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Effectiveness of Combining Oketani and Oxytocin Massage on The Breastmilk Production

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Abstract

Background: *The percentage of exclusive breastfeeding for babies aged 0-5 months was 71.58% in 2021. This figure is still below the target of 80%. Meanwhile, the coverage of exclusive breastfeeding in West Java was recorded at 77.00% in 2022. Breastfeeding revolves around two mechanisms, namely, production and release.*

Objective: *To determine the effect of the combination of oketani massage and oxytocin massage on breastmilk production in postpartum mothers.*

Methods: *This research was conducted from July to November 2022 at the L TPMB. This study utilized a quantitative approach with a quasi-experimental design using a pre and post-test with a control design. The sample consisted of 100 respondents divided into experimental and control groups. In this case, the intervention was given to the experimental group in the form of oxytocin massage and oketani massage 1 to 2 times a day for 3 days for 3-5 minutes. Meanwhile, the control group was only given oxytocin massage treatment. The instrument used in this study was the Observation Sheet Procedure to identify the breastmilk production in postpartum mothers on day 1 and was measured again on day 7 through the smooth release of breastmilk. In addition, the instrument was made by the researcher according to Standard Operation Procedures. The analysis used was the man Whitney test.*

Result: *Oketani massage could be performed as an independent and routine prophylactic intervention.*

Conclusion: *The combination of oketani massage and oxytocin massage had a significant effect on breastmilk adequacy.*

Keywords*: breast milk; oxytocin massage; oketani massage*

INTRODUCTION

Breastmilk is an essential source of nutrition whose production and adequacy require more significant concern from prospective mothers. Mother's own milk is the best source of nutrition for nearly all infants (Daud et al., 2020). To ensure the provision of breastmilk, the Indonesian government officially enacted a regulation, namely Government Regulation Number 33 of 2012, which contains a statement that newborns have the right to breastfeeding without the addition of other foodstuffs (excluding drugs, minerals, and vitamins) until the baby reaches the age of six months or is referred to as exclusive breastfeeding (Farida & Ismiakriatin, 2022). In Asian countries such as India, 45% of newborns receive breastfeeding within 1

hour of birth, and 65% of infants are exclusively breastfed for the first 6 months (Afroze et al., 2021). In the Philippines, the prevalence of exclusive breastfeeding in the Philippines was 27%, which is much lower than the global average of 40% (Ulep et al., 2021). Furthermore, the exclusive breastfeeding rate of Vietnam and Myanmar have reached 46%, 34%, 27%, and 24%, respectively, while Indonesia has reached 54.3%. According to the World Health Organization (WHO), in 2017, the average rate of exclusive breastfeeding worldwide was only around 48% (Bhattacharjee et al., 2019). In this case, there are many methods for improving breastmilk internationally, such as massage (Loretta et al., 2019), acupressure (Hannan et al., 2023), galactagogues (Asztalos & Kiss, 2022), ginger (Sassanarakkit et al., 2019), and fenugreek herbal tea (Ravi & Joseph, 2020). Breastfeeding revolves around two mechanisms, namely, production and release. Breastmilk production is influenced by the prolactin hormone, while the release is influenced by oxytocin (Hafid, 2019).

Oketani massage movement and breast care are beneficial in facilitating the milk discharge reflex, increasing the volume of breast milk, and preventing accumulation in the breasts (Mahdizadeh-Shahri et al., 2021). Oketani massage is a painless breast care method that can stimulate pectoralis muscle strength to increase milk production. It softens the breasts and makes them more elastic. It also can provide comfort and relieve pain in postpartum mothers, make the areola and nipples more elastic, and make it easier for the baby to suckle (Alatalo et al., 2019). This massage makes the milk flow smoother due to pressure on the alveoli (Faulkner, 2019). In reality, inadequate milk production in the first few days after giving birth hinders breastfeeding as early as possible. Whereas breastmilk plays a role in cognitive, sensory, and motoric development as well as protecting against infection and chronic disease (Barría, 2022). Breastmilk production is influenced by hormonal factors, food intake, and maternal psychological conditions (stress) (Grzeskowiak et al., 2019).
Research has shown that oketani massage effectively addresses breast problems such as low breastmilk supply, retention, and inverted nipples (Sweet & Vasilevski, 2022).

