

The effect of breast massage with breastfeeding and baby nutritional status

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ABSTRACT

Background: The success of the breastfeeding process is not due to the mother's biological factors but rather due to difficulties for the mother in her first role so that this affects improper attachment techniques during breastfeeding and the feeling that milk production is not enough and not smooth. The benefits of breastfeeding are very important to reduce nutritional imbalances and reduce stunting rates. One of the factors of failure of breastfeeding is because breast milk does not come out after the mother delivers their baby. Breast massage is another important factor in how mothers can successfully breastfeed their baby.

Objectives: The aim of research is determine the effect of breast massage on breastfeeding and the nutritional status of babies.

Methods: This study analyzes the effect of breast massage in third trimester pregnant women with exclusive breastfeeding and infant nutritional status. A cross-sectional study was carried out with 80 pregnant women with gestational age 38 weeks using purposive sampling methods. The research instruments were the breast massage checklist, breastfeeding behavior, and body weight observation sheet.

Results: The results of this study show that breast massage during pregnancy has a direct effect on breastfeeding and the nutritional status of the baby. Breast massage is very influential in supporting mothers to breastfeed and improving the nutritional status of the baby. Breast massage should be performed during pregnancy at 38 weeks of gestation to support the success of exclusive breastfeeding. The earlier the breastfeeding preparation during pregnancy, the sooner the mother can breastfeed her baby smoothly and with better nutritional status.

Conclusions: Health care professionals should provide early intervention to enhance mother capabilities like a breastfeeding education during pregnancy and breast massage to support the success of exclusive breastfeeding and prevent stunting.

KEYWORD: breast massage; breastfeeding; baby nutritional status

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INTRODUCTION

Encouraging breastfeeding is a long-term investment, but sadly, just 48 out of every 100 infants younger than six months are being exclusively fed, which is below the World Health Assembly's goal of 60% by 2030. This is because of the concurrent challenges faced by new mothers, healthcare workers, and health systems (1). WHO and UNICEF recommend that children initiate breastfeeding within the first hour of birth and be exclusively breastfed for the first 6 months of life. Starting at six months of age, children should begin consuming safe and appropriate complementary foods alongside breastfeeding, which should be continued until at least two years of age or longer. (2). The highest percentage of exclusive breastfeeding coverage was recorded in West Nusa Tenggara Province at 83.42%, whereas the lowest was in West Papua Province at 10.4% (1).

Breastfeeding plays a vital role in reducing the risk of infections, lowering infant and child mortality rates, and decreasing the incidence of necrotizing enterocolitis as well as childhood and adult obesity, while simultaneously enhancing cognitive abilities and IQ scores (2). Children who are exclusively breastfed consistently demonstrate superior developmental outcomes compared to those who are not (3). Furthermore, breastfed infants experience a reduced risk of developing obesity, type 1 diabetes, and

childhood leukemia. For mothers, breastfeeding offers immediate benefits by protecting against postpartum hemorrhage and postpartum depression, aiding in postpartum weight loss, and conferring long-term protection against type 2 diabetes, breast and ovarian cancers, and cardiovascular diseases (4).

The success of exclusive breastfeeding is higher among mothers who maintain a positive attitude by viewing nursing challenges as minor or manageable, and who receive robust support from a well-structured healthcare system (5).

Common breastfeeding complications reported in the study included breast engorgement (33.6%), psychological distress (3.1%), and nipple vasospasm (1.6%). Notably, 46.9% of respondents experienced difficulties during their stay in the maternity unit, with the majority being primiparous mothers (62.0%). To manage these complications, various interventions were utilized, including the use of silicone nipple shields, optimization of positioning and latching techniques, warm and cold compresses, breast pumps, and breast massage with stimulation (6).

Nipple pain is a primary driver of early breastfeeding discontinuation. Despite the well-established benefits of lactation for both maternal and infant health, clinical support for managing such complications remains an evolving area of research (7). Massage therapy may indirectly contribute

to breast cancer prevention, while partner-administered massage serves as an effective intervention to reduce stress (8). Some studies found that breastfeeding is very important because breastfeeding can support infant growth(9)(10).

