

THE EFFECT OF OXYTOCIN MASSAGE ON THE IMPROVEMENT OF BREAST MILK PRODUCTION IN POSTPARTUM MOTHERS AT SURYANI CLINIC, MEDAN JOHOR, KWALA BEKALA, MEDAN CITY

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ABSTRACT

Background: The 2023 Indonesian Health Survey (SKI) recorded exclusive breastfeeding coverage of 68.6% among infants aged 0–5 months, but only 55.5% of infants were still exclusively breastfed at six months well short of the 80% national target. Globally, WHO and UNICEF reported an exclusive breastfeeding rate of 48% in 2023. A recurring barrier is insufficient milk output during the first days after delivery, which stems from inadequate stimulation of oxytocin and prolactin, the two hormones that govern milk synthesis and ejection. Oxytocin massage is a non-pharmacological measure intended to trigger this hormonal response. **Objective:** To determine the effect of oxytocin massage on the smoothness of breast milk production in postpartum mothers at Suryani Clinic, Medan Johor, Kwala Bekala, Medan City, in 2024. **Methods:** A quasi-experimental study with a two-group pre-test and post-test design was conducted on 44 postpartum mothers selected by purposive sampling and allocated into an intervention group (n = 22) and a control group (n = 22). Milk production was measured with a 16-item observation sheet before the intervention and again after three consecutive days of oxytocin massage. Univariate analysis described respondent characteristics; the independent samples t-test compared the change in observation scores between groups. **Results:** Most respondents were 19–25 years old (22; 50.0%), primiparous (25; 56.8%), senior high school graduates (32; 72.7%), and not employed (23; 52.3%). Before the intervention, 36 respondents (81.8%) had unsatisfactory milk production. Following oxytocin massage, 30 respondents (68.2%) achieved smooth milk production. Within the intervention group the proportion with smooth production rose from 3 mothers (13.6%) to 21 mothers (95.5%), whereas the control group moved from 5 mothers (22.7%) to 9 mothers (40.9%). The independent samples t-test yielded $p = 0.000$ ($p < \alpha = 0.05$). **Conclusion:** Oxytocin massage significantly improves the smoothness of breast milk production in postpartum mothers. Midwives are encouraged to incorporate the technique into routine postnatal care and to teach it to husbands and family members as lactation support.

Keywords: Oxytocin Massage; Breast Milk Production; Postpartum Mother; Lactation; Exclusive Breastfeeding

INTRODUCTION

The postpartum period, also termed the puerperium, is the recovery phase that follows nine months of pregnancy and the process of birth. It commences once the placenta has been delivered and concludes when the reproductive organs have returned to their pre-pregnancy condition. Conventionally the puerperium spans roughly six weeks, or 42 days, although full physiological recovery may require up to three months (Maryunani, 2017).

Beyond the involution of reproductive organs, the puerperium marks the onset of lactation. In principle every newborn should be able to latch and feed immediately, yet clinical practice frequently shows otherwise. During the first 24 hours after delivery, milk often fails to flow or emerges only in small volumes. Suboptimal lactation management is the usual explanation, and one of its most common drivers is the mother's own doubt that her milk is adequate for her infant (Ekawati, 2016; Manjorang, 2023), in a scoping review of first-time mothers, likewise identified perceived insufficient milk supply and limited family support as dominant obstacles to exclusive breastfeeding.

Breast milk is the earliest, principal, and most suitable natural food for an infant, supplying the full spectrum of nutrients required for growth and development. Exclusive breastfeeding refers to feeding the infant nothing but breast milk no supplementary food, water, or other liquids until six months of age, a practice that confers the immunological protection the infant needs (Marmi, 2018). Beyond macronutrients, human milk delivers commensal bacteria and human milk oligosaccharides that shape the infant gut microbiome, inhibit pathogen adhesion, and support immune maturation (Lyons *dkk.*, 2020). synthesising evidence across populations, demonstrated that breastfeeding lowers infant morbidity and mortality while producing measurable long-term benefits in cognitive development (Victora *dkk.*, 2016).

