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Combination of ROSATIN Massage with Endorphins on Postpartum Mother's Anxiety Levels and Breast Milk Production in Mataram City

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Abstract. Exclusive breastfeeding is intended to guarantee the fulfillment of the baby's rights for 6 months by paying attention to growth and development, so that every mother can give exclusive breastfeeding to the baby. Low milk production in the first days of childbirth is an obstacle to breastfeeding. The affecting factor is due to the mother's anxiety factor in facing childbirth, so the reflexes that function to produce breast milk do not work correctly. Therefore, non-pharmacological management to reduce anxiety and increase breast milk production is by combining ROSATIN massage and endorphin massage. This study aimed to analyze the effect of the combination of ROSATIN massage and endorphin massage on breast milk production in postpartum mothers. The method used is a quasi-experimental research design with a one-group pre- and post-design. The study involved 30 postpartum maternal respondents and was conducted in Mataram City. The bivariate analysis of this study used the paired t-test to see the significance between before and after the intervention. The results showed that the average level of maternal anxiety before being given a combination of ROSATIN massage and endorphin massage was 70.50, while after being given the intervention, it decreased to 43.10. For breast milk production before the intervention was given it was 25.33 and after it increased to 96.57. The analysis of anxiety levels and milk production obtained a p-value of 0.000 < α (0.05). Therefore, it can be concluded that there is a significant influence on the reduction of anxiety levels and the increase in milk production after being given a combination of ROSATIN massage and endorphin massage in postpartum mothers. So that with the decrease in maternal anxiety, it is hoped that the production of breast milk will be smooth, thereby increasing the success of exclusive breastfeeding.

Keywords: ROSATIN Massage, Endorphin Massage, Breast Milk Production, Anxiety

INTRODUCTION

To reduce the rate of infant illness and death, UNICEF and the World Health Organization (WHO) recommend that babies should only be breastfed for at least 6 months, and breastfeeding should be continued until the baby is 2 years old. For mothers to maintain exclusive breastfeeding for 6 months, WHO recommends initiating breastfeeding within the first hour of life, infants only receive breast milk without additional food or drinks, including water, breastfeeding on demand or as often as the baby wants, and not using bottles or pacifiers [1].

According to UNICEF 2023 data, the proportion of babies in the world who receive exclusive breastfeeding under the age of 6 months reaches 48%. In Indonesia, based on the 2018 Riskesdas Report, the rate of exclusive breastfeeding is only 37.7%, with the province of West Nusa Tenggara (NTB) recording the lowest coverage at 20.3% [2]. In 2022, Early Breastfeeding Initiation (IMD) coverage in NTB reached 87.5%, with Central Lombok Regency recording the highest coverage of 100% and Mataram City the lowest at 52.3% [3].

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Breast milk is helpful in maintaining the baby's immunity because it contains anti-infectious substances, namely immune modulators and unique nutrients such as carbohydrates in the form of lactose, a lot of fats (polyunsaturated fatty acids), the main protein in the form of lactabumin which is easy to digest, the content of vitamins and minerals that have many benefits of breastfeeding for mothers can not only establish affection, But more than that, it can reduce bleeding after childbirth, accelerate the recovery of the mother's health, delay pregnancy, reduce the risk of developing breast cancer, and is a happiness for mothers. Likewise, suppose babies are not given exclusive breastfeeding in general. In that case, babies who do not get breast milk have a 3-4 4-times greater risk of death and lower quality of education because breastfeeding has implications for increasing IQ [4].

The failure of exclusive breastfeeding or the inability to achieve exclusive breastfeeding coverage according to the government's target of 80% is due in part to the failure of breastfeeding on the first day of life. This is because breast milk does not come out on the first day of the postpartum period. The factor that affects the non-release of breast milk on the first day is the mother's anxiety factor in facing childbirth, so the reflex that functions to produce breast milk does not work correctly [5].

Pregnant women, mothers giving birth, and postpartum mothers are groups that are prone to experiencing anxiety [6]. This process certainly brings many changes to a woman who is experiencing it; these changes certainly make women have to adjust to the circumstances that are currently being experienced, both physiological and psychological changes, especially in women who have just experienced their first birth. This anxiety has an impact on the mother's mood. When experiencing anxiety, the mother experiences erratic mood swings that result in mothers not being able to take care of their babies properly and other disorders, such as irregular milk production. In addition, anxiety in the mother also has an impact on the baby, as a result, the baby does not get enough breast milk intake, so that the baby's development is disrupted [7].

