

# THE EFFECTIVENESS OF OXYTOCIN MASSAGE ON BREASTMILK PRODUCTION OF POSTPARTUM MOTHERS AT MIDWIFERY INDEPENDENT PRACTICE (PMB) HASNA DEWI FS, AMD. KEB, SKM PEKANBARU

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## ABSTRAK

Salah satu masalah yang dialami ibu nifas dalam pemberian ASI eksklusif adalah jumlah produksi ASI dan sekresi ASI yang tidak lancar. Penelitian ini bertujuan untuk mengetahui efektivitas pijat oksitosin sebagai cara meningkatkan produksi ASI ibu pasca melahirkan. Penelitian ini merupakan penelitian kuantitatif, dengan desain pra-eksperimen dengan pendekatan One Group Pretest-Posttest Design. Intervensi berupa pijat oksitosin ini dilakukan kepada 12 responden yang merupakan ibu pasca melahirkan yang melahirkan di PMB Hasna Dewi FS Pekanbaru, pada periode Juni 2023. Produksi ASI diukur sebelum dan sesudah intervensi menggunakan . Hasil penelitian menunjukkan bahwa rata-rata peningkatan produksi susu responden setelah pijat oksitosin dilakukan dari hari ke 1-3 adalah 6,50, dengan p-value 0,002 <0,05. Ada efek pijat oksitosin pada produksi susu setelah pijat oksitosin. Dapat disimpulkan bahwa pijat oksitosin efektif meningkatkan produksi ASI pada ibu pasca melahirkan di PMB Hasna Dewi FS Pekanbaru tahun 2023. Disarankan kepada tenaga kesehatan untuk mengedukasi ibu pasca melahirkan dan anggota keluarganya tentang pentingnya pijat oksitosin bagi ibu pasca melahirkan dalam meningkatkan produksi ASI.

**Kata kunci** : ibu nifas, pemberian ASI eksklusif, pijat oksitosin,

## ABSTRACT

*One of the problems experienced by postpartum mothers in exclusive breastfeeding is the amount of milk production and non-fluent milk secretion. This study aims to determine the effectiveness of oxytocin massage as a way to increase milk production of post partum mothers. This research is a quantitative study, with a pre-experimental design with the One Group Pretest-Posttest Design approach. The intervention in the form of oxytocin massage was carried out to 12 respondents who were post partum mothers who gave birth at PMB Hasna Dewi FS Pekanbaru, in the period June 2023. The breast milk production are measured before and after the intervention using . The result shows that the average increases in respondents' milk production after oxytocin massage was carried out from day 1-3 is 6.50, with a p-value of 0.002 <0.05. There is an effect of oxytocin massage on milk production after oxytocin massage. It can be concluded that oxytocin massage is effective in increasing milk production in post partum mothers at PMB Hasna Dewi FS Pekanbaru in 2023. It is recommended to health workers to educate post partum mothers and their family members about the importance of oxytocin massage for postpartum mothers in increasing milk production.*

**Keywords** : exclusive breastfeeding, oxytocin massage, and postpartum mother

## INTRODUCTION

Exclusive breastfeeding during the first six months of a baby's life is important, to fulfill the nutrition needed in order to grow and develop during the early phase of the baby's life. Adequate breast milk production plays an important role in the success of breastfeeding. Nowadays, exclusive breastfeeding continues to be improved, considering to low coverage of exclusive breastfeeding itself. Based on data from WHO (2022), in the period between 2015-2021, the percentage of babies who received exclusive breastfeeding in the world reached 48%, ten percent higher than the previous ten years, but still far from the global

target which is 70% that must be achieved in 2030 (WHO, 2022). Based on data from the 2020-2022 National Socio-Economic Survey (Susenas), the percentage of babies who receive exclusive breastfeeding in Indonesia increased from 71.58% in 2021 to 72.04% in 2022. However, it's not reached yet the target of exclusive breastfeeding in 2022 which is 80%. Meanwhile, the percentage of babies who receive exclusive breastfeeding in Riau Province decreased from 70.29% in 2021 to 69.51% in 2022 (bps, 2022). Furthermore, based on data from the Pekanbaru City Health Service in 2020, the lowest exclusive breastfeeding coverage was found in the working areas of the Langsung Health Center (19.3%), Senapelan (22.4%), and Sidomulyo (27.6%) (Dinas Kesehatan Kota Pekanbaru, 2020).

