



# Influence Oxytocin Massage on Reduce Lactation Problems and Support Infants Growth

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## Abstract

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**BACKGROUND:** Lactation problems often occur in the early postnatal period. One of them is the readiness of the mother in the early breastfeeding. Early breastfeeding is one of the effective efforts in providing nutrition for newborns and preventing lactation problems. In 2019, in Indonesia, the percentage of newborns who received early breastfeeding was 75.58%. The success rate of this is closely related to lactation readiness in the early postpartum. To support the success of lactation, postpartum mothers need to be given education on methods to stimulate milk production at the beginning of the puerperium with oxytocin massage. Good breast milk production will support the nutritional adequacy of the baby and reduce lactation problems in the early postpartum period.

**AIM:** The purpose of this study was to determine the effectiveness of oxytocin massage on lactation problems and infant growth.

**METHODS:** This study was pre-experimental research using post-test only design and true-experiment using post-test only control group design. The research locations were in the Mother and Child Health Clinic and Midwives Independent Practice (PMB) in Bantul, Sleman, and Gunung Kidul Yogyakarta. This research was conducted from April until september 2020. The population of this study was all the families of postpartum mothers from the 1<sup>st</sup> to the 3<sup>rd</sup> day and after 1 week an evaluation of breastfeeding. The sampling technique uses that total sampling was 80 postpartum mothers on the 1<sup>st</sup>–3<sup>rd</sup> day of childbirth until the baby was 2-months-old. The research instruments were the oxytocin massage checklist, lactation problems, and body length observation sheet.

**RESULTS:** The results of this study were that the majority of respondents performed oxytocin massage with a frequency more than 3 times (51%) the 1<sup>st</sup> week of postnatal, respondents experienced lactation problems in the 1<sup>st</sup> week of postnatal by 16.3% and at the 4<sup>th</sup> postnatal visit, all respondents had no lactation problems. The average increase in the length of the baby's body at the age of 2 months is 8.44. The majority of the baby's body length at the age of 2 months corresponds to age (98.8%). The results of bivariate analysis of oxytocin massage were effective in reducing lactation problems ( $p = 0.000$ ) and supporting infants' growth ( $p = 0.000$ ).

**CONCLUSION:** Oxytocin massage is effective in reducing lactation problems and supporting infants' growth. Oxytocin massage should be implemented in postnatal care to prevent lactation problems and support breastfeeding.

## Introduction

The early postnatal period often occurs with lactation problems. One of them is the readiness of mothers in the early breastfeeding. Early breastfeeding is one of the effective efforts in providing nutrition for newborns. One of the efforts to prevent infant mortality. Delaying administration within 2–23 h increases the risk of death by 1.3-fold, whereas a delay of 1 day or more can increase the risk of death more than 2-fold [1]. In 2019, in Indonesia, the percentage of newborns who received early breastfeeding was 75.58% [2]. The success rate of the early breastfeeding is closely related to lactation readiness in early postpartum. The success of the early breastfeeding in early postnatal was closely related to the process of milk production and smooth lactation. Early breastfeeding has proven to be very beneficial for both the baby and the mother. For babies, the early breastfeeding has advantages such as babies who

are not fussy, babies are not susceptible to diarrhea or diseases caused by viruses or bacteria. This is following the extraordinary content of breast milk, especially in the first breast milk, namely, colostrum. According to Pasaribu and Hutasoit research, colostrum is known to have many benefits for antibodies in infants [3].

To support the success of lactation, postnatal mothers need to be given education on methods to stimulate milk production in the early postnatal period through oxytocin massage. Oxytocin massage is effective against increasing milk production. Based on Husanah and Juliarti's research (2019), oxytocin massage has a significant effect on the onset of breast milk, the milk production of postnatal mothers who have been massaged increases by 40–50%, after pumping [4]. This massage is effective at the beginning of the puerperium by involving the mother's companion during the puerperium. This is following Doko *et al.*'s 2019 research that husbands play an

important role in oxytocin massage which affects breast milk production [5].

This oxytocin massage stimulates the hormones oxytocin and prolactin to produce breast milk. Sufficient milk production will make it easier for babies to get adequate nutrition. Adequate nutrition in infants will affect the growth of infants and infant development. The results of Cerasani *et al.*'s research (2020) based on a review of the literature on breastfeeding have a great influence on the recovery of metabolism and development of the nervous system in premature babies [6]. Breast milk is beneficial for weight gain and body length according to the baby's age. In addition, breastfeeding can prevent stunting in infants.