Two important things that affect the process of milk production are the process of producing milk and the process of releasing breast milk. The hormone proclactin influences milk production and the hormone oxytocin plays a role in the milk that comes out is influenced by the hormone oxytocin. Oxytocin will be released after getting stimulation to the mammary papillae through the stimulation of the baby's sucking or the stimulation of the mother's spine, the effect of the stimulation of the pressure on the spine causes a sense of comfort, relaxation, reduces pain and fosters love for the baby, in the end the hormone oxytocin is released. The milk comes out as quickly as possible [8].

Thus, the method to reduce anxiety and increase milk production is to do an endorphin massage in combination with an oxytocin massage. Endorphin massage is a massage with a light touch that increases the release of endorphin hormones, giving the mother a sense of calm and relaxation, thus reducing maternal anxiety after childbirth [9]. Meanwhile, the oxytocin massage used in this study is the development of an oxytocin massage stake vest (ROSATIN) tool, which works the same as oxytocin massage performed by therapists or health workers. The working system of this ROSATIN tool is circular and provides pressure like a massage by the hand; this tool is also equipped with a battery that can be charged when the tool is off. In addition, this tool is combined with a vest made of the Sasak cultural fabric of West Nusa Tenggara province, so it is easy for mothers to use independently.

The purpose of this study was to be able to reduce postpartum maternal anxiety so that it can increase breast milk production in primitive mothers and reduce the incidence of stunting from the beginning. Previously, no studies provided an intervention with a combination of ROSATIN and endorphin massage at the study site. So it is hoped that this study can later be a reference for midwives or health workers to provide ROSATIN massage and endorphin massage, especially to primipara mothers, in order to increase breast milk production that supports exclusive breastfeeding and prevents stunting from an early age.

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METHODS

This study is a quasi-experimental design research with one group, pre- and post-design research methods. This research was conducted in five health centers in the Mataram City area, among primipara postpartum mothers with unhealthy breastfeeding. The research is scheduled to run from June to September 2024. The population of this study was 30 primipara postpartum mothers who breastfed from the first to the seventh postpartum day. The sampling technique used consecutive sampling with random block permutations, the number of samples was 30 people with inclusion criteria, namely primipara postpartum mothers with breast milk that was not smooth and willing to be respondents who had previously signed the informed consent sheet of the study respondents, did not suffer from systemic diseases, no abnormalities in the breasts and were psychologically in good condition. The exclusion criteria are primipara postpartum mothers who do not breastfeed and do not consume breastfeeding vitamins or supplements. The controlled variables are age, education, employment, and parity. Massage starts from the 1st to the 3rd day and lasts 15 minutes each. An assessment of breast milk expenditure was carried out before and after the administration of the combination intervention of ROSATIN massage and Endorphin Massage. The bivariate analysis of this study was conducted by conducting a paired t-test. Because the data is not normally distributed, the data analysis used is a paired-t test with the Wilcoxon test to assess the significance of giving a combination of ROSATIN massage and endorphin massage.

RESULTS AND DISCUSSION

This study involved 30 respondents. Data were collected using the PSAS (Postpartum Specific Anxiety Scale) Questionnaire and the Breastfeeding Adequacy Questionnaire in Infants. After the data was collected, it was processed manually and presented in the form of a Frequency distribution table.

Table 1. Frequency Distribution of Respondent Characteristics (n=30)

Characteristics	**n**	**(%)**
Age		
< 20 years old	2	7%
20-35 years old	21	70%
>35 years old	7	23%
Education		
Low (SD-SMP)	13	43%
High (SMA -PT)	17	57%
Work		
Work	6	20%
Not working	24	80%
Gestational age		
40 Weeks	16	53%
< 40 Weeks	14	47%
≥ 40 Weeks	0	0%
Total	**30**	**100%**

Table 1 shows that most primipara postpartum mothers between the ages of 20 and 35 are 21 (70%). Most of the mothers have a high school or higher education, namely 17 people (57%). Some of their jobs are not working or housewives, which is as many as 24 people (80%). As for the gestational age at childbirth, most of the aterm or 40 weeks were 16 people (53%).

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Table 2. Results Of Data Normality Testing with *Shapiro Wilk Test*

	Tests of Normality					
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Itself.	Statistic	df	Itself.
Age	,530	30	0,000	,538	30	0,000
Education	,420	30	0,000	,497	30	0,000
Work	,567	30	0,000	,510	30	0,000
Gestational age	, 410	30	0,000	,530	30	0,000
Breast milk production before intervention	,397	30	0,000	,700	30	0,000
Breast milk production after intervention	,235	30	0,153	,910	30	0,029

Based on Table 2, the results of the data normality test were tested by the Shapiro-Wilk test (sample < 50), with a significance value of < 0.05, namely on the variables of age, education, occupation, and gestational age. Milk production expenditure before and after the intervention was declared to be not normally distributed. Based on the results of the normality test, the paired t-test was carried out using the Wilcoxon test to see the significance of the difference between breast milk production before and after being given a combination intervention of ROSATIN massage and endorphin massage.