The national target of exclusive breastfeeding coverage that has not been achieved shows that there are problems in providing exclusive breastfeeding. One of the problems experienced by postpartum mothers in providing exclusive breastfeeding is the small amounts of milk production and production of breast milk which is not smooth. Low milk production released in the first few days after giving birth can be caused by a lack of stimulation of the production of the hormone prolactin for smooth milk production, and the hormone oxytocin for milk production (Sulaeman, *et. al.*, 2019). Prolactin affects the amount of breast milk (ASI) produced. The oxytocin is needed to eject milk from the mother's breasts, through stimulation of the baby sucking on the mother's nipple. Oxytocin release can also be done through massage on the mother's spine so that the mother feels calm, relaxed, and comfortable (Triananinsi *et. al.*, 2019).

According to Rahayu (2016), oxytocin massage is a way to overcome irregularities in breast milk production. Oxytocin massage, which is carried out along the spine (vertebrae) to the fifth-sixth rib bones of the postpartum mother, can speed up the delivery of signals to the back of the brain to stimulate oxytocin in facilitating the release of breast milk and preventing swelling in the mother's breasts. Oxytocin massage can stimulate the release of the hormone oxytocin and facilitate the release of breast milk production (Handayani and Rustiana, 2020). Besides, oxytocin massage can make mothers feel relaxed and relieve stress (Manurung and Sigalingging, 2020). This is in line with the research results of Triananinsi *et al.* (2019), that there is an effect of oxytocin massage on postpartum mothers on the fluent ejection of breast milk at the Caile Community Health Center, Bulukumba Regency, where the test used the Mann Whitney U test, with Asymp results. Sig. (2-tailed)  $0.003 < 0.05$  or 5% (Triananinsi *et al.*, 2019). Another research conducted by Julizar & Fonna (2021) on postpartum mothers at the Ida Iriani Independent Practice Midwife (BPM), SST, Tanah Jambo Aye District, North Aceh Regency, shows that there is an effect of the oxytocin massage technique on breast milk production of postpartum mothers (Julizar and Fonna, 2021).

Previous survey conducted to ten postpartum mothers who gave birth at the Independent Midwife Practice (PMB) Hasna Dewi FS, Amd. Keb, SKM, has indicated that there are 7 (70%) mothers with low breast milk production and that does not come out smoothly, and 3 (30%) mothers with smooth and abundant breast milk production. These postpartum mothers experienced that their breast milk was not coming out, was not flowing smoothly, and was in small quantities. It is also found that they have no knowledge of oxytocin massage in increasing breast milk production.

This study aims to determine the effectiveness of oxytocin massage as a way to increase milk production of post partum mothers.

## METHODS

This study is a *Pre experiment with One Group Pretest-posttest Design*. This study is conducted to one group which subjects whose breast milk production will be measured before

and after an intervention. Intervention which is the oxytocin massage, is carried out to find out whether it can increase breast milk production. The intervention will be conducted twice a day, in the morning and afternoon for three days. Data of breast milk production in this study will be measured and analyzed to find the effect of oxytocin massage in increasing breast milk production of the participants.

The study population consisted of 12 postpartum mothers who gave birth at PMB Hasana Dewi FS in Pekanbaru, during the research period (May-June) in 2023. The sample size was determined to be 12(twelve) participants. The participants are postpartum mothers in the first to third day post delivering, who met the inclusion criteria determined by the researchers, including mothers with irregular (low) breast milk production. Inclusion criteria for participants included mothers who gave birth normally, post partum mothers who do not take breast milk boosters, and who have not done an oxytocin massage. The participants were chosen using a total sampling technique or the entire population as the population is relatively in small number which is under 30 people.s

Statistical analysis was conducted using SPSS version 21 (IBM Corp., Armonk, NY, USA). Univariate and bivariate used as data analysis techniques. Univariate analysis was used to determine the frequency distribution of characteristics of respondents/postpartum mothers. Bivariate analysis is used to determine whether there is an influence of the independent variable on the dependent variable. In this study, it aims to determine the effect or effectiveness of oxytocin massage on breast milk production in postpartum mothers. The normality test is carried out to determine whether the data is distributed normally or not. If the sample size is <50, the Shapiro-Wilk test can be used. If the sample is >50, then the Kolmogorov-Smirnov test can be used. If the data is normally distributed, then the test used is the T-dependent test. The data is not normally distributed, so the test used is the Wilcoxon test.

The study protocol was approved by the Health Research Ethics Commission at the Faculty of Public Health of Hang Tuah University.