Sufficient milk production will strengthen the mother in the lactation process, eliminating the mother's perception of the baby being malnourished due to insufficient breast milk. The impact of the mother's perception of the adequacy of breastfeeding will affect the pattern of breastfeeding by the mother. Postnatal mothers with abundant milk production will make mothers confident when giving breast milk to their babies. This is indirectly related to efforts to prevent lactation problems for mothers including breast milk dams, lack of milk production, and sore nipples. Good breast milk production will support the nutritional adequacy of infants and reduce lactation problems in the early postpartum.

## Methods

The type of pre-experimental research was the post-test only design method, namely, providing education about oxytocin massage for the family of postpartum mothers; then, a post-test was carried out on the families of postpartum mothers who did oxytocin massage or not. Moreover, true-experiment using post-test only control group design, which is to compare the families of postpartum mothers who did oxytocin massage with those who do not on infant growth and lactation problems in postpartum mothers. The baby's growth was measured based on the length of the newborn's body (Standard 50 cm) (pre-test) and the length of the baby's body at the age of 2 months (post-test). Lactation problems were measured based on maternal complaints during the 1<sup>st</sup> week of postpartum (pre-test) and the 4<sup>th</sup> postpartum visit (29–42 days postpartum (post-test)). The research location was at the Mother and Child Health Clinic and Midwives Independent Practice in Bantul, Sleman, and Gunung Kidul Yogyakarta. The time of implementation is April until September 2020. The population in this study is the entire family of postpartum mothers from the 1<sup>st</sup> day to the 3<sup>rd</sup> day with a total of 80 respondents. The sampling technique is total sampling. The research

sample is 80 respondents of postpartum mothers on the 1<sup>st</sup> day of the third postpartum followed by the baby aged 2 months. The research instrument is an oxytocin massage checklist and an observation sheet for the length of the baby's body, and lactation problems in mothers. The Collected data was analyzed by using bivariate analysis test with Wilcoxon-test to analyze the influence of oxytocin massage to lactation problem and infants growth. This study protocol was conducted in accordance with the declaration of Helsinki and obtained research approval and feasibility from the Ethical Committee of Alma Ata University (KE/AA/III/10129a/EC/2020).

## Results

Table 1 shows that the respondents of the group with health reproduction category consisted 88.75%, while the unhealthy persons are 11.25%. A percentage of 78.75% of participants have high education. Then, 21.25% of participants have low education.

**Table 1: Characteristics of respondents**

Characteristics	Frequency (n)	%
Implementation of oxytocin massage		
No	39	49
Yes	41	51
Oxytocin massage companion		
Husband	73	91.3
Mother	2	2.5
Mother in law	1	1.2
Sister	4	5
Education		
Low education	17	21.25
High education	63	78.75
Age		
Health reproductive	9	11.25
Unhealthy reproductive	71	88.75
Parity		
Primipara	33	41.2
Multipara	47	58.8

Based on the results of the study, 80 respondents were willing to be educated on oxytocin massage techniques. After the 3<sup>rd</sup> day of postpartum, only 59% of respondents did oxytocin massage with the assistance of their husband, which were 91.3%. During the service quality of the 1<sup>st</sup>-week childbirth, an examination of the lactation problems experienced by the mother and anthropometric measurements of the neonate was carried out. The research results are presented in Tables 2-4.

**Table 2: Distribution frequency of the baby's body length**

Variable	Newborn		Two-month-old	
	n	%	n	%
Baby's body length				
Does not meet standards	3	3.75	1	1.3
Normally	77	96.25	79	98.7

Source: Primary data 2020.

Table 2 shows the body lengths growth, respondents show the significant length growth in the second month of age, which were 98.7%

**Table 3: Distribution frequency of the lactation problems in respondents**

Lactation problems	First of childbirth service quality		Fourth of childbirth service quality	
	n	%	n	%
Yes	13	16.25	0	0
No	67	83.75	80	100

Source: Primary data 2020.