This study aims to examine the effect of Oketani massage on breastfeeding success and breast engorgement among mothers delivering via cesarean section. The findings indicate that Oketani massage effectively reduces breast engorgement, a critical barrier to sustained breastfeeding while positively impacting overall breastfeeding success (11). Therefore, it is necessary to conduct more specific research on the effect of breast massage with exclusive breastfeeding and baby nutritional status. As a result, it is hoped that the findings of this study will not only provide a useful scientific basis for increasing baby weight in particular as a step toward determining appropriate interventions but will also raise public and government awareness of importantly of exclusive breastfeeding. The aim of research is determine the effect of breast massage on breastfeeding and the nutritional status of babies.

Breastfeeding is universally recognized as the optimal source of infant nutrition, conferring benefits for growth, immune protection, and neurodevelopment. However, many mothers encounter challenges such as insufficient milk supply, pain, engorgement, and psychological

stress, which can compromise breastfeeding success and infant nutritional status. Breast massage has emerged as a non-pharmacological intervention aimed atimproving lactation outcomes by enhancing milk production, alleviating discomfort, and potentially modifying milk composition. This review synthesizes current evidence on the physiological mechanisms, clinical outcomes, and practical integration of breast massage in breastfeeding support, with a focus on its impact on infant nutritional status and growth (12,13).

MATERIALS AND METHODS

This cross-sectional study aimed to determine the effect of breast massage with breastfeeding and baby nutritional status. The population for this study was pregnant women with gestational age 38 weeks who come to the Mother and child Health clinic and Midwives independent Practice in Yogyakarta, with the total sampling was 80 pregnant women. The implementation of the study was from April to September 2020. The inclusion criteria were pregnant women with a gestational age of 38 weeks and willing to be respondents, while the exclusion criteria were pregnant women who experienced lumps in the breast, pregnant women who experienced chronic diseases, and complications in pregnancy. The researcher gave education about breast massage to pregnant women, and on monitoring every 1 week (frequency of

breast massage), and after 2 months researchers were to ask the mother about behavior of breastfeeding and measure the baby's growth by weight and age to see the effect of breast massage. The research instrument used a questionnaire and a book about breast massage. This research has passed ethics with Ethical registration number KE/AA/III/10120a/EC/2020.

RESULTS AND DISCUSSION

The characteristics of the respondents can be seen in **Table 1**. The majority of the respondents were 20-35 years old (87.5 %) and had a high level of education (85%). They were unemployed or housewives (62.5%). The majority are primipara or the first mom to be (51.3%). The purpose of this study was to explore the effect of breast

Table 1. Characteristics of the respondents

Characteristics	n	%
Age		
Less than 20 years old	2	2.5
20 - 35 years old	70	87.5
Over 35 years old	6	10
Education		
Low Level of Education (Primary, Middle)	12	15
High Level of Education (High School, College)	68	85
Employment		
Unemployed (Housewife)	50	62.5
Employed	30	37.5
Gravida		
One	41	51.3
Two	26	32.5
Three	8	10
Four	4	5
Five	1	1.3
Youngest Child Age		
Less than 2 years	7	8.8
2 to 5 years	19	23.8
More than 5 years	16	20
Had no children before	38	47.5

massage with breastfeeding and nutritional infant status. The results showed that the majority of the respondents were 20-35 years old 70 mothers (87.5 %) and had a

high level of education 68 people (85%). They were unemployed or housewife 50 mothers (62.5%). The majority are primipara or the first mom to be 41 mothers (51.3%).

Table 2. Distribution of breast massage frequency

Breast Massage Frequency	n	%
Breast massage		
Not	12	15
Massage	68	85
Use of massage oil		
baby oil	65	81.3
Olive oil	15	18.8
Breast massage frequency		
No massage at all	1	1.3
1 time a week	32	40
Twice a week	12	15
Three times a week	28	35
More than 3 times a week	7	8.8

Table 3. Distribution of breastfeeding frequency

Breastfeeding Frequency	n	%
Breast milk production during pregnancy		
No	40	50
Don't know	30	37.5
Yes	10	12.5
Breast milk production time		
2 days	15	18.8
more than 3 days	2	2.5
right after the baby is born	63	78.8
Breastfeeding only for 2 months		
No	7	8.8
Yes	73	91.3
Breastfeeding problems		
No	62	77.5
Yes	18	22.5

Table 2 show the result after respondent given an education about breast massage. The results show that the majority of respondents who did breast massage (85%), and used baby oil (81.3%) to breast massage. They majority of respondents did breast massage 1 time a week (40%).