Table 3. Differences In Average Anxiety Levels Before And After The Combination Intervention Of ROSATIN Massage And Endorphin Massage.

Anxiety Level	f	Mean	Standard Deviation (SD)	Standard Error Mean	P-Value
Before intervention	30	70,50	15,570	2,530	0,000
After the intervention	30	43,10	8,761	1,110	

Based on table 3, it was obtained that the average anxiety level before being given a combination of ROSATIN massage and endorphin massage was 70.50, while after being given a combination of ROSATIN massage and endorphin massage decreased to 43.10. So it can be concluded that there was a decrease in the level of anxiety to 27.40 after being given a combination intervention of ROSATIN massage and endorphin massage. The results of the T-test obtained a p-value of 0.000 < α (0.05), so that conclusions can be drawn if there is a significant difference in average anxiety levels before and after the combination intervention of ROSATIN massage and endorphin massage is given.

Table 4. Differences In Average Milk Production Before And After The Combination Intervention Of ROSATIN Massage And Endorphin Massage.

Breast milk production	f	Mean	Standard Deviation (SD)	Standard Error Mean	P-Value
Before intervention	30	25,33	7,201	1,087	0,000
After the intervention	30	96,57	16,771	2,702	

Based on Table 3, it was obtained that the average milk production before being given a combination of ROSATIN massage and endorphin massage was 25.33. In contrast, after being given a combination of ROSATIN massage and endorphin massage, the score increased to 96.57.

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So it can be concluded that there was an increase in breast milk production by 71.24% after being given a combination intervention of ROSATIN massage and endorphin massage. The results of the T-test using the Wilcoxon test (data not normally distributed) obtained a p-value of 0.000 < α (0.05), so that conclusions can be drawn if there is a significant difference in average milk production before and after the combination of ROSATIN massage and endorphin massage interventions.

Based on the results obtained from the data of 30 respondents of primipara postpartum mothers, there was a change in the level of anxiety in postpartum mothers after being given a combination of ROSATIN massage and endorphin massage. On average, there was a decrease in anxiety from 70.50 to an average of 43.10. Based on the Paired Sample T-Test analysis, the result was p=0.000 (p < 0.05). It can be concluded that there is an effect of the combination of ROSATIN massage and endorphin massage on the anxiety level of postpartum primipara mothers.

The results of this study are based on the research of Regita et al (2022), The Effect of Endorphine Massage on Anxiety Levels in Postpartum Primiparous Mothers. The results of the study showed that there was a difference in anxiety levels before and after endorphin massage interventions, which means that there was an effect of endorphin massage therapy on the anxiety level of postpartum mothers [10]. The administration of an endorphin massage stimulus with a gentle touch of the chest area 10 to the lumbar region 1 (the source of innervation of the uterus and cervix) can stimulate the ascending nerve receptors; the stimulus will be passed through the spinal cord to the hypothalamus, continuing to the hypothalamus. Pons and then to the gray part of the brain. Periaqueductal stimulation in the midbrain is transmitted to the hypothalamus, where endorphins are released through blood vessels through the descending nerve pathway [11].

This is also supported by the research of Zarlis et al (2022), which suggests that this endorphin massage therapy can be helpful in reducing maternal stress levels. Not only does it reduce anxiety, but endorphin massage can also make mothers calm and can strengthen the relationship between husband and wife if the husband can apply this endorphin massage at home, in addition to reducing anxiety. This endorphin massage can also increase the level of the hormone prolactin in the mother, thereby stimulating the hormone oxytocin to produce breast milk in postpartum mothers [12]. It is the same with the results of Marcelina's (2020) research on Supportive Postpartum, which is in the form of physical comfort support, such as massage, that can reduce postpartum maternal anxiety [13]. Research by Ni Ketut et al (2022) examined the Effect of Endorphin Massage with Anxiety during the COVID-19 pandemic on Postpartum Mothers in the Working Area of Puskesmas III South Denpasar in 2022. This shows that there is a difference in the average score before and after being given an endorphin massage to the level of anxiety during the COVID-19 pandemic in postpartum mothers [14].

Similarly, Sukmawati & Lestari (2023) found that data analysis using the Wilcoxon rank test produced a p-value of 0.000 which indicates that the alternative hypothesis (Ha) was accepted and the null hypothesis (H0) was rejected, meaning that there was a significant difference in the level of anxiety before and after the endorphin massage intervention in postpartum mothers who had a cesarean section at Kendari City Hospital. The massage technique helps the mother feel more refreshed, relaxed, and comfortable. This happens because massage stimulates the body to release endorphin compounds, natural pain relievers [15].