Lactation problems in respondents are by Table 3 that there are 16.25% of respondents experiencing lactation problems at the beginning of the postnatal week and on fourth of childbirth service quality after parturition (puerperal days 29–42); all respondents have not experienced lactation problems.

Table 4 shows that the lactation problems in respondents that occurred in the 1<sup>st</sup> week were 16.25% included low production and engorgement.

**Table 4: Types of lactation problems in respondents**

Type of lactation problems	1–7 <sup>th</sup> postnatal days		8–28 <sup>th</sup> postnatal days		29–42 <sup>th</sup> Postnatal days	
	N	%	f	%	f	%
Low production	10	12.5	2	2.5	0	0
Engorgement	3	3.75	7	8.75	0	0
Normally	67	83.75	71	88.75	80	100

Source: Primary data 2020.

Based on Table 5, the results of the bivariate analysis showed that there was a significant difference in mothers who were given oxytocin massage on lactation problems in the 1<sup>st</sup> week and service quality of the fourth childbirth ( $p = 0.000$ ). The results showed that there were 13 respondents in the 1<sup>st</sup> week of the puerperium experiencing lactation problems including low breast milk and engorgement. The intervention that could be given in this 1<sup>st</sup> week was oxytocin massage by the postnatal mother family members. In the bivariate analysis of oxytocin massage on infant growth measured from the length of the baby's body based on age, that there was a significant difference in the body length of babies aged 2 months ( $p = 0.000$ ). Based on the result showed that Oxytocin Massage by The Postnatal mother family can provide to support the infants growth.

**Table 5: Oxytocin massage against lactation problems in postpartum mothers and baby's body length**

Test statistics <sup>a</sup>	Lactation problems 29 <sup>th</sup> –42 <sup>nd</sup> day – lactation problems 1 <sup>st</sup> –7 <sup>th</sup> day	Baby's body length 2 months - new born baby's body length
Z	-8.185 <sup>b</sup>	-7.784 <sup>c</sup>
Asymp. Sig. (2-tailed)	0.000	0.000

<sup>a</sup>Wilcoxon Signed Ranks Test, <sup>b</sup>Based on negative ranks, <sup>c</sup>Based on positive ranks.

## Discussion

The postpartum period is a transition period for the new role of the mother. At this time, the mother must be able to provide care for the baby and provide adequate nutrition for the baby. One of the efforts to support

the provision of nutrition to infants was necessary to prepare for lactation since pregnancy. Breast massage during pregnancy provides great benefits for milk production. Physiologically lactation, massage on the breast will accelerate blood circulation and break down the mammary glands that settle in the milk ducts [7]. Breast milk is the first and foremost nutrition for babies and has many benefits. The composition of breast milk is very complete. Especially colostrum which is the first milk that comes out of the mother's breast. Colostrum contains a lot of antibodies that are very useful in the baby's self-defense against infections that often occur in newborns. Based on the results of Pasaribu and Hutasoit's, research (2021) colostrum can increase the baby's immune system [3].

The problem of lactation at the beginning of the puerperium is a problem that has an impact on breast milk production. The results of this study indicate that there were 16.5% of respondents experienced lactation problems including low breast milk (12%) and engorgement (4.5%). The results of this study were conducted with the Feenstra *et al.* research (2018), where 40% of mothers have experienced the early breastfeeding problems. The most prominent problems were the inability of the baby to suckle (40%) and the mother's experience was irritated, sore, and cracked nipples (38%). Pain is common when experiencing breastfeeding problems [8]. The problems of postpartum mothers in the 1<sup>st</sup> days after birth include colostrum was not come out, and breast milk being low. The mother's level of knowledge about colostrum was very influential on the motivation to give colostrum [9]. The previous study by Rawat *et al.* (2018) show that one causes of the breastfeeding process failure especially in 1<sup>st</sup> week of post birthing was the difficulty to latch while breastfeeding and feel that breast milk was low production.

Based on the Table 3 and 4, found were in the 1<sup>st</sup> week of postpartum mothers experienced lactation problems that influence were caused by the mother's role transition period, inexperience in lactation, un-supported family, and mother's self-perception about milk production and this is accordance from the characteristics of respondent paritas that the majority of respondent was a primiparous. Feenstra *et al.* (2018) stated that the factors related to lactation problems include primiparity, lower self-efficacy, and lower self-perceived knowledge about breastfeeding [8].