The World Health Organization defines exclusive breastfeeding as the provision of breast milk alone, without formula, water, fruit juice, or any additional food, before the infant reaches six months of age. The Global Breastfeeding Scorecard released jointly by UNICEF and WHO in 2023 recorded a worldwide exclusive breastfeeding rate of 48%, a gain of ten percentage points over the preceding decade and within reach of the World Health Assembly target of 50% by 2025 (UNICEF dan World Health Organization, 2023).

National figures remain below target. The 2023 Indonesian Health Survey (SKI) reported that 68.6% of infants aged 0–5 months received exclusive breast milk, while only 55.5% were still exclusively breastfed at six months short of the 80% national target set for 2025 (Kementerian Kesehatan RI, 2025). survival indicators show a comparable gap: the 2017 IDHS recorded a neonatal mortality rate of 15 and an infant mortality rate of 24 per 1,000 live births, against RPJMN 2024 targets of 10 and 16 respectively, and SDG 2030 targets of 7 and 12 per 1,000 live births. Because exclusive breastfeeding is one of the most cost-effective interventions available for reducing neonatal death, closing this coverage gap carries direct consequences for infant survival.

Government Regulation No. 33 of 2012 on the provision of exclusive breast milk obliges health services to guarantee the infant's right to exclusive breastfeeding from birth to six months while monitoring growth and development. In practice, implementation is impeded by several barriers, of which inadequate milk production is among the most frequently reported.

The physiology behind delayed milk flow in the first days after birth involves more than

lactation management alone. Prolactin secretion may be suppressed while circulating oestrogen remains high immediately after delivery, so that milk either does not appear or appears only sparsely. Both oxytocin and prolactin respond to the infant's suckling: suckling stimulates prolactin, which directs the alveoli to synthesise milk, and oxytocin, which contracts the myoepithelial cells to eject it. When flow is poor on the first day, many mothers conclude that their supply cannot meet the infant's needs and introduce formula a decision that reduces suckling frequency and, in turn, further depresses production (Ekawati, 2019). A systematic review by Uvnäs-Moberg et al. (2020) confirmed that maternal plasma oxytocin rises in pulses during breastfeeding and that the magnitude of this response is sensitive to maternal stress and comfort the mechanistic basis for relaxation-oriented interventions such as oxytocin massage.

Milk production is governed by a range of modifiable factors: (1) maternal diet, since inadequate nutritional intake or irregular meal patterns constrain output; (2) psychological state, as depression, grief, and tension reduce milk volume; (3) contraceptive choice, which must be selected so as not to suppress lactation; (4) breast care, which stimulates the breast and prompts the pituitary to release prolactin and oxytocin; (5) breast anatomy; (6) physiological condition; (7) rest patterns, since fatigue and insufficient sleep diminish supply; and (8) suckling frequency the more often the infant feeds, the greater both synthesis and ejection. Oxytocin massage is one practical measure available to improve production (Ekawati, 2016).

Two distinct processes therefore determine whether a mother breastfeeds successfully: synthesis and ejection. Prolactin drives synthesis; oxytocin drives ejection. Oxytocin is released in response to nipple stimulation during suckling and also in response to massage along the maternal spine. Spinal massage induces calm and relaxation, raises the pain threshold, and strengthens maternal bonding, so that oxytocin is secreted and milk flows more readily.

Oxytocin massage is delivered along both sides of the vertebral column, extending to the fifth and sixth ribs, with the aim of relieving post-delivery fatigue and inducing relaxation. A mother who feels comfortable, relaxed, and rested provides a favourable hormonal environment for oxytocin release and prompt milk flow (Pilaria, 2018). Mechanistically, stimulation of the spinal region activates neurotransmitters that signal the medulla oblongata, which relays the message to the hypothalamus and posterior pituitary to release oxytocin, producing milk ejection. The same massage relaxes muscular tension and attenuates stress, reinforcing oxytocin secretion, and is most effective when combined with early infant suckling in a healthy newborn.

