

## Original Research Article

# Improved breastfeeding with back massage among postnatal mothers

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### ABSTRACT

**Background:** The achieving target of exclusive breast milk in Indonesia has not been achieved. The unsuccessful approval of exclusive breastfeeding is partly due to the mother's reasons for the inadequacy of milk production. Physiologically, oxytocin and prolactin are responsible for the smooth production of breast milk. The release of the hormone oxytocin in addition to being transferred by stimulation to the nipple through the baby's mouth or through spinal massage. Application of back massage techniques or oxytocin massage to provide stimulation that is expected to increase patient comfort, prevent oxytocin release, and increasing milk production.

**Methods:** This research is a quasi-experimental design with a time series design and a control time series design. The sample this study were 15 postpartum mothers treated group and 15 postpartum mothers in the control group. Data was collected by the method of intervention and direct observation on the frequency of urinating infants. Data analysis using repeated ANOVA test.

**Results:** Based on the results of research on the frequency of urinating in the control group had an average of 5.6 and a treatment group of 6.9. This is reinforced by the value of  $p=0.0001$  ( $p<0.005$ ) which means that there is an effect of giving back massage to increase milk production in postpartum mothers.

**Conclusion:** This study suggests that giving back massage techniques to postpartum mothers as an alternative to increase milk production in postpartum mothers and included as one of the basic care for postpartum mothers since the first day after childbirth.

**Keywords:** Back Massage, Denpasar, Postnatal

### INTRODUCTION

The target of achieving exclusive breastfeeding in Indonesia is 80%, while from the data obtained the percentage of babies receiving exclusive breastfeeding is 54% and the data in the province of Bali, babies who are given exclusive breastfeeding are 48.4%.<sup>1</sup>

Both of these numbers are still far from the national target and the percentage of breastfeeding decreases with increasing infant age with the lowest percentage in children aged six months (30.2%).<sup>2</sup> The unsuccessful achievement of exclusive breastfeeding is one of them

caused by the mother's reasons regarding the inadequacy of milk production, so choose to give formula milk.<sup>3</sup> The most important time for breastfeeding is the first few days after giving birth and if a mother is properly helped at the time of starting breastfeeding, the mother will succeed to continue breastfeeding. Motivation for breast feeding, social support, nursing frequency and good breastfeeding experience are other factors have positive impact on lactation.<sup>4</sup>

Reality shows that breast milk production is low in the first days after giving birth, which raises the anxiety and fear of the mother of the lack of milk production. In the

first hours after giving birth, physiologically the hormone oxytocin and prolactin are released which are responsible for the smooth production of breast milk, where the hormone prolactin plays a role in the production of milk and the hormone oxytocin stimulates the release of milk.

The release of oxytocin is not only influenced by the stimulation of baby's mouth suction, it can also be done through massage on the spine to the fifth - sixth costae bone, which is usually called oxytocin massage or back massage, so that the mother will feel calm and relaxed. Through massage will stimulate the medulla oblongata to directly send a message to the hypothalamus in the posterior hypofise to release oxytocin, which causes the breast to secrete milk.

The results of a preliminary study conducted at an inpatient health center in Denpasar, namely the Dauh Puri Supporting Puskesmas and East Denpasar I Health Center conducted interviews with health workers, with the result that babies born were carried out for Early Breastfeeding Initiation (IMD) for one hour and then mothers and babies were admitted to join in the treatment room. In addition, interviews with postpartum mothers were found that some mothers complained that breastfeeding had not come out yet and were worried about it. The purpose of this study was to determine the effect of giving back massage to the production of breast milk in postpartum mothers. In this case the researcher wants to apply the technique of back massage or oxytocin massage to provide early stimulation and is expected to increase patient comfort, stimulate the release of the hormone oxytocin, resulting in increased milk production and avoid the desire of the mother or family to give formula milk for reasons of breast milk not yet out.