Breast milk production in postpartum mothers was influenced by the lactation hormonal function. One technique to stimulate the production of the hormones oxytocin and prolactin was through oxytocin massage. Oxytocin massage was the provision of massage as a relaxation treatment that aims to stimulate the hormone oxytocin. Oxytocin hormone was one of the hormones that influence the production of breast milk. The massage serves to increase milk production.

The results of the univariate analysis (Table 4), respondents were given oxytocin massage, and

when the service quality of the fourth childbirth all respondents did not experience lactation problems. Nugraheni and Heryati's, 2016, showed that the results of the SPEOS (Stimulating Massage Endorphin, Oxytocin, and Suggestive) method affected breast milk production [11]. Another research by Hadianti and Resmana's stated mothers with post-SC experience and given oxytocin massage were 7 times more likely to expel colostrum on the first postpartum day [12]. Sihotang *et al.*'s study found that there was a significant difference in postpartum mothers who were given breast massage and oxytocin massage on breast milk production [13]. Low milk production in the 1<sup>st</sup> week of the puerperium determines the fulfillment of the baby's milk intake. Breast milk intake in the 1<sup>st</sup> week of the puerperium is one indicator of the fulfillment of the baby's nutritional needs.

Lactation problems for respondents at the beginning of the puerperium that includes engorgement were one of the problems that often occur in postpartum mothers due to the lack of smooth release of breast milk. To help overcome the breast milk dam, one of the relaxation techniques was used oxytocin massage ( $p = 0.000$ ). The results of this study are in line with Jama and Suhermi's research (2019) that all postpartum mothers after doing Oketani massage therapy experienced changes in breast milk dams. The results of the t-test analysis obtained  $p = 0.000$  [14].

Increased milk production was one of the results of the absence of lactation problems in postpartum mothers. Postpartum mothers who are free from lactation problems will feel comfortable and support exclusive breastfeeding for their babies. In addition to this, abundant milk production is a sign that postpartum mothers are protected from breast milk dams. Breast milk is the main nutrition for babies until at least 6 months. Sufficient breast milk will provide good benefits for increasing the baby's weight and baby's length. There is an increase in the baby's weight and length as an indicator of a healthy baby's growth. Lestari *et al.* (2021) oxytocin massage was very effective in increasing the baby's weight ( $p = 0.009$ ) [15]. Dewi 2018 showed that there was an effect of the frequency of oxytocin massage on postpartum mothers on a significant increase in baby weight  $p = 0.00$  ( $p < 0.05$ ), where the largest increase in baby weight was found in the oxytocin massage group 3 times a day [16].

The results of this study were that there were three babies whose body length at birth did not match the standard. The length of the baby's body is an indicator to measure the growth of the baby. One of the factors that are not suitable for the growth of infants is the adequacy of breast milk. Breast milk production is closely related to the work of the hormones oxytocin and prolactin. To increase the work of these hormones, stimulation is given through oxytocin massage. The results of this study are based on Table 5 results of bivariate analysis that oxytocin massage affects the

increase in body length of infants at the age of 2 months with a significance value of  $p = 0.000$ . Devriany *et al.* 2018 that the average change in body length of neonates who are exclusively breastfed for 1 month is 10.87 cm greater than non-exclusive breastfeeding which is only 8.53 cm [17]. In contrast to Nisa *et al.*'s research (2020) that, there is no relationship between breastfeeding frequency and duration of breastfeeding with infant growth [18].

Babies who are breastfed for a longer time will get all the nutritional content of breast milk. If at that time the baby gets the appropriate nutritional intake, then, the growth and development will be optimal. These results are supported by Amanda's research, that there is a relationship between the length of breastfeeding and the nutritional status of children <2 years old [19].

A significant increase in body length was closely related to the adequacy of nutrition obtained by the baby, which is none other than breast milk. This is one of the efforts to prevent stunting. Efforts to prevent stunting in infants can start from pregnancy and preparation for lactation from the beginning of the puerperium. Therefore, it is important to give oxytocin massage to postpartum mothers as an intervention to increase breast milk production which is beneficial for the growth of neonates.

## Conclusion

Oxytocin massage was influenced in reducing lactation problems and supporting an infant's growth. Oxytocin massage should be implemented in postnatal care to prevent lactation problems and support breastfeeding.

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