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Original Research

The Effect of Oxytocin Massage on Breast Milk Production for Breastfeeding Mothers

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Abstract
Breast milk (ASI) is the best source of nutrition for infants as it contains all the essential nutrients in the right amount and balance. Additionally, breast milk contains antibodies that help protect infants from various infections. One of the common challenges faced by mothers in breastfeeding is insufficient milk production. A method that can be used to enhance breast milk production is oxytocin massage. This study aims to analyze the effect of oxytocin massage on breast milk production in breastfeeding mothers at the Kabilobe Health Center from November 21–29, 2024. The study involved 16 respondents who were observed before and after the intervention using an observation sheet. This research employed a quantitative approach with a pre-experimental design and a one-group pretest-posttest method. Data analysis was performed using the Wilcoxon statistical test, which revealed a Z-score for infant feeding frequency of -3.573a with a p-value of 0.000, and a Z-score for infant urination frequency of -3.547a with a p-value of 0.000 (p<0.05). These results indicate that oxytocin massage significantly influences breast milk production in breastfeeding mothers. Thus, the findings of this study can serve as a recommendation for healthcare professionals to educate breastfeeding mothers on methods to enhance breast milk production through oxytocin massage.

1. Introduction

Breast Milk (ASI) is an emulsion of fat in a solution of proteins, lactose, and inorganic salts produced by the mammary glands of the mother and functions as the primary source of nutrition for infants. Exclusive breastfeeding refers to the provision of breast milk without any additional food or drink to infants from birth until six months of age, including plain water. Adequate breast milk serves as the best source of nutrition for infants and meets their nutritional needs during the first six months of life. As the first and primary natural food, breast milk plays a vital role in supporting optimal infant growth and development (Walyani, 2015).

Scientifically, breast milk has been proven to be the ideal food for infants. It is considered the best nutrition because it contains all the necessary nutrients in the correct amounts and proportions. Additionally, breast milk contains antibodies that protect infants from various infections (Widuri, 2013). According to data from the Center for Data and Information of the Ministry of Health of the Republic of Indonesia in 2014, maintaining smooth breast milk production is crucial for meeting the needs of infants. Breast milk is the best and most ideal food for infants because it contains immune-boosting substances that prevent diarrhea, reduce the risk of ear infections, and lower the chances of infants developing coughs, colds, and allergies.

Optimal breastfeeding has a significant impact on saving the lives of more than 800,000

children under five years old each year. One of the ways to maintain breast milk production is by breastfeeding the baby regularly. WHO and UNICEF recommend early initiation of breastfeeding within the first hour after birth. If an infant is given formula milk, the likelihood of returning to exclusive breastfeeding becomes more difficult as breast milk production may decrease (WHO, 2016). In Indonesia, the proportion of infants aged 0-5 months who receive exclusive breastfeeding is only 37.3%, far from the national target of 80% for exclusive breastfeeding (Riskesdas, 2018).

In Riau Province, in 2016, the percentage of infants receiving exclusive breastfeeding was 56.2%, a decrease compared to 68.8% in 2015. Of the 12 districts/cities in Riau Province, only Rokan Hilir District met the target with a coverage rate of 81.57%. In Pekanbaru City, efforts to improve infant and toddler growth and reduce morbidity and mortality were carried out through preventive actions, one of which is exclusive breastfeeding. In 2015, 13,656 infants (71.26%) out of a total of 19,164 infants aged 0-6 months received exclusive breastfeeding. However, this number decreased to 8,445 infants (50.67%) out of 16,666 infants in 2016. This significant decline indicates the need for further efforts to increase awareness of the importance of exclusive breastfeeding (Pekanbaru City Health Office, 2016).

Lactation or breastfeeding has two main aspects: breast milk production, which is influenced by the hormone prolactin, and milk ejection, which is influenced by the hormone oxytocin. During pregnancy, the level of the hormone prolactin produced by the placenta increases, but milk production does not occur due to the high levels of estrogen. After delivery, the levels of estrogen and progesterone decrease by the second or third day, triggering breast milk secretion. When the baby breastfeeds, rhythmic sucking stimulates nerves in the posterior pituitary gland, which then releases the hormone oxytocin. This hormone causes the contraction of myoepithelial cells around the alveoli, allowing milk to be ejected into the ampullary ducts and ready for release (Yanti & Sundawati, 2011).