**METHODS**

This research is a quasi-experimental design of a time series with a comparison group (control time series design). This research was carried out from May 2019 to July 2019. The population in this study were all postpartum mothers who gave birth in Denpasar with the study period. The sample in this study was postpartum mothers with of 15 respondents in the treatment group and 15 respondents in the control group. Inclusion criteria is postpartum maternal at least three hours after giving birth, the baby was not given formula milk, the baby's reflexes were good, the mother could mobilize well, baby's body weight >2,500 grams, mother and baby treated together, the form of nipple both breasts normal. Exclusion criteria is mother experiencing postpartum complications (postpartum hemorrhage and postpartum infection), mother with breast anatomy disorders (putting nipple/flat) and the baby who died.

The instrument used to collect this research data was an observation sheet to assess milk production and the administration of oxytocin massage interventions in accordance with standard operating procedures (SOP).

The first intervention will be carried out on the treatment group after three hours the mother has given birth, so that the mother gets a short break after giving birth and eating and drinking enough. The control group will be assessed but no oxytocin massage will be given intervention. Then the two groups will be followed up by the research assistant by conducting a home visit once every two days for two weeks (seven actions for the treatment group). The oil that will be used to do oxytocin massage is VCO (Virgine Coconut Oil) oil which has a low allergic side effect. Data analysis in this study used univariate analysis to describe descriptively about the frequency distribution and the proportion of each variable studied, and continued with bivariate analysis with the statistical test used was the Repeated Anova Test.

**RESULTS**

The research result showed that educational characteristic of the majority (66.7%) was educated with higher education. Based on the age, the majority (86.7%) was in the age of 20-35 years. Based on working status, half of which is 56.7% not working. Based on parity status most of which is 63.3% multiparous and some which is 60% with a family income more than equal to the minimum family wage (Table 1).

**Table 1: Frequency distribution of respondent characteristics.**

Respondent Characteristics	Frequency (n)	Percentage (%)
<b>Age</b>		
20-35 years old	26	86.7
>35 years old	4	13.3
<b>Education</b>		
Primary	10	33.3
High	20	66.7
<b>Working Status</b>		
No	17	56.7
Yes, working	13	43.3
<b>Parity</b>		
Primipara	11	36.7
Multipara	19	63.3
<b>Family Income</b>		
<Family minimum wage	12	40
≥Family minimum wage	18	60

Based on the table above it was found that the category of breastfeeding in the control group was mostly 10 respondents (66.7%) with the exclusive breastfeeding category, while the breastfeeding category in the intervention group was almost entirely 14 respondents (93.3%) with the exclusive breastfeeding category (Table 2).

Based on the table above it can be seen that in the control group the average frequency of infant urinanting from the first visit to the seventh visit increased with an average frequency of 5.66. Whereas in the treatment group the

frequency of infant urinating was higher than the control group from the first visit to the seventh visit with an average frequency of 6.99. Based on the table above it can be seen that the results of the Repeated Anova

statistical test obtained a value of  $F=17.15$ ,  $p=0.000$  ( $p < 0.005$ ) means that there is an effect of back massage on breast milk production in postpartum mothers in Denpasar City (Table 3).

**Table 2: Breastfeeding Category.**

Breastfeeding Category	Not Exclusive		Exclusive Breastfeeding		Total	
	Frequency	%	Frequency	%	Frequency	%
Control	5	33.3	10	66.7	15	100
Intervension	1	6.7	14	93.3	15	100

**Table 3: Bivariate Analysis Test Results (Repeated Anova Test).**

Category	Amount	Frequency of urinating infants														Baby frequency average
		V.1		V.2		V.3		V.4		V.5		V.6		V.7		
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Control Group	15	1.47	1	4.07	0.8	5.47	0.7	6.27	0.8	7	1.1	7.53	0.8	7.87	1	5.66
Treatment Group	15	2.27	0.8	5.00	1	6.87	1.2	7.53	1	8.40	1	9.13	1.2	9.73	1.4	6.99
Total	30	1.87	0.9	4.53	1	6.17	1.2	6.9	1.1	7.7	1.2	8.3	1.3	8.8	1.5	12.65

$p$ -value = 0.0001  $F$  count = 17.15  $V$  = Visit.