The technique has been examined applied a quasi-experimental pre-post design with a control group to 34 postpartum mothers at Puskesmas Sitinjo, Dairi Regency, and reported a significant effect of oxytocin massage on milk smoothness ($p = 0.000$). In a subsequent study, (Manurung *dkk.*, 2022) showed that neck massage significantly increased total milk volume from day one to day three postpartum at a private midwifery practice in Medan City. Marbun and Silaban (2025), working with 22 postpartum mothers at Klinik Lidya, Deli Serdang, documented a rise in the mean milk-production score from 16.14 before massage to 27.73 afterwards ($p = 0.000$). Silaban et al. (2025a) replicated this finding at Klinik Afisya, Deli Serdang, using the same instrument and design. Extending the intervention, (Silaban *dkk.*, 2025) combined oxytocin massage with fennel-based Foxy Oil in a quasi-experimental study and recorded a significant increase in milk production, while (Silaban *dkk.*, 2026) demonstrated through community engagement at Puskesmas Tanjung Morawa that families husbands in particular can be trained to perform the massage independently, with observable gains in milk volume and in the frequency of infant wet diapers.

Findings from other Indonesian settings converge on the same conclusion. (Pilaria, 2018) working in the Puskesmas Pejeruk catchment area in Mataram, recorded increased milk production after oxytocin massage with a McNemar test result of $p = 0.000$. Suciawati (2018) found that all 10 postpartum mothers who received oxytocin massage achieved smooth milk flow (100%), against 6 of 20 mothers (30%) in the untreated comparison group, with $p = 0.000$. In a follow-up study in the Puskesmas Cibusah working area, (Suciawati, 2019) attributed the improvement to the comfort experienced during massage, which permits effective oxytocin secretion; concurrently the anterior pituitary releases prolactin to synthesise milk, so that lactation proceeds and the infant feeds successfully ($p = 0.000$).

International evidence points the same way in a randomised self-controlled trial involving 73 mothers of premature infants in a neonatal intensive care unit, found that oxytocin massage and music both lowered maternal anxiety and raised milk secretion ($p < 0.05$). (Hidayati *dkk.*, 2025) in a quasi-experimental study of 68 postpartum mothers with postpartum blues, measured a significant increase in serum oxytocin in the massage group (47.57 ± 10.42 to 52.62 ± 11.33 pg/mL; $p = 0.001$) alongside improved milk production. (Hesti *dkk.*, 2017) reported that combining breast care with oxytocin massage significantly increased milk secretion, and (Widiastuti dan Widiani, 2020) observed improved breastfeeding among postnatal mothers who received back massage. The systematic review by (Nuampa dan Payakkaraung, 2021) covering 22 experimental studies from Asian settings, concluded that combined massage techniques yield greater milk volume than single techniques, while cautioning that most primary studies were of low to moderate methodological quality.

Despite this accumulating evidence, mothers at Suryani Clinic in Medan Johor continue to report unsatisfactory milk production in the early puerperium, and oxytocin massage is not yet part of standard postnatal practice at the site. This study was therefore undertaken to determine the effect of oxytocin massage on the smoothness of breast milk production among postpartum mothers at Suryani Clinic, Medan Johor, Kwala Bekala, Medan City, in 2024.

RESEARCH METHOD

Design

This study employed a quasi-experimental design in the form of a two-group pre-test and post-test with a control group. Mothers allocated to the intervention group received oxytocin massage followed by observation of milk production, while mothers in the control group received standard postnatal care only. Both groups were observed before and after the intervention period so that the change in each group could be compared.