## RESULTS

### Participant Characteristics

The characteristics of respondents in this study include the respondent's age, occupation, and respondent parity with the following frequency distribution:

**Table 1. Characteristics of Post Partum Mothers Based on Age, Occupation and Parity at PMB Hasna Dewi FS Pekanbaru**

No	Age (y)	Frequency (n)	Percentage (%)
1	20 - 30	11	91,7
	31 - 35	1	8,3
<b>Jumlah</b>		<b>12</b>	<b>100</b>
<b>Occupation</b>			
2	Government employee	-	-
	Private employee	2	16,7
	Housewife (IRT)	10	83,3
<b>Jumlah</b>		<b>12</b>	<b>100</b>
<b>Parity</b>			
3	Primipara	9	75
	Multipara	3	25
<b>Jumlah</b>		<b>12</b>	<b>100</b>

Based on table 1, the majority of respondents (91.7%) are in the 20-30 year age group, and 1 (8.3%) respondent is in the 31-35 year age group. The majority or 10 (83.3%) respondents work as housewives (IRT), and 2 (16.7%) respondents work as private employees. And the majority (75%) of respondents were mothers with primipara parity, and 25% of respondents were multipara mothers.

### Breast Milk Production Day 1-3, Before and After Oxytocin Massage

Table 2 revealed differences of breast milk production day 1-3, before and after the intervention which is oxytocin massage. There was an increasing of the respondents' breast milk production from days 1-3 after the oxytocin massage. Breast milk production on day 1 increased by 56 ml (from 59 ml before massage to 115 ml after massage). On day 2, there was an increase of 99 ml (from 189 ml before massage to 288 ml after massage). On the 3rd day, there was an increase of 152 ml (from 378 ml before massage to 530 ml after massage). Total breast milk production before the oxytocin massage was 626 ml, and after the oxytocin massage was 933 ml.

**Table 2. Breast Milk Production Day 1-3, Before and After Oxytocin Massage to Post Partum Mothers at PMB Hasna Dewi FS Pekanbaru**

Oxytocin Massage	Day 1 (ml)	Day 2 (ml)	Day 3 (ml)	Total (ml)
<i>Before (Pre-test)</i>	59	189	378	<b>626</b>
<i>After (Post-test)</i>	115	288	530	<b>933</b>

Table 3 revealed the average of breast milk production of all respondents for 3 days before oxytocin massage (pre-test) was 52.17 and a standard deviation was 31.235 with the lowest amount (min) breast milk production was 23 ml and the highest (max) was 109 ml. The data obtained after carrying out oxytocin massage (post-test) to all participants had an average (mean) value of 77.75 with a standard deviation value of 45.772. Respondents' total breast milk production from days 1-3 had the lowest amount (min) of 38 ml, and the highest amount(max) of 157 ml.

**Table 3. Average Breast Milk Production Before and After Oxytocin Massage of Post Partum Mothersat PMB Hasna Dewi FS Pekanbaru**

Oxytocin Massage	n	Mean	Std. Deviation	Min-Max (ml)
<i>Before (Pre-test)</i>	12	52,17	31,235	23-109
<i>After (Post-test)</i>	12	77,75	45,772	38-157

The Shapiro-Wilk test for normality on breast milk production data before the oxytocin massage were distributed abnormally with a significance value of  $0.005 < 0.05$ , and after being given an oxytocin massage the data was distributed abnormally with a significance value of  $0.002 < 0.05$ . These findings are detailed in Table 4.

The Wilcoxon test revealed that the increasing average (mean rank) of breast milk production for all respondents after oxytocin massage was 6.50, and there was no decreasing in breast milk production for all respondents before and after oxytocin massage. These findings conclude that there is an increasing in breast milk production of post partum mothers after oxytocin massage. Asymp. Sig. (2- tailed) or p-value is 0.002 ( $p < 0.05$ ) or  $H_0$  is accepted. It can be concluded that there is an influence of oxytocin massage on breast milk

production of postpartum mothers at PMB Hasna Dewi FS Pekanbaru. Data detailed can be found in Table 5.