Breastfeeding is often referred to as early initiation of breastfeeding, where breast milk production begins after the placenta is expelled from the mother's body. The placenta contains hormones that inhibit the action of prolactin, which is involved in milk formation. After the placenta is expelled, the production of these hormones stops, and milk production can begin. Typically, milk begins to flow 2-3 days after delivery. However, before milk is produced, the breast produces colostrum, which is rich in nutrients and antibodies beneficial for the infant. Despite this, some mothers experience difficulties in breastfeeding, particularly related to insufficient breast milk production (Soleha, 2009).

In practice, many mothers face challenges in providing breast milk immediately after birth due to the small amount of milk produced in the initial days. Insufficient milk production and ejection can occur due to inadequate stimulation of the hormones prolactin and oxytocin, which play a vital role in the smooth production and release of breast milk (Bobak, 2012). Several methods can be applied to help improve milk production, such as breast care, involving the father in the breastfeeding process (breastfeeding father), and oxytocin massage. Oxytocin massage is a technique of stimulation aimed at accelerating milk production and ejection. This massage is performed by family members, especially the husband, by massaging the mother's back to enhance oxytocin hormone production (Widuri, 2013).

Oxytocin is often called the "love hormone" because about 80% of its production is influenced by the mother's psychological condition. Positive thoughts can enhance the release of this hormone, while stress or negative
thoughts can inhibit it. Massaging the mother's back plays a role in creating a sense of comfort, which indirectly also positively impacts the baby. When the mother feels relaxed, the baby will also be more comfortable while breastfeeding (Widuri, 2013).

A study conducted by Putri (2017) on the effect of oxytocin massage on breast milk production in postpartum mothers involved 30 respondents divided into two groups. Of the 15 mothers who received oxytocin massage, 86.7% had sufficient breast milk production, while 13.3% had insufficient milk production. On the other hand, in the 15 mothers who did not receive the massage, only 46.7% had sufficient milk production, while 53.3% had insufficient milk production. These results indicate that oxytocin massage significantly influences increased breast milk production in postpartum mothers at the Sei Langkai Health Center in 2017.

Based on a preliminary survey, the exclusive breastfeeding rate in the working area of the Kabilobe Outpatient Health Center is still relatively low. In 2018, there were 171 births, and 157

infants received early initiation of breastfeeding (IMD). However, only 63 infants (38.6%) received exclusive breastfeeding for six full months. This indicates that the exclusive breastfeeding rate still needs improvement. Additionally, interviews conducted with 10 postpartum mothers in the Kabilobe Health Center area on November 22, 2024, revealed that six mothers experienced stress after childbirth and complained about insufficient breast milk production, which impacted their ability to provide breast milk to their infants..

2. Research Method

This study is a quantitative research with a pre-experimental design, using a one-group pretest-posttest method and paired t-test analysis. The paired t-test is used to analyze the differences between two measurements within a single group, specifically before and after the intervention. This research was conducted from November 21 to 29, 2024, in the working area of the Kabilobe Health Center.

The population of this study includes all breastfeeding mothers in the working area of the Kabilobe Outpatient Health Center. The sampling technique used was purposive sampling, where 16 respondents were selected and given an intervention in the form of oxytocin massage. Data collection was carried out in two stages. In the first stage, the researcher selected respondents based on predefined inclusion criteria, explained the purpose of the study, and obtained the respondents' consent by having them sign a consent form. The respondents were also asked to fill out demographic data, including initials, age, address, parity, occupation, and last level of education.

In the second stage, initial observation (pretest) was conducted on the breastfeeding mothers using the prepared observation sheet. Afterward, the oxytocin massage intervention was provided for three consecutive days. On the fourth day, the researcher conducted a follow-up observation (posttest) on the group that received the intervention. The results of the observations were then recorded on the observation sheet.

In this study, univariate analysis was performed to see the distribution of data regarding the effect of oxytocin massage on breast milk production. Meanwhile, bivariate analysis using T-Dependent statistical tests was used to examine the difference in breast milk production before and after the oxytocin massage intervention.

3. Results and Discussion

Univariate Analysis:

Breast Milk Production Based on Baby's Frequency of Breastfeeding Before Oxytocin Massage:
Before the oxytocin massage, all 16 respondents (100%) had a frequency of breastfeeding their baby <8-12 times per day (which is considered inadequate).

Breast Milk Production Based on Baby's Frequency of Urination Before Oxytocin Massage:
Before the oxytocin massage, all 16 respondents (100%) had a frequency of their baby's urination <6-8 times per day (which is considered inadequate).