Based on the results of this study, it can be reported that there is a difference in the amount of breast milk production before and after the combination of ROSATIN massage and endorphin massage; the average milk production of 25.33 increased to 96.57. In contrast, the results of the analysis showed the value of p=0.000 (p < 0.05), so it can be concluded that there is a significant average difference between the amount of breast milk production before and after the intervention. This means that the combination of ROSATIN massage and endorphin massage is very effective in increasing breast milk production, especially in primipara postpartum mothers who usually experience complaints of little milk production because they have never breastfed before.

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Based on the theory that giving a massage to the vertebrae of the fifth and sixth costal bones of the mother will stimulate the anterior pituitary gland to produce the hormone prolactin and the posterior pituitary to produce the hormone oxytocin, so that breast milk can automatically become smoother. The marmet technique is a combination of massaging the breast cells that make breast milk and the milk duct to increase the production of the hormone oxytocin, so that the flow of milk increases at the time of expressing milk. So, the combination of these two actions can increase milk production, especially among primipara mothers [16].

Oxytocin massage using a ROSATIN massage tool has been proven to be effective in increasing the mother's milk production and making the mother more relaxed, this is because the advantages of massage using a ROSATIN tool compared to massage by a therapist this tool can be used easily by the mother because this tool is combined with a vest and has a button to adjust the pressure so that the pressure and movement of the tool are more consistent, When compared to massage by therapy, the pressure of the massage will not be the same depending on the factors of the length of the massage and the fatigue of the therapist. Therefore, mothers can use this massage with ROSATIN independently at home or anywhere.

This is in line with research conducted by Indanah et al (2023) with the title Okay Massage (Oxytocin Combination Endorphins) Able to Increase Postpartum Breast Milk Production, showing that Oxytocin and Endorphin massage can increase postpartum breast milk production. This is because OKE massage is performed on breastfeeding mothers or postpartum mothers by massaging their back area to increase the production of oxytocin and endorphin hormones, making the mother comfortable and her baby comfortable when breastfeeding. Physiologically, it increases the amount of oxytocin and endorphins sent to the brain, causing it to flow out and into the blood. This hormone then enters the mother's breast and causes the muscles around the alveoli to contract, allowing milk to flow through the milk duct. Oxytocin and endorphins also dilate the milk ducts and reduce swelling, allowing milk to flow through the alveoli [17].

Supported by research conducted by Pertami et al (2020), which found that administering oxytocin and endorphin massage has an optimal effect on breast milk production. The reason is that oxytocin massage is an action that can be done on breastfeeding mothers, namely in the form of massaging the mother's back to increase the production of the hormone oxytocin. Meanwhile, endorphin massage can provide comfort and relaxation to the mother, so it can also provide comfort to the baby when breastfeeding. With this sense of comfort, it will physiologically increase the production of the hormone oxytocin because the signal is sent to the brain so that the hormone oxytocin is released and flows into the blood, then enters the mother's breast and causes the muscles around the alveoli to contract and make breast milk flow in the breast canal [18].

In addition to making breast milk smooth, oxytocin and endorphin massage can also reduce breast engorgement, reduce blockages in the milk ducts, stimulate the release of oxytocin hormone from the posterior pituitary, as well as maintain breast milk production when mother and baby are sick. Providing comfort to the mother during massage is a prerequisite for the success of oxytocin massage [19]. Meanwhile, endorphin massage is also highly recommended for primipara mothers who experience problems in the smooth flow of breastfeeding, which can reduce the fear of meeting the needs of breastfeeding in babies during the first 6 months [20].

Based on the results of the study mentioned above, the researcher assumes that the combination of ROSATIN massage and endorphin massage can be used as the best solution to be able to overcome problems or complaints of breastfeeding and low milk production that often occurs in the first week of postpartum especially primitive mothers so that breast milk production can be smooth. The baby can also get exclusive breastfeeding from the beginning of birth.

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CONCLUSIONS

This study concludes that there is a difference in breast milk production between before and after the intervention. The combination of ROSATIN massage and endorphin massage can not only stimulate the release of oxytocin and endorphin hormones to produce breast milk. Still, it can also make the mother feel more relaxed and comfortable during breastfeeding and prevent breast milk blockage in the nipple. Health workers, especially midwives, in the practice of Independent Midwives, should be able to provide oxytocin massage and endorphin massage interventions as one of the efforts to prevent anxiety and complaints of low milk production in postpartum mothers, so that breast milk production can run smoothly. Midwives can also provide education to increase the knowledge and experience of mothers and families about how to use ROSATIN massage tools and endorphin massage. The mother's milk production can continue to grow even though the mother is at home without coming to the midwife's service place, because the family can do it alone at home.

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