**Table 4. The Normality Test for Breast Milk Production of Post Partum Mothers Before and After Oxytocin Massage at PMB Hasna Dewi FS Pekanbaru**

Oxytocin Massage	Shapiro-Wilk		
	Statistic	Df	Sig.
<i>Pre test</i>	0,772	12	0,005
<i>Post test</i>	0,743	12	0,002

**Table 5. The Increasing Average in Breast Milk Production of Post Partum Mothers Before and After Oxytocin Massage at PMB Hasna Dewi FS Pekanbaru**

Oxytocin massage	Wilcoxon		
	n	Mean Rank	p-Value
<i>Posttest&lt;Pretest</i>	0	0,00	
<i>Posttest&gt;Pretest</i>	12	6,50	0,002
<i>Posttest=Pretest</i>	0		

## DISCUSSION

This study revealed that there was an increasing of the breast milk production of all respondents after given the oxytocin massage from day 1-3. This is in line with the results of research by Wulandari et., al (2018) that breast milk production increased after the second and third oxytocin massage performed. The increasing of breast milk production has correlation with the frequency of oxytocin massage performed. If oxytocin massage is done frequently (3 times in this study), there will be a significant increase in breast milk production. This also proves that oxytocin massage is effective in increasing breast milk production. Rahayuningsih's research results (2016) showed that there was an increase in breast milk production in 22 respondents out of a total of 27 respondents on the second day and increased to 23 respondents on the third day of breast milk production.

Likewise, the results of Doko's study (2019) show that oxytocin massage performed 2 (two) times a day, in the morning and evening for 15 minutes, has proven to be more effective and has an effect on breast milk production (Doko, Aristiati and Hadisaputro, 2019). The study of Magdalena et al., shows that oxytocin massage performed 10-15 minutes for 3 days to postpartum mothers in the working area of Puskesmas Sidomulyo Pekanbaru are able to increase milk productions (Magdalena et al., 2020).

Oxytocin massage is a massage performed on the post-partum mother's back, along the side of the spine to the 5th or 6th rib bone, which aims to stimulate the release of the hormone oxytocin so that breast milk production becomes smooth and breast milk production increases.

Widayanti's (2014) research in Doko, et., al (2019) shows that light pressure and massage can stimulate the release of the hormone oxytocin in the blood and cerebrospinal fluid. The release of oxytocin in the blood will cause contraction of the myoepithelial cells in the breast. These contractions stimulate the ducts to drain the breast milk into the ductules

and flow to the mother's sinuses and nipples, resulting in the release of breast milk (Rahayu and Yunarsih, 2018).

Furthermore, oxytocin massage helps muscles relax and relieves fatigue and tension after giving birth, so that post-partum mothers feel comfortable. The movement of massaging the back has an effect on muscle flexibility and tissue that was previously tense becomes more flexible and relaxed. This causes a series of processes to send signals to the brain's hypothalamus and stimulates the release of the hormone oxytocin from the parasympathetic nerves, thus stimulating the release of breast milk. A decrease in the production of the hormones epinephrine and cortisol by the pituitary brings a feeling of joy, happiness and comfort. This feeling of relaxation and comfort will bring a feeling of happiness and an increased desire to breastfeed the baby, thus stimulating the release of the hormone oxytocin (Julianti and Susanti, 2019).

According to Astuti (2015) in "*Postpartum and Breastfeeding Midwifery Care*", one of the factors that influences breast milk production is the psychological factor of breastfeeding mothers, where mothers who feel stressed, uncomfortable, tired and worried will have an effect on breast milk production. Ginting, et. al., (2021) revealed that breastfeeding mothers who experience stress have little breast milk production, where the p value is  $0.000 < 0.05$ , so there is a significant relationship between psychological stress and breast milk production (Ginting et. al., 2021). Roesli (2012) in his book "*Breastfeeding Counseling Guide*", states that husband's support is something that has a deep influence on breastfeeding mothers. Husband's support has an emotional effect on breastfeeding mothers so they feel more comfortable, relaxed and happy. This encourages the release reflex (let down reflex) resulting in the release of breast milk. Doko et. al., (2019) revealed that the support of husbands and other family members in the breastfeeding process is able to provide a feeling of joy, happiness and comfort so that it will stimulate the release of the hormone oxytocin which influences the smooth production of breast milk.

This study found that there was no significant difference between theory and research results. The results of the observation were that breast milk production was small and not smooth on the first day after giving birth for respondents because the baby was not yet actively breastfeeding, and respondents still felt tired and uncomfortable due to the birthing process. This shows a lack of stimulation of the hormones prolactin and oxytocin which play a role in the production and release of breast milk. Therefore, respondents are advised to get an oxytocin massage so that respondents feel comfortable, relaxed and happy so that the hormone oxytocin is released in the blood which will stimulate the production and release of breast milk. Oxytocin massage performed by husbands is more effective in making post partum mothers/respondents feel more comfortable, relaxed and happy because respondents feel that their husbands care and support respondents in the breastfeeding process.

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