The novelty of this research was combining two methods to facilitate breastmilk production.

METHOD

This research was conducted from July to November 2022 at the Lusiawati Tangerang Midwife Practice Center. This study utilized a quantitative approach with a quasi-experimental design using pre and post-tests with a control design. The sample consisted of 100 respondents divided into experimental and control groups. The inclusion criteria in this study were postpartum mothers on days 1-7 who were willing to be given a combination massage of oketani and oxytocin and experienced milk production problems. The intervention was given to the experimental group in the form of oxytocin massage and oketani massage 1 to 2 times a day for 3 days for 3-5 minutes, while the control group was only given oxytocin massage treatment. The instrument used in this study was the Observation Sheet Procedure to identify the milk production in postpartum mothers on day 1 and measured again on day 7 through the baby's weight gain. The researcher adopted several breast care books and a book on Oketani massage entitled Breastfeeding and Human Lactation (Karen & Spencer, 2021) and Oketani's breast massage therapy (Usnawati et al., 2021) to compile Standard Operational Procedures before carrying out the intervention. Meanwhile, the analysis used was the man Whitney test. This research passed the ethical test with number 069/EC/KEPK_STIKES_KENDAL/XI/2022. The analysis method used was the Mann-Whitney test.

RESULT

(see table 1)

Based on table 1, the majority of respondents were in the age range of 20-35 years old by 76 respondents (76%) and were in the multipara category by 58 respondents (58%).

(see table 2)
Based on table 2, the average milk production in the experimental group before treatment was 10.34 with a standard deviation of 1.697. Meanwhile, after the treatment was provided, the average milk production was 3.96, with a standard deviation of 0.879. Based on the results of statistical tests, a p-

value of 0.000 was obtained, indicating an effect of giving oketani massage and oxytocin massage on breastmilk production. In this case, the average milk production in the control group (only received oxytocin massage) on the first day was 10.76, with a standard deviation of 1.27. On the seventh day, the average milk production was 5.18, with a standard deviation of 0.179. Based on the results of statistical tests, a p-value of 0.000 was obtained, indicating an effect of giving oxytocin massage on breast milk production.

(see table 3)

Based on table 3 using the Mann-Whitney statistical test, the posttest comparison of the experimental and control groups obtained a p-value of 0.000, indicating a difference in the effect of giving oketani massage and oxytocin compared to the group receiving oxytocin massage without oketani massage.

DISCUSSION

Frequency distribution of characteristics of postpartum mothers on day 1-7

The descriptive statistic results of the means and standard deviation of breastmilk adequacy between the measurements before (pre) and after the intervention of combined oketani and oxytocin massage showed a mean difference in the pretest and posttest of the intervention groups.

The age of 20-35 is the age of healthy reproduction, the optimal time for women to conceive as their reproductive organs are ready and mature (Liang et al., 2021). Similarly, at these ages, women are psychologically ready for the growth and development of the fetus in the womb. The age of 35 is considered a high risk for congenital abnormalities and complications during pregnancy and childbirth (Zhang et al., 2020). Age above 35 is associated with reduced power resistance and various common diseases. In this case, studies have found that women of AMA (Advanced maternal age) have an increased risk for obstetric complications and adverse perinatal outcomes, including gestational diabetes mellitus (GDM), hypertensive disorders, preeclampsia, perinatal congenital disabilities, stillbirth and preterm birth (Khalil et al., 2013). In addition, the maternal age of above 35 years old was also associated with a 65% increased risk of stillbirth, with a higher relative risk at 40 years old. This risk becomes most notable after 37 weeks of gestation (Corea & Yoon, 2020). In addition, the effect of reduced fertility also occurs after the age of 35 years old (Ann Carson & N Kallen, 2021).

