk production based on feeding frequency and infant weight before and after oxytocin massage

Group	N	Mean	Mean difference	SD	P value
Infant weight					
Pre oxytocin massage	16	5565.63	514.37	206.9	0.000
Post oxytocin massage	16	6080.00			
Urinate					
Pre oxytocin massage	16	5.44	3.37	0.806	0.000
Post oxytocin massage	16	8.81			

Based on Table 2, it can be seen that the average weight of the babies before the intervention was 5565.63 grams (SD = 206.9) and increased to 6080.00 grams after the intervention. The average weight gain difference was 514.37 grams. The paired sample t-test produced a significance value of p = 0.000 (p < 0.05), so it can be concluded that oxytocin massage provides a statistically significant increase in infant weight. For the frequency of urination in infants, the average frequency of urination before oxytocin massage was 5.44 times (SD = 0.806). After oxytocin massage, the average frequency of urination increased to 8.81 times, with an average difference of 3.37 times. The statistical test results showed a significance value of p = 0.000 (p < 0.05). These findings indicate that there is a significant difference between the frequency of infant frequency of urination before and after the oxytocin massage intervention.

Table 3. Comparison of the Effectiveness of Hypnobreastfeeding and Oxytocin Massage on Breast Milk Production in Breastfeeding Mothers

Group	N	Mean	difference Mean	SD	P value
Infant weight					
Hypnobreastfeeding	16	5826.25	253.75	199.1	0.001
oxytocin massage	16	6080.00			
Urinate					
Hypnobreastfeeding	16	8.71	0.1	0.750	0.000
oxytocin massage	16	8.81			

Based on Table 3, it can be seen that the results of the independent sample t-test analysis of infant weight show that the average weight in the hypnobreastfeeding group is 5826.25 grams with a standard deviation of 199.1. Meanwhile, in the oxytocin massage group, the average weight of infants was recorded at 6080.00 grams, so the average difference between the two groups was 253.75 grams. Hypnobreastfeeding and oxytocin massage are both effective in increasing breast milk production; however, oxytocin massage demonstrates a greater effect on infant weight gain and is

DOI: 10.58185/jkr.v16i2.389
ISSN: 2354-8762 (Online)

therefore considered the more effective intervention for supporting successful breastfeeding. For the frequency of urination, the average in the hypnobreastfeeding group was 8.71 times with a standard deviation of 0.750, while in the oxytocin massage group, the average frequency of urination was 8.81 times. The average difference between the two groups was only 0.1 times. The statistical analysis showed a significance value of $p = 0.000$ ($p < 0.05$), indicating that the difference in urination frequency between the two intervention groups was highly statistically significant. This means that the changes that occurred in the frequency of infant urination after the intervention in each group were not coincidental, but rather the result of the intervention's influence, thus demonstrating the effectiveness of the intervention in increasing breast milk production by improving infant hydration.

DISCUSSION

This study has several limitations, such as the small sample size and the use of only one primary midwifery practice, which limits the generalizability of the findings. The quasi-experimental study design without randomization may also introduce selection bias, thus limiting the ability to draw causal conclusions. Breast milk production was measured using proxy indicators that do not directly reflect breast milk volume or composition. Furthermore, confounding factors such as maternal nutritional status, psychological well-being, and family support were not fully controlled for in this study. The short duration of the intervention and the lack of further follow-up also limit the ability to evaluate long-term effects.

This study was conducted among breastfeeding mothers who exclusively breastfed their infants aged 0–6 months at the Rahma Putri Idaman Independent Midwifery Practice located within the Andalas Community Health Center working area. The study sample consisted of 32 respondents selected based on specific inclusion criteria: breastfeeding mothers with infants aged 0–6 months, being physically and mentally healthy, having healthy infants, not experiencing breastfeeding complications, and willing to participate in the study. Respondents were then divided into two intervention groups, each consisting of 16 participants. The first group received hypnobreastfeeding, while the second group received oxytocin massage.

Exclusive breastfeeding plays a crucial role in reducing the risk of health problems in infants, particularly respiratory infections, diarrhea, and chronic diseases later in life. Breast milk contains antibodies that strengthen the baby's immune system, as well as macronutrients (carbohydrates, proteins, and fats) and micronutrients (vitamins and minerals) that support the baby's growth and development. Furthermore, breast milk contains bioactive components such as immunoglobulin A (IgA), lactoferrin, lysozyme, and bifidogenic factors that protect the baby from bacterial, viral, and fungal infections. Breast milk also provides long-chain fatty acids such as DHA and AA, which are essential for brain development and cognitive function. In addition to the benefits for the baby, exclusive breastfeeding also has positive impacts for the mother, including accelerating recovery

after childbirth, reducing the risk of postpartum hemorrhage, and reducing the risk of breast and ovarian cancer.[13]