Setting, Population, and Sample

The study was conducted at Suryani Clinic, Medan Johor, Kwala Bekala, Medan City, in 2024. The population comprised postpartum mothers receiving care at the clinic during the data collection period. Forty-four respondents were recruited by purposive sampling and divided equally into an intervention group ($n = 22$) and a control group ($n = 22$). Inclusion criteria were physiological postpartum mothers within the first three days after delivery, a live and healthy infant, and willingness to participate. Mothers with an obstetric or medical complication contraindicating back massage were excluded.

Intervention

Oxytocin massage was administered along both sides of the vertebral column from the seventh cervical vertebra down to the level of the fifth and sixth ribs, using the thumbs in small circular movements, for approximately 15 minutes per session, twice daily for three consecutive days. The mother was seated leaning forward with her arms folded and her head resting on them so that the back was fully accessible.

Research Instrument

Every study requires a means of gathering data, referred to as the data collection instrument. Instruments in health research fall broadly into five categories: biophysiological measurement, observation, interview, questionnaire, and scales. This study used an observation sheet. Observation involves measuring the research subject directly in order to obtain factual and accurate information relevant to the research question, which in turn supports sound inference (Nursalam, 2013).

The observation sheet comprised 16 items covering indicators of milk smoothness: milk seeping from the nipple without stimulation, breast fullness before feeding and softening afterwards, breastfeeding frequency of at least eight times in 24 hours, the infant swallowing audibly during feeding, the infant settling for two to three hours after feeding, and the infant passing urine at least six times in 24 hours. Each item was scored, and the total score was used to classify production as smooth or not smooth for descriptive purposes.

Data Analysis

Univariate analysis was used to describe respondent characteristics and the distribution of milk production before and after the intervention, presented as frequencies and percentages. Bivariate analysis used the independent samples t-test to compare the change in observation-sheet scores between the intervention and control groups, with the significance threshold set at $\alpha = 0.05$. Analysis was performed using SPSS.

Ethical Considerations

All respondents received an explanation of the study aims, procedures, benefits, and potential risks, and provided written informed consent before participation. Participation was voluntary and respondents could withdraw at any point without consequence for the care they received. Respondent identities were coded to preserve confidentiality.

RESULT

The study examined the effect of oxytocin massage on the smoothness of breast milk production among postpartum mothers at Suryani Clinic, Medan Johor, Kwala Bekala, Medan City, in 2024. Findings are presented below, beginning with respondent characteristics and followed by milk production before and after the intervention.

Table 1. Frequency Distribution of Respondents by Age at Suryani Clinic, Medan Johor, Kwala

Bekala, Medan City, 2024

Age of Respondents	Frequency (f)	Percentage (%)
19–25 years	22	50.0
26–30 years	13	29.5
> 31 years	9	20.5
Total	44	100.0

Table 1 shows that half of the respondents were aged 19–25 years (22; 50.0%), while the smallest group was older than 31 years (9; 20.5%).

Table 2. Frequency Distribution of Respondents by Parity

Respondent Parity	Frequency (f)	Percentage (%)
Primipara	25	56.8
Multipara	10	22.7
Grande multipara	9	20.5
Total	44	100.0

Table 2 shows that the majority of respondents were primiparous (25; 56.8%), while the smallest group were grande multipara (9; 20.5%).

Table 3. Frequency Distribution of Respondents by Education

Respondent's Education	Frequency (f)	Percentage (%)
Junior high school	6	13.6
Senior high school	32	72.7
Higher education	6	13.6
Total	44	100.0

Table 3 shows that most respondents had completed senior high school (32; 72.7%), with equal minorities holding junior high school (6; 13.6%) and higher education qualifications (6; 13.6%).

Table 4. Frequency Distribution of Respondents by Occupation

Respondent Occupation	Frequency (f)	Percentage (%)
Employed	21	47.7
Not employed	23	52.3
Total	44	100.0

Table 4 shows that slightly more than half of the respondents were not employed (23; 52.3%), while 21 respondents (47.7%) were in work.