Table 3 shows that the majority of breast milk production of the respondents

was not out yet during pregnancy (50%), and their time breast milk production was after the baby was born (78.8%). Respondents who breastfeeding only for two months were (91.3%) and 77.5% respondents have breastfeeding problems during breastfeed their baby. The results after respondents give an education about breast massage show that the majority of

Table 4. Distribution of infant nutrition frequency by weight and age

Nutritional Status (W/A) 2 months old	n	%
Not enough	10	12.5
Normal	68	85
More	2	2.5

respondents who did breast massage 68 mothers (85%), and used baby oil 65 mothers (81.3%) to breast massage. They majority of respondents did breast massage 1 time a week were 32 mothers (40%).

The results in **Table 4** show that the majority of babies had normal nutritional status (W/A) (85%), but there were ten babies who had malnutrition (12.5%). Respondents with the time of expulsion of

breast milk after the delivery process mostly came out directly as many as 63 people or 78.8% and respondents who gave exclusive breastfeeding to their babies for 2 months were 73 people or 91.3%.

The nutritional status of infants aged 2 months was dominant with normal nutritional status 68 mothers (85%), but there were 10 infants who experienced malnutrition (12.5%).

Table 5. The effect of breast massage implementation with breastfeeding and baby's nutritional status

	Breastfeeding only for 2 months	Baby Nutritional Status
Z	-2.109b	-5,940b
asympt. Sig. (2-tailed)	0.035	0.0001
Wilcoxon Signed Ranks Test Based on negative ranks		

Based on **Table 5**, the results show that there was a significant difference in mothers who did breast massage during pregnancy and after delivery their baby with breastfeeding only for two months ($p = 0.035$). The results showed that there were 73 respondents in 2 months who gave breast milk only. In the bivariate analysis of breast massage on infant nutritional status measured from the weight of the baby's body based on age, there was a significant difference in the body weight of babies aged 2 months ($p = 0.000$). Based on the result showed that breast massage gives effect on

babies nutritional status. The results of statistical tests using *Wilcoxon Signed Ranks Test*, there were significant results with p value 0.035 and p value 0.0001 means that there is an effect of the implementation of breast massage with breastfeeding and the effect of breast massage on the nutritional infant status.

Breastfeeding is a skill that requires knowledge and ability to persist when mothers encounter difficulties. The best preparation for breastfeeding is to prepare lactation since pregnancy. Breast massage during pregnancy and during mother

breastfeed their babies provides good benefits for milk production cause the massage on the breast will make blood circulation smoothly and break down the mammary glands that settle in the milk ducts (10). Breast massage has shown to increase oxytocin hormone and make mothers relax, comfortable, reduce stress, pain and increase the milk production, so it will be easier to carry out the breastfeeding process (9). Therapeutic breast massage is widely recognized as a highly effective, non-invasive technique for alleviating common lactation challenges such as breast pain, severe engorgement, and plugged milk ducts. By applying targeted manual pressure and gentle strokes, this therapy helps stimulate lymphatic drainage, improve local blood circulation, and reduce localized inflammation within the mammary tissue. Consequently, nursing mothers experience immediate relief from discomfort, improved milk flow, and a significantly reduced risk of developing more severe complications like mastitis.

To address persistent structural blockages, recent clinical studies highlight the efficacy of the Integrated Breast Massage technique. This specialized approach combines classic therapeutic stroke patterns with targeted deep-tissue manipulation designed specifically to break down solidified milk deposits within clogged ducts. By integrating systematic pressure along the natural pathways of the lactiferous ducts alongside gentle expressional

movements, this method effectively restores patent milk flow while minimizing tissue trauma, making it an invaluable intervention for optimal breastfeeding support (14).