Difficulties in breastfeeding are often influenced by various interrelated factors, including maternal, infant, psychological, healthcare provider, and sociocultural influences. From the mother's perspective, the most common problem is insufficient milk production. Low milk production, especially in the first few days after delivery, is often caused by suboptimal stimulation of the hormone oxytocin. Oxytocin plays a key role in the milk let-down reflex. Furthermore, maternal physical conditions such as postpartum fatigue, pain, stress, anxiety, and limited knowledge of proper breastfeeding techniques can worsen milk production. Many mothers also feel anxious or lack confidence in their ability to breastfeed, which can inhibit the release of oxytocin and prolactin, two key hormones involved in milk production.[15]

Successful milk production and breastfeeding are crucial in determining a child's nutritional status, health, and future development. Breast milk not only serves as a source of complete nutrition but also provides immunological protection that supports optimal growth and development. Therefore, efforts to increase breast milk production must consider both physiological and psychological approaches. One psychological approach that has proven effective is hypnobreastfeeding, a relaxation technique that combines deep breathing, positive affirmations, and visualization to reduce maternal anxiety. Hypnobreastfeeding helps mothers achieve a calmer emotional state, increases self-confidence, and supports two key hormones involved in breastfeeding: oxytocin and prolactin. With a more relaxed and comfortable mother, milk flow improves, the let-down reflex improves, and breastfeeding becomes more effective. Therefore, hypnobreastfeeding not only increases milk production but also improves the overall breastfeeding experience for both mother and baby.[15]

Hypnobreastfeeding is a non-pharmacological intervention proven effective in increasing breast milk production. Using hypnobreastfeeding techniques, mothers are guided to achieve a more relaxed brainwave state. This state increases the activity of the parasympathetic nervous system, allowing the body to enter a calmer state. When the mother is in a calmer state, the release of oxytocin is more smoothly facilitated. Oxytocin itself plays a crucial role in the contraction of myoepithelial cells in the breast, which promotes milk letdown. Furthermore, hypnobreastfeeding helps strengthen the mother's positive beliefs about her ability to produce sufficient breast milk, which in turn increases her motivation and consistency in breastfeeding. By addressing psychological barriers and stimulating hormonal responses, hypnobreastfeeding not only contributes to increased breast milk quantity but also improves the overall breastfeeding experience for both mother and baby.[16]

Virgian also emphasizes that hypnobreastfeeding can reduce anxiety, increase motivation, and boost the confidence of breastfeeding mothers. The physiological conditions created through this

DOI: 10.58185/jkr.v16i2.389
ISSN: 2354-8762 (Online)

intervention support increased levels of the hormones prolactin and oxytocin. These two hormones play a key role in the production and release of breast milk. With adequate breast milk production, the baby's needs can be properly met, contributing to optimal growth and development during the first six months of life. Therefore, hypnobreastfeeding can be considered a holistic approach that supports the success of exclusive breastfeeding. In addition to its physiological impact on breast milk production, this method also provides psychological benefits by reducing maternal anxiety, fostering self-confidence, and strengthening the emotional bond between mother and baby.[7]

Research conducted at the Muara Beliti Community Health Center also supports these findings, reporting that hypnobreastfeeding can significantly increase breast milk volume in breastfeeding mothers. The study showed an increase in average breast milk volume from 63.06 ml to 150.77 ml after the hypnobreastfeeding intervention. The results of this study showed a highly significant p-value ($p = 0.000$), indicating that the difference did not occur by chance. This nearly threefold increase demonstrates the important role of relaxation techniques and positive suggestions in hypnobreastfeeding in optimizing the hormonal responses of oxytocin and prolactin, ultimately increasing milk production and release.[17]

Further research conducted in Bandung also showed consistent results. In this study, primiparous mothers experienced an average increase in milk production from 60 ml to 95 ml after receiving hypnobreastfeeding intervention ($p = 0.000$). These findings further strengthen the evidence that hypnobreastfeeding is not only effective for mothers with experience breastfeeding, but also for first-time mothers, who are typically more prone to anxiety and lack confidence. These results suggest that hypnobreastfeeding can provide significant benefits to first-time mothers in terms of increasing their milk volume and confidence.[18]

Oxytocin massage is a non-pharmacological method that aims to stimulate the secretion of the hormone oxytocin which has an important role in let-down reflex (breast milk release). This massage is performed along the spine (5th to 7th thoracic vertebrae) by applying light stimulation. This stimulation activates the parasympathetic nervous system, promotes relaxation, and stimulates the hypothalamus to release oxytocin, which then affects the contraction of myoepithelial cells around the breast alveoli, making it easier for breast milk to flow.[19]

Supported by the research results who conducted hypnobreastfeeding and oxytocin massage for 4 consecutive days for 30 minutes. The average breast milk output of postpartum mothers before hypnobreastfeeding massage was 39.15 ml, and after hypnobreastfeeding and oxytocin massage, it was 100.60 ml. The statistical test using a dependent test yielded a p-value of 0.000 ($\alpha<0.05$). This indicates that hypnobreastfeeding and oxytocin massage have an effect on breast milk production in postpartum mothers in the working area of the Seputih Banyak Community Health Center, Central Lampung Regency.[14]