Table 5. Milk Production in the Intervention Group Before and After Oxytocin Massage (n = 22)

Milk Production	Pre-test f (%)	Post-test f (%)
Not smooth	19 (86.4)	1 (4.5)
Smooth	3 (13.6)	21 (95.5)
Total	22 (100.0)	22 (100.0)

Table 5 shows that before oxytocin massage, 19 mothers in the intervention group (86.4%) had unsatisfactory milk production and 3 (13.6%) had smooth production. After three days of oxytocin massage, only 1 mother (4.5%) remained in the unsatisfactory category, while 21 (95.5%) achieved smooth production.

Table 6. Milk Production in the Control Group Before and After the Observation Period (n = 22)

Milk Production	Pre-test f (%)	Post-test f (%)
Not smooth	17 (77.3)	13 (59.1)
Smooth	5 (22.7)	9 (40.9)
Total	22 (100.0)	22 (100.0)

Table 6 shows that in the control group, 17 mothers (77.3%) had unsatisfactory production at pre-test and 5 (22.7%) had smooth production. At post-test, 13 mothers (59.1%) remained unsatisfactory and 9 (40.9%) had smooth production an improvement, but a considerably smaller one than in the intervention group.

Table 7. Overall Milk Production Before and After the Intervention (n = 44)

Milk Production	Pre-test f (%)	Post-test f (%)
Not smooth	36 (81.8)	14 (31.8)
Smooth	8 (18.2)	30 (68.2)
Total	44 (100.0)	44 (100.0)

Table 7 combines both groups. Before the intervention, 36 respondents (81.8%) had unsatisfactory milk production and 8 (18.2%) had smooth production. After the intervention period, the pattern reversed: 30 respondents (68.2%) achieved smooth production while 14 (31.8%) remained unsatisfactory. These totals are the sums of the group-level figures in Tables 5 and 6 (smooth at post-test: 21 + 9 = 30).

Table 8. Comparison of Post-test Milk Production Between Groups and Result of the Independent Samples t-Test

Group	n	Smooth f (%)	Not smooth f (%)	p-value
Intervention	22	21 (95.5)	1 (4.5)	0.000
Control	22	9 (40.9)	13 (59.1)	
Total	44	30 (68.2)	14 (31.8)	

Table 8 shows that at post-test, 21 mothers in the intervention group (95.5%) had smooth milk production compared with 9 mothers (40.9%) in the control group a difference of 54.6 percentage points. The independent samples t-test produced $p = 0.000$, which is below the significance threshold of $\alpha = 0.05$. The null hypothesis is therefore rejected: oxytocin massage has a statistically significant effect on the smoothness of breast milk production. [Note to authors: insert the mean $\pm$ SD of the observation-sheet score for each group from the SPSS output, together with the t statistic and degrees of freedom, as most journals require these alongside the p-value.]

Discussion

The findings are discussed below in the order of the research variables.

Milk Production Before Oxytocin Massage

Before the intervention the majority of respondents were not producing milk smoothly, and milk did not seep through the nipple. The most plausible explanation lies in feeding behaviour: mothers breastfed infrequently, so infant suckling the primary physiological stimulus for both

prolactin and oxytocin was reduced, and production declined accordingly. This interpretation is consistent with Uvnäs-Moberg et al. (2020), who demonstrated that pulsatile oxytocin release during breastfeeding depends on the frequency and adequacy of nipple stimulation.

Respondent age appears to bear on milk smoothness. Half of the sample were aged 19–25 years (Table 1), a period of optimal reproductive function that supports lactation, whereas the smallest group were older than 31 years. Mothers in the younger bracket generally produced milk more readily, in line with the physiological expectation that reproductive capacity is at its peak in the third decade of life.

Parity also warrants attention. Table 2 shows that most respondents were primiparous (25; 56.8%). First-time mothers have no prior breastfeeding experience to draw on, which commonly translates into technical difficulty with latching and positioning as well as lower confidence in their own supply. Manjorang (2023) reported precisely this pattern in a scoping review: primiparous mothers repeatedly described uncertainty about milk adequacy as the trigger for early supplementation.