Breast Milk Production Based on Baby's Frequency of Breastfeeding After Oxytocin Massage:
After receiving the oxytocin massage, 9 out of 16 respondents (56.2%) had a frequency of breastfeeding their baby ≥8-12 times per day (which is considered good), while 7 respondents (43.8%) still had a frequency of breastfeeding their baby <8-12 times per day (which is considered inadequate).

Breast Milk Production Based on Baby's Frequency of Urination After Oxytocin Massage:
After receiving the oxytocin massage, 9 out of 16 respondents (56.2%) had a frequency of their baby's urination ≥6-8 times per day (which is considered good), while 7 respondents (43.8%) still had a frequency of urination <6-8 times per day (which is considered inadequate).

Bivariate Analysis:

Wilcoxon Statistical Test Results on the Effect of Oxytocin Massage on Breast Milk Production of Breastfeeding Mothers in the Working Area of Kabilobe Health Center.

Table 1. Analisa Univariate

Variabel		N	Mean	SD	Z	*p*-value
Menyusu	Pre test	16	5.75	1.183	-3.573[a]	.000
	Post test	16	7.94	1.6111		
BAK	Pre test	16	4.06	.772	-3.547[a]	.000
	Post test	16	6.31	1.537		

The statistical test results using the Wilcoxon test showed that the average frequency of breastfeeding before the oxytocin massage (pretest) was 5.75 times per day, while after the massage (posttest) it increased to 7.94 times per day. This increase represents an average rise of 2.19 times per day after the oxytocin massage intervention. Similarly, the frequency of the baby's urination showed an average of 4.06 times per day before the massage, which increased to 6.31 times per day after the intervention, with an average increase of 2.25 times per day.

The Wilcoxon test results revealed a Z-value of -3.573a for the breastfeeding frequency, with a p-value of 0.000 at α 5%. For the frequency of urination, the Z-value was -3.547a, with a p-value of 0.000 at α 5%. Since the p-value is smaller than α ($p < 0.05$), it can be concluded that oxytocin massage significantly affects the increase in breast milk production among breastfeeding mothers in the Kabilobe Health Center working area.

This study used bivariate analysis with the Wilcoxon statistical test due to the non-normal distribution of data. The Wilcoxon test is used to compare two measurements from the same sample to determine whether there is a significant change due to the intervention (Hidayat, 2014).

The study involved giving oxytocin massage for 10-15 minutes over 3 consecutive days to breastfeeding mothers experiencing low milk production. Theoretically, oxytocin massage stimulates the production of oxytocin by the posterior pituitary, which is released into the bloodstream and causes contractions of the muscles around the alveoli of the breast, allowing milk to flow out (Ariani, 2009).

Before the oxytocin massage intervention, interviews revealed that many respondents complained of low milk production, which hindered breastfeeding. Some respondents had tried warm compresses to increase milk production. After the oxytocin massage, most respondents reported feeling more comfortable and relaxed, which supports Widuri's (2013) theory that the effect of oxytocin is greatly influenced by the mother's emotional state. When a mother feels calm and comfortable, the breastfeeding process runs more smoothly, while stress can inhibit the milk ejection reflex.

The researcher assumes that oxytocin massage helps improve milk production by providing comfort to the mother, which in turn makes the baby more comfortable and able to breastfeed more effectively. The massage is performed with the mother sitting forward, with her arms folded on a table and her head resting on her hands. The researcher massages the mother's back using upward strokes from the lower back to the scapula.

The theory supporting this research, according to Widuri (2013), states that oxytocin is called the "love hormone" because 80% of its production is influenced by the mother's thoughts. Positive thoughts will promote the release of this hormone. Suherni, Widyasih, and Rahmawati (2009) explain that oxytocin massage stimulates the parasympathetic nerves, which send signals to the brain to promote the production of oxytocin, facilitating milk release.

The research results showed that 9 out of 16 respondents experienced improved milk production after receiving the oxytocin massage, while 7 respondents did not. Interviews with respondents who had successful milk production improvements indicated that family support, especially from the husband who helped with the oxytocin massage at home, played a significant role. The Wilcoxon statistical test showed p-values of 0.000 for both the frequency of breastfeeding and the frequency of urination, indicating a significant effect of oxytocin massage on milk production.