DOI: 10.58185/jkr.v16i2.389
ISSN: 2354-8762 (Online)

Based on research, average breast milk production in the treatment group increased from 31.2 ml before the intervention to 34.7 ml after the intervention, indicating a 3.5 ml increase compared to the control group. Physiologically, oxytocin activation stimulates the medulla oblongata to send signals to the hypothalamus and posterior pituitary gland, triggering the milk ejection reflex and the release of oxytocin into the bloodstream. This reflex is influenced by the mother's psychological state; anxiety and worry can inhibit breast milk production.[20]

The average breast milk production of breastfeeding mothers before receiving oxytocin massage in the Sungai Bulian Community Health Center in 2024 was 5.07 ml. After receiving oxytocin massage, the average breast milk production increased to 20.67 ml. Statistically, oxytocin massage was proven to significantly increase breast milk production in mothers with infants aged 7 days to 1 month in the area in 2024.[11]

Hypnotherapy is a form of therapy that involves the use of hypnosis to create changes in the thoughts and behavior of the individual undergoing it. In the context of midwifery, this concept and its basic principles aim to create a safe, confident, and calm environment for pregnant women, both during pregnancy, childbirth, and postpartum. Combined with oxytocin massage, this helps improve blood circulation to the mammary glands and reduces muscle tension, allowing mothers to feel more relaxed. This relaxed state supports the release of oxytocin and prolactin hormones, which are crucial for successful lactation.[21]

Oxytocin plays a key role in the milk-let-down reflex, which allows milk to flow from the alveoli to the nipple. Oxytocin is released in response to nipple stimulation, relaxation, and maternal emotional comfort. Oxytocin massage works by stimulating mechanoreceptors along the thoracic spine, which activates the parasympathetic nervous system and increases oxytocin secretion. This supports milk production and let-down, while reducing maternal stress that can inhibit lactation. Oxytocin massage also helps facilitate breastfeeding by optimizing hormonal responses, increasing maternal comfort, and strengthening the emotional bond between mother and baby. Furthermore, this massage can help mothers feel more relaxed, which in turn increases their confidence in breastfeeding. This intervention provides an effective non-pharmacological solution to address lactation issues.[22]

Oxytocin massage works by stimulating the release of the hormone oxytocin, which plays a key role in the let-down reflex and milk ejection, thereby facilitating milk flow and increasing breastfeeding effectiveness. The findings of this study align with[23], who reported that oxytocin massage significantly increased breast milk production and infant weight gain. This finding is supported by[24], who found a greater increase in breast milk production in postpartum mothers who received oxytocin massage compared to no intervention. However, the results of this study indicate

DOI: 10.58185/jkr.v16i2.389
ISSN: 2354-8762 (Online)

that oxytocin massage has a more significant impact on infant growth, particularly weight gain, thus achieving the objective of comparing the effectiveness of the two interventions.[23,24]

CONCLUSION

The results of the study showed significant differences between the hypnobreastfeeding and oxytocin massage groups in terms of infant weight gain and urinary frequency. Infants in the oxytocin massage group experienced greater weight gain compared to those in the hypnobreastfeeding group ($p = 0.001$). Urinary frequency also differed significantly between the two groups ($p = 0.001$), although the mean difference was relatively small. The results of this study show that oxytocin massage is more effective in supporting breast milk production and infant growth than hypnobreastfeeding.

RECOMMENDATION

Breastfeeding mothers are encouraged to regularly practice oxytocin massage and hypnobreastfeeding under the guidance of health workers to increase breast milk production and infant weight gain. Both methods help stimulate breast milk production by optimizing oxytocin release and provide psychological benefits for mothers. Further research with a larger sample size and longer intervention duration is needed. Periods are needed to assess long time effects on infant growth. Additionally, other factors such as oxytocin levels, maternal diet, and psychological factors also need to be investigated to better understand the mechanisms of infant weight gain.

ACKNOWLEDGEMENT

The author would like to express his gratitude to the Head of LP2M Universitas Negeri Padang for his support and selection of proposals, the Dekan of the Faculty of Psychology and Health UNP, and the Head of the Nursing Department for providing the opportunity to conduct this research. Appreciation is also expressed to the Chair of TPMB Bdn. Rahma Putri Idaman, M.Keb, for her support and participation, as well as to the respondents and all parties who helped in the completion of this research.

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Declarations

Author contribution	:	Putri Permata Sari was responsible for the entire research project. She also led the writing of the manuscript and the collaboration with the second author. Rionitara Wikarya participated in the data collection, transcription, and analysis. Novia Rita Aninora also revised the manuscript. Both authors approved the final manuscript.
Funding statement	:	The authors would like to thank Lembaga Penelitian dan Pengabdian Masyarakat Universitas Negeri Padang for funding this work with a contract number: 1995/UN35.15/LT/2025.
Conflict of interest	:	The authors declare that they have no competing interests.
Additional information	:	No additional information is available for this paper.