Education level shapes the knowledge base a mother brings to lactation. Table 3 shows that most respondents had completed senior high school (32; 72.7%), with a minority at junior high school or higher-education level. Where educational attainment is low, health knowledge tends to be correspondingly limited, and limited knowledge is associated with poorer health outcomes. This finding indicates a clear point of intervention: providing information about the importance and technique of oxytocin massage so that mothers understand how to support their own milk flow.

Occupation showed a similar association. Table 4 shows that 23 respondents (52.3%) were not employed. Employed mothers generally produce less milk because separation from the infant reduces feeding frequency. Although none of the respondents had returned to work at the time of data collection, employed mothers with limited breastfeeding knowledge may already anticipate difficulty and worry about supply anxiety that itself suppresses oxytocin release, as Dağlı and Çelik (2022) demonstrated when anxiety reduction accompanied increased milk secretion in their trial.

Milk Production in the Intervention and Control Groups

In the intervention group (Table 5), 19 mothers (86.4%) were not producing milk smoothly at pre-test and 3 (13.6%) were. After three days of oxytocin massage, 21 mothers (95.5%) had smooth production and only 1 (4.5%) had not. The control group (Table 6) moved from 5 mothers (22.7%) with smooth production at pre-test to 9 (40.9%) at post-test. Some improvement in the control group is expected, since lactation progresses naturally during the first postpartum days as circulating oestrogen falls and prolactin rises; the magnitude of change, however, was markedly smaller than in the intervention group.

The mechanism underlying this difference rests on the two-component model of lactation. Prolactin governs milk synthesis, while oxytocin governs ejection. Oxytocin is released when the nipple is stimulated by infant suckling, and also when the maternal spine is massaged. Spinal massage produces calm and relaxation, raises the pain threshold, and strengthens maternal affection for the infant, so that oxytocin is secreted and milk is ejected promptly. Hidayati et al. (2025) provided direct biochemical confirmation of this pathway, measuring a significant rise in serum oxytocin (47.57 ± 10.42 to 52.62 ± 11.33 pg/mL; $p = 0.001$) in mothers who received

oxytocin massage compared with no significant change in controls.

The present findings align with Silaban et al. (2025), who studied postpartum mothers at Klinik Afisya, Deli Serdang, and attributed increased milk output to the comfort the mother experiences during massage, which allows oxytocin to be produced effectively. As oxytocin is released, the anterior pituitary concurrently secretes prolactin to synthesise milk, so that the lactation process proceeds and the infant feeds successfully. That study reported $p = 0.000$, confirming a significant relationship between oxytocin massage and milk production. (Marbun dan Silaban, 2025) reached the same conclusion at Klinik Lidya, where the mean production score rose from 16.14 to 27.73 following the intervention.

The result also accords with the theoretical account advanced by Rahayu (2018), who argued that oxytocin massage improves milk smoothness because the breastfeeding process becomes more effective: massaging along the spinal region as far as the fifth and sixth ribs leaves the mother relaxed and comfortable and stimulates prolactin and oxytocin production after delivery, so that milk flows more freely and in greater volume. Consistent with this mechanism, (Yuliati *dkk.*, 2017) measured serum prolactin directly and found that combining rolling and Oketani massage significantly raised prolactin levels and milk production in mothers who had undergone caesarean section evidence that back-region massage acts on both hormonal arms of lactation, not on ejection alone.

The Effect of Oxytocin Massage on Milk Production

Table 7 sets out the combined result. Before the intervention 36 respondents (81.8%) had unsatisfactory milk production; afterwards 30 respondents (68.2%) had smooth production and 14 (31.8%) had not. The independent samples t-test (Table 8) produced $p = 0.000$, below $\alpha = 0.05$, so the difference between groups cannot reasonably be attributed to chance. Oxytocin massage therefore has a significant effect on the smoothness of breast milk production in postpartum mothers at Suryani Clinic, Medan Johor, Kwala Bekala, Medan City, in 2024.