**DISCUSSION**

***Increased Breast milk Production for Postpartum Mothers not Given Back Massage (Control Group)***

The control group had a lower mean or mean urinating frequency than the treatment group from the first visit to the seventh visit. In the first visit the mean value (mean) in the control group was 1.47. This is due to the inhibition of the hormone prolactin which produces breast milk is inhibited by estrogen levels that are so high after delivery, so that colostrum cannot come out or only a little out.<sup>5</sup>

For this reason, it is necessary to stimulate the release of these hormones. One of them by giving a massage or massage on the back of the mother, so that by giving this massage action can increase milk production in postpartum mothers. In this study, the frequency of urinating is used as a measurement tool in determining milk production. In addition to the frequency of urination, there are several other indicators such as the frequency of baby's bowel movements, baby's sleep duration, baby's weight.

In this study shows that most of the postpartum mothers in the breastfeeding production control group were not smoothly seen in the fourth, fifth and sixth visit production which only increased slightly from 6.27, 7 and became 7.53.

***Increased Breast milk Production for Postpartum Mothers Given Back Massage (Treatment Group)***

The production of breast milk that gets back massage is from the first visit to the seventh visit has increased every day, and has a mean score (mean) frequency of urinating that is higher than the control group from the first visit to the seventh visit. This is because the treatment group gets stimulation that stimulates the hormones prolactin and oxytocin, namely by back massage. Massage techniques with back massage can stimulate the oxytocin reflex before milk is removed or squeezed. The hormone oxytocin affects the release of the hormone prolactin as a stimulation of milk production in the mother during breastfeeding, so that the treatment group that gets back massage has increased milk production.

Back massage is a massage of the spinal cord 5-6 with circular movements performed on the mother after childbirth to help the work of the hormone oxytocin in the release of breast milk, accelerating parasympathetic nerves transmit signals to the back of the brain to stimulate the work of oxytocin in flowing milk out.<sup>6</sup> Back massage action can affect the prolactin hormone which functions as a stimulus for breast milk production in mothers during breastfeeding. This action can also relax the mother and facilitate the flow of nerves and milk ducts in both breasts.<sup>7</sup> Thus, mothers who get back massage have relatively more milk production than those not given or the control group.

***Effect of back massage on increasing breast milk production***

The results of this study indicate that the frequency of infant urinating in the treatment group is more frequent or more than the control group, so that from this data it can be interpreted that the postpartum breastfeeding breast milk production increased compared to the control group. Statistical test results with the help of SPSS with version 16.0 using repeated anova on the respondents obtained the value of  $F=17.15$ ,  $\rho=0.0001$  where  $\rho < 0.005$ , meaning that there is an effect of back massage on the production of breast milk in postpartum mothers at Denpasar City.

Back massage is one solution to overcome the smooth production of breast milk. Back massage is massage along the spine (vertebrae) to the fifth-sixth costae bone and is an effort to stimulate the hormone prolactin and oxytocin after childbirth. This back massage is done to stimulate the letdown reflex. In addition to stimulating the letdown reflex, it also provides comfort to the mother, reduces swelling, reduces milk blockage, stimulates the release of the hormone oxytocin, maintains milk production when the mother and baby are sick.<sup>8</sup> In this study, giving back massage can give a relaxed sensation to the mother and smooth the flow of nerves and breast milk channels of both breasts.<sup>9</sup> Back massage will provide comfort and relax the mother because massage can stimulate endorphin hormone expenditure and can stimulate the oxytocin reflex.<sup>10</sup> Massage techniques at a certain point can eliminate blockages in the blood and energy in the body will return smoothly. Thus, mothers who get back massage relatively have more milk production compared to those who do not get back massage. From the facts above there are differences in the effect of back massage on increase breast milk production in postpartum mothers, where the production of breast milk for postpartum mothers who get back massage has more milk production compared to the control group who did not get back massage. The mean number per day of urination by the babies were higher in study group. Increased lactogenesis in experimental group may be responsible for more frequent urine.

In addition to back massage other factors can also affect milk production, such as 1) the age of the mother, younger mothers produce more milk compared to older mothers. 2) Education, education can affect the ability and efforts of parents in caring for and maintaining their children's health. 3) Work, working mothers are an obstacle in breastfeeding. 4) Parity, a mother giving birth to a second child or so has more milk production compared to the birth of the first child.

**CONCLUSION**

That parameters number of urinations passed per day by the babies were higher in study group, which indicate improved breast milk production since the first day of

childbirth, and this is a simple method can be implemented using the existing healthcare personnel.

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