Many primipara mothers experience problems with milk production on days one to 7 due to several factors, such as stress, fatigue (Çankaya & Ratwisch, 2020), lack of sleep (Lateef & Akintubosun, 2020), and inhibition of the function of the thyroid gland in producing essential hormones in the body such as estrogen and progesterone (Hannan et al., 2023). This hormone imbalance further causes the decreased production of breastmilk or even being absent altogether (Gonzales & V.Seeman, 2019).

The researcher assumed that the productive age for giving birth is widely known. When a mother is psychologically comfortable and happy, the hormone oxytocin and prolactin increase, leading to adequate and smooth breast milk production (Pal et al., 2019).

The effect of oketani massage and oxytocin massage on the adequacy of breastmilk before and after the intervention in the experimental group on postpartum mothers on day 1-7

Based on table 2, the results showed that there was an effect of giving oketani massage and oxytocin massage on milk production.

The results of the current study suggested that Oketani massage had positive effects on the mother's breastfeeding success and could improve it in different respects, including readiness to feed, root, fix (latching on), and suck (Jamzuri et al., 2019). In addition, since Oketani massage is based on massaging all breast muscles base and the areola, it affects blood and lymph flows. It can also reduce milk stasis in the breast without any unwanted side effects. It can even reduce the pain of breast congestion and increase breastfeeding success by stimulating the oxytocin/milk ejection reflex (Dehghani et al., 2017). Oketani massage also stimulates the strength of the pectoralis muscle to produce milk, making the breasts softer and more elastic and making it easier for the baby to suckle at the breast (Astari & Machmudah, 2019).

The oketani massage causes no discomfort or pain to the mother. The mother will suddenly feel general relief and comfort, and the lactation is enhanced regardless of the size or shape of the mother's breasts and nipples. Furthermore, deformities such as inversion, flattening, or cracking of the nipples are rectified, and nipple injuries and mastitis are prevented (Romlah & Rahmi, 2019).
Another study conducted by Foda (2014) on nursing mothers revealed that breast massage therapy could improve the quality of breastmilk and breast massage. The results showed an increase in the average weight of newborns in the intervention group and a small portion in the control group. In this case, neonatal weight gain in the breast massage Oketani group was significantly higher than in the control group (Harefa et al., 2020).

The results showed that related to postpartum mothers on day 1-7 who received oxytocin, there is a mean difference in the pretest and posttest of control groups. Oxytocin massage is spinal massage starting from the 5-6th rib to the scapula, which will accelerate the work of the parasympathetic nerves to convey commands to the hindbrain so that oxytocin is released (Sulistiana et al., 2021). Oxytocin massage is intended to increase the hormone oxytocin, which can calm the mother so that the breast milk will automatically come out (Dağli & Çelik, 2022). The mechanism of the love hormone or oxytocin is the stimulation of pressure receptors under the skin, which calms the nervous system, including reducing the stress hormone cortisol and, in turn, increasing the oxytocin (Field, 2020).

Furthermore, regarding the effect of oxytocin massage on the adequacy of breast milk before and after in the control group in postpartum mothers on day 1-7, the results showed that there was an effect of giving oxytocin massage on milk production. Another non-pharmacological application that can be used to increase the milk release of mothers in the postpartum period is oxytocin massage. Oxytocin massage, which is effective in stimulating oxytocin release, is administered to mothers during lactation to increase milk release (UvnasMoberg et al., 2020). This massage can increase milk production by 11.5 times by stimulating the spinal muscles and reducing cortisol levels by 28% (Helina et al., 2020). Neurotransmitters stimulate the medulla oblongata and send a message to the hypothalamus to secrete posterior pituitary oxytocin. Applying massage to the spinal muscles reduces tension, relieves stress, and stimulates the milk and let-down reflex (Fitriani et al., 2019).