Physiologically, massaging the mother's back provides comfort that triggers the oxytocin or let-down reflex, releasing oxytocin into the bloodstream. (Manurung, 2020) obtained a comparable result at Puskesmas Sitinjo, Dairi Regency, using the same design and the same statistical test on 34 postpartum mothers ($p = 0.000$), and Manurung (2022) subsequently showed that neck massage increased total milk volume across the first three postpartum days. Hesti et al. (2017) found that pairing breast care with oxytocin massage significantly increased milk secretion, while Widiastuti and Widiani (2020) reported improved breastfeeding among postnatal mothers who received back massage.

The wider evidence base supports these observations while adding nuance. Nuampa and Payakkaraung (2021), reviewing 22 experimental studies of massage for lactation in Asian populations, concluded that combined massage techniques generate greater milk volume than any single technique, but noted that most primary studies carried unclear risk of bias and used heterogeneous outcome measures. Consistent with the combination principle, Silaban et al. (2025b) added fennel-based Foxy Oil to oxytocin massage and recorded a significant increase in milk production, and Silaban et al. (2026) demonstrated that husbands and family members can be trained to deliver the massage at home, with observable improvement in milk volume and in the frequency of infant wet diapers.

The practical implication is that oxytocin massage is inexpensive, requires no pharmacological

agent, can be taught to family members in a single session, and directly addresses the perception of insufficient supply that drives premature formula introduction. Given that exclusive breastfeeding remains one of the most cost-effective means of reducing neonatal mortality (Victora et al., 2016) and that human milk confers microbiological and immunological benefits unavailable from substitutes (Lyons et al., 2020), embedding the technique in routine postnatal care is a low-cost, high-value measure.

Limitations

Several limitations should temper interpretation of these findings. Allocation to groups was by purposive sampling rather than randomisation, so residual confounding by age, parity, or education cannot be excluded. The sample was drawn from a single clinic and totalled 44 mothers, which restricts generalisability. Milk production was assessed with an observation sheet rather than by direct volumetric measurement or hormonal assay, and neither the mothers nor the observers were blinded, leaving room for observer expectation to influence scoring. The follow-up period covered three days, so nothing can be inferred about whether the effect persists through six months of exclusive breastfeeding. Future work should use randomised allocation, objective volume measurement, and longer follow-up, as recommended by Nuampa and Payakkaraung (2021).

Conclusion and Suggestion

Conclusion

Before oxytocin massage, the majority of postpartum mothers at Suryani Clinic, Medan Johor, Kwala Bekala, Medan City, in 2024 had unsatisfactory milk production: 36 of 44 respondents (81.8%) fell into this category.

After the intervention period, the majority had smooth milk production: 30 respondents (68.2%) achieved smooth production, while 14 (31.8%) did not. Within the intervention group the proportion with smooth production rose from 3 mothers (13.6%) to 21 mothers (95.5%), against a rise from 5 (22.7%) to 9 (40.9%) in the control group.

The independent samples t-test yielded $p = 0.000$ ($p < \alpha = 0.05$), indicating that oxytocin massage has a statistically significant effect on the smoothness of breast milk production in postpartum mothers.

Suggestion

For the clinic: oxytocin massage should be incorporated into standard postnatal care and delivered from the first day after delivery, so that inadequate milk flow and the consequent restlessness in infants who cannot settle for the usual three to four hours is prevented rather than managed after the fact.

For midwives: the technique should be taught to mothers and, importantly, to husbands and family members, since Silaban et al. (2026) showed that families can perform it competently and independently at home.

For mothers: alongside massage, feeding frequency should be maintained at a minimum of eight times in 24 hours, with attention to adequate nutrition, rest, and emotional support.

For future researchers: randomised allocation, objective measurement of milk volume, larger multi-site samples, and follow-up through at least six months would strengthen the evidence

base considerably.

Appreciate (If There Is)

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