A similar study by Putri (2017) showed consistent results, where the group receiving oxytocin massage had higher milk production than the control group. The Chi-Square statistical

test yielded a p-value of 0.020 ($p < 0.05$), which indicates that oxytocin massage has a significant effect on milk production in postpartum mothers.

In conclusion, oxytocin massage is an effective, safe, and easy method to improve milk production, which can be performed by the mother or family members, both medical and non-medical personnel.

4. Conclusion

Before the oxytocin massage, all respondents (100%) breastfed their babies less than 8-12 times a day, and the average frequency of the baby's urination was less than 6-8 times a day. After the oxytocin massage, 9 respondents (56.2%) breastfed their babies 8- 12 times a day, and 9 respondents (56.2%) also showed an increase in the frequency of the baby's urination to 6-8 times a day. The Wilcoxon test results showed a p-value of 0.000 for both breastfeeding frequency and urination frequency, indicating a significant effect of the oxytocin massage on breast milk production in breastfeeding mothers in the Kabilabe Health Center working area.

References

Ariani. (2009). Ibu, Susui Aku. Bandung: Khazanah Intelektual.

Astutik, R. Y. (2015). Asuhan kebidanan masa nifas dan menyusui. Jakarta: TIM.

Bobak, I. M., Lowdermilk, D. L., & Jensen, M. D. (2012). Buku Ajar Keperawatan Maternitas. Jakarta: EGC.

Dinas Kesehatan Provinsi Riau. (2016). Profil Kesehatan Provinsi Riau 2016. Pekanbaru: Dinas Kesehatan Provinsi Riau. Donsu, J. D. T. D. (2016). Metodologi Penelitian Keperawatan. Yogyakarta: Pustaka Baru Press.

Hidayat, A. Azizul Alimul. (2010). Metode Penelitian Kebidanan dan Teknik Analisis Data. Jakarta: Salemba Medika.

Janiwarty, B., & Pieter, H. Z. (2013). Pendidikan Psikologi untuk Bidan, Suatu Teori dan Penerapannya. Yogyakarta: Rapha Publishing.

Kemenkes RI. (2018). Riset Kesehatan Dasar 2018. Indonesia: Jakarta.

Manuaba, I.B.G., Chandra, M.I.A., Fajar, M.I.B.G. (2010). Pengantar Kuliah Obstretri. Jakarta: EGC. Maryunani, Anik. (2009). Asuhan pada Ibu Dalam Masa Nifas. Jakarta: CV. Trans Info Media.

Notoatmodjo. S. (2012). Metodologi Penelitian Kesehatan. Jakarta: Rineka Cipta.

Nursalam, Pariani. (2011). Konsep dan Penerapan Metodologi Penelitian Ilmu Keperawatan Edisi 2. Jakarta: Salemba Medika. Pusat Data dan Informasi Kementerian Kesehatan RI. (2014). Situasi dan Analisis ASI Eksklusif. Indonesia: Jakarta.

Putri, Y. D. (2017). Pengaruh Pijat Oksitosin Terhadap Produksi ASI Ibu Post Partum Kota Batam. Jurnal Kesehatan STIKes Mitra Bunda Persada, Vol. 10, No. 1 Januari 2018.

Roesli, Utami. (2012). Panduan Konseling Menyusui. Jakarta: Pustaka Bunda. Saleha, S. (2009). Asuhan Kebidanan pada Masa Nifas. Jakarta: Salemba Medika. Setiadi. (2013). Konsep dan Penulisan Riset Keperawatan. Yogyakarta: Graha Ilmu.

Sugiyono, Prof, Dr. (2011). Metode Penelitian Kuantitatif, Kualitatif, dan R & D. Bandung: CV Alfabeta. Suherni, Widyasih, H. & Rahmawati, A. (2009). Perawatan masa nifas. Yogyakarta: Fitramaya.

Walyani, Elisabeth Siwi. (2015). Perawatan Kehamilan dan Menyusui Anak Pertama Agar Bayi Lahir Dan Tumbuh Sehat.

Yogyakarta: Pustaka Baru Press.

WHO. (2016). Infant and Young Child Feeding. English. Retrieved on December 22, 2024.

Widuri, Hesti. (2013). Cara Mengelola Asi Ekslusif Bagi Ibu Bekerja. Yogyakarta: Gosyen Publishing. Yanti, D., & Sundawati, D. (2011). Asuhan Kebidanan Masa Nifas. Bandung: PT Refika Aditama.