A holistic care model combining lactation massage and hypnolactation provides an integrated approach to supporting breastfeeding mothers, addressing both physical and psychological dimensions of lactation. Lactation massage functions on a physiological level by stimulating breast tissue, improving blood circulation, and promoting oxytocin release, which directly enhances milk flow and relieves physical discomforts such as engorgement.

Simultaneously, hypnolactation harnesses guided relaxation and positive suggestions to cultivate a calm mental state, directly targeting the neurological pathways that regulate lactation. By combining these two complementary techniques, the model ensures that the somatic mechanics of milk production are supported alongside the emotional well-being of the mother. The implementation of this dual-intervention model demonstrates that lactation massage extends beyond physical benefits by indirectly fostering a strong maternal commitment to exclusive breastfeeding. When paired with hypnolactation, the physical relief from massage works synergistically with mental relaxation to significantly reduce psychological barriers, particularly maternal anxiety and stress. By mitigating

these mental obstacles, mothers experience heightened confidence and self-efficacy in their nursing capabilities. Consequently, this holistic strategy effectively strengthens maternal motivation, empowering mothers to sustain exclusive breastfeeding for their infants over the long term (15).

Combining breast massage with oxytocin massage along the spine is significantly more effective at increasing breast milk production volume than relying on either intervention alone. By stimulating prolactin through direct breast manipulation and triggering the let-down reflex via spinal neural pathways, this dual approach delivers a synergistic effect that optimizes lactation outcomes. Consequently, incorporating this combined technique into national health promotion strategies represents a highly recommended, low-cost intervention to help achieve global and national exclusive breastfeeding targets (16).

Based on **Table 5** of the statistical test, there is a significant result of ($p = 0.0035$) which means that there is an effect of breast massage with the implementation of pregnant women's behavior to breastfeed the baby during 2 months after delivery their babies. Pregnant women who carry out breast massages hope that after giving birth they will provide good breast milk for their babies. Prenatal breastfeeding education plays a crucial role in significantly increasing women's knowledge and understanding of lactation prior to childbirth.

By providing expectant mothers with evidence-based guidance on proper latching techniques, the physiological benefits of breast milk, and strategies to overcome common nursing challenges, these educational programs build essential confidence and readiness. Consequently, well-informed mothers are better equipped to initiate early breastfeeding, establish a successful feeding routine, and sustain long-term nursing practices for the optimal health of both mother and child (17).

A significant result also showed between breast massage with baby nutritional status p value 0.0001, (see **Table 5**). Study showed that breast massage can increase the milk production which can give a baby good nutrition. Mothers who do not give exclusive breastfeeding make the baby have less nutrition. Meanwhile, according to Lestari, to be successful in breastfeeding is to provide support to mothers after giving birth in breastfeeding and support baby growth for better (9) (10). Breast milk is very supportive of baby's growth and development. Thus the need for breast care during pregnancy, at the birth of the baby and during breastfeeding to be able to support exclusive breastfeeding. Exclusive breastfeeding will have a good impact in the first 6 months of a baby's life. The importance of maternal nutrition before and during pregnancy to support the baby's good nutritional status (18). Nutrition during pregnancy is equally important for the baby's lactation process and has a good

impact on the baby's nutritional status. The limitation of this research is that no further monitoring of infants was carried out up to 6 months of age due to time constraints (19). This long-term follow-up is particularly important because continuous breastfeeding offers numerous benefits, including a diminished risk of ovarian and breast cancers, type 2 diabetes, and hypertension for mothers. For infants, sustained breastfeeding reduces the risk of infectious diseases, obesity, respiratory infections, and asthma (20).

CONCLUSION AND RECOMMENDATION

Breast massage was significantly influenced in supporting mothers to breastfeed and make a better baby's nutritional status. Breast massage should be implemented during pregnancy at 38 weeks to support the success of exclusive breastfeeding. The earlier preparation for breastfeeding during pregnancy, the sooner mothers can breastfeed their babies smoothly and better nutritional status. Health care professionals should provide early intervention to enhance mother capabilities like a breastfeeding education during pregnancy and breast massage to support the success of exclusive breastfeeding and prevent stunting.

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