A previous study, the Effect of Acupressure, Acupuncture, and Massage Techniques on the Symptoms of Breast Engorgement and Increased Breast Milk Volume in Lactating Mothers A Systematic Review, revealed that a combination of acupressure or oxytocin massage could increase milk production (Hajian et al., 2021). Hence, apart from oxytocin and prolactin, other local factors may be responsible for increased milk secretion, requiring further research (Kumar Kraleti et al., 2018).

The effect of the combined oketani and oxytocin massages (Fitriani et al., 2019) on breast milk adequacy before and after the massage in the experiment group and control group in postpartum mothers

Table 4 shows a difference in adequacy before and after the combined oketani massage in postpartum mothers

Massage is one of the solutions to overcoming low breast milk supply (Helina et al., 2020). One type of massage, oketani massage, is a management skill to address lactation problems such as low breast milk production and breast swelling (Anderson et al., 2019). Oketani massage causes breasts to be soft and supple. The areola, lactiferous ducts, and nipples become more elastic. Quality breast milk is produced since the total solids content, the concentration of fat, and gross energy increase (Dehghani et al., 2018).
The outlines that increased protein levels are caused by increased activity of protease enzymes which are stimulated by massaging the mammary tissues and glands. Increased protease enzyme activity can increase protein synthesis. Oketani massage can also make the mammary glands mature and broader, so more milk glands are formed, and more breast milk is produced, decreasing lipoxygenase activity (Lawrence, 2022).

Oketani breast massage is a special technique practiced by Japanese midwives to improve breast milk secretion and quality (Roy et al., 2019). The results of research entitled the Effect of Oketani Breast Massage on Successful Breastfeeding, Mothers' Breastfeeding Support Need, and Breastfeeding Self-Ecacy: A Clinical Trial Study demonstrated that Oketani Massage is beneficial for increasing milk production, shortening the breastfeeding time, and can be a recommendation for mothers who gave birth by cesarean section (Shahri et al., 2020). Oketani-Massage, compared to routine care, quickly and more efficiently reduces the severity of breast engorgement after delivery (Dehghani et al., 2017). Oketani breast massage significantly increases total solids, lipids, and casein content, as well as the gross energy of breast milk; thus, it improves the overall quality (Rahnemaie et al., 2019). Prolactin and oxytocin reflexes are also generated from the combination of oketani massage, which aims to stimulate the nerves in the posterior pituitary gland so that the hormone oxytocin is released. It can cause myoepithelial cells around the alveoli to contract (Shahri et al., 2020) and push milk into the ampulla (Fatrin et al., 2022). Apart from being influenced by the baby's sucking, the release of oxytocin is also influenced by receptors in the ducts (Monks & Palanisamy, 2021).

CONCLUSION

The combination of oketani massage and oxytocin massage significantly affected breast milk adequacy for postpartum mothers on day 1-7 in the experiment group and control group. Postpartum mothers and families are expected to seek other information sources on how to increase breast milk production, both complementary or herbal, to provide exclusive breastfeeding to the baby.

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Table 1. Frequency distribution of the characteristics of postpartum mothers day 1-7

Age	Total	Percentage (%)
20-35	76	76%
36-40	24	24%
Parity		
Primipara	42	42%
Multipara	58	58%
Total	100	100%

Table 2. The effect of oketani massage and oxytocin massage on the adequacy of breast milk at the pre and post-massage in the experimental group on postpartum mothers day 1-7

Experiment Group	Mean	Std. Dev	P-value	N
Pretest	10.34	1.697	0.000	50
Posttest	3.96	0.879		
Control Group				
Pretest	10.76	1.27	0.000	50
Posttest	5.18	0.719		

Table 3. Differences in the effect of oketani massage and oxytocin massage on the adequacy of Breast milk after massage between the intervention group and the control group in postpartum mothers

Breast Milk	Mean Rank	z	P-value	N
Control	67.97	6.312	0.000	50
Experiment	33.03			50