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Effectiveness of Oxytocin Massage on Increasing Breast Milk Production in Breastfeeding Mothers and Infant Weight Gain

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ABSTRACT

Oxytocin massage is a massage of the 5-6th rib of the spine down to the scapula which will speed up the work of the sympathetic nerves in stimulating the posterior pituitary to release oxytocin. Based on the health profile of Riau Province, the coverage of babies given exclusive breastfeeding up to 6 months of age in Riau Province in 2020 decreased by (47%) and from the survey results at the Arrabih Pratama Clinic, there were several mothers who did not know about oxytocin massage to increase breast milk production. The aim of the research is to determine the effectiveness of oxytocin massage in increasing breast milk production and increasing baby weight at the Arrabih Pratama Clinic. This research method has a type of quantitative analytical research with a Quasi-Experimental design using a two-group posttest to test paired variables. This research was conducted at the Arrabih Pratama Clinic on 21 August – 21 September 2023. The population in this study were all postpartum mothers who visited the Arrabih Pratama Clinic and the samples in this study were 30 postpartum mothers who were breastfeeding who were divided into 2 intervention groups and controls. The sampling technique in this research used Total Sampling based on certain considerations according to inclusion and exclusion criteria. The results of this study showed that there was an effect of oxytocin massage on increasing breast milk production in breastfeeding mothers and increasing baby weight. Based on research results, giving oxytocin massage to breastfeeding mothers can increase breast milk production and increase baby weight gain. Suggestions for the clinic to provide oxytocin massage facilities and attend mother and baby massage training.

Keywords: Oxytocin Massage, Increased Breast Milk Production, Weight Gain, Breastfeeding Mothers, Babies

ABSTRAK

Pijat oksitosin adalah pemijatan tulang belakang pada Costa ke 5-6 sampai ke scapula yang akan mempercepat kerja saraf para simpatis dalam merangsang hipofisis posterior untuk mengeluarkan oksitosin. Berdasarkan profil kesehatan Provinsi Riau cakupan bayi yang diberikan ASI Eksklusif sampai usia 6 bulan di Provinsi Riau tahun 2020 mengalami penurunan sebanyak (47%) dan dari hasil survey di Klinik Pratama Arrabih terdapat beberapa ibu yang belum mengetahui tindakan pijat oksitosin untuk melancarkan produksi ASI. Tujuan penelitian ini adalah untuk mengetahui efektifitas pijat oksitosin terhadap peningkatan produksi ASI dan kenaikan berat badan bayi di Klinik Pratama Arrabih. Metode Penelitian ini menggunakan jenis penelitian analitik kuantitatif dengan desain Quasi Eksperimen dengan menggunakan two group posttest untuk menguji variable yang berpasangan. Penelitian ini dilakukan di Klinik Pratama Arrabih pada tanggal 21 Agustus – 21 September 2023. Populasi dalam penelitian ini adalah seluruh ibu nifas yang berkunjung ke Klinik Pratama Arrabih dan sampel dalam penelitian ini adalah ibu nifas yang menyusui sebanyak 30 sampel yang dibagi menjadi 2 kelompok intervensi dan control. Teknik pengambilan sampel dalam penelitian ini menggunakan Total Sampling berdasarkan pertimbangan tertentu sesuai kriteria inklusi dan ekslusi. Analisis yang digunakan adalah analisis univariat dan bivariat. Hasil penelitian ini menunjukkan bahwa terdapat pengaruh pijat oksitosin terhadap peningkatan produksi ASI pada ibu menyusui dan penambahan berat badan bayi. Disimpulkan bahwa pemberian pijat oksitosin pada ibu menyusui dapat meningkatkan produksi Asi dan meningkatkan kenaikan berat badan bayi. Saran agar Klinik menyediakan fasilitas pijat oksitosin dan mengikuti pelatihan massase ibu dan bayi.

Kata Kunci: Pijat Oksitosin, Peningkatan Produksi ASI, Kenaikan Berat Badan, Ibu Menyusui, Bayi

INTRODUCTION

Oxytocin massage is a spinal massage at the costa (ribs) to 5-6 to the scapula (shoulder blade) which will accelerate the work of parasympathetic nerves, nerves that originate in the medulla oblongata and in the sacrum area of the medullaspinalis, stimulating the posterior hypophysis to secrete oxytocin, oxytocin stimulates the contraction of smooth muscle cells surrounding the lactiferous duct of the mammary gland causing breast myoepithelial contractility so as to increase the emission of breast milk from the mammary glands (Zubaidah, 2021). Oxytocin is a hormone that can increase the entry of calcium ions into the intracellular. The release of the hormone oxytocin will strengthen the bonds of actin and myosin so that uterine contractions are stronger and the process of uterine involution is getting better Julikas, Selvia, & Sari, 2024; Ayu, et al., 2022; Hadianti, & Sriwenda, 2019; Marcet-Rius, et al., 2023). Oxytocin is produced from posterior hypnosis in the paraventricular nucleus and supra-optic nucleus. These nerves travel to the neuro hypophysis through the pituitary stalk, where the end of this stalk is a sphere containing many secretory granules and is on the surface of the posterior hypophysis and when there is a stimulus will secrete oxytocin. While oxytocin will work to cause contractions if the uterus has oxytocin receptors. To stimulate the oxytocin hormone, it can be stimulated through the process of oxytocin massage (Pitriani, 2014).

According to Research Results Masruroh, & Istianah, (2019) Breastfeeding by breastfeeding mothers requires support from the closest people, such as family members, friends, relatives, and co-workers, the family in this case is the husband or parents who are considered the closest parties who are able to influence mothers in exclusive breastfeeding. Support from others or the closest person plays a role in the success or failure of breastfeeding. The greater the support mothers get to continue breastfeeding, the greater the ability to survive the breastfeeding process. Husband support is the effort given by the husband mentally, physically and socially in the success of the wife in providing exclusive breastfeeding to her baby.

According to research conducted by (Muawanah, 2021), the increase in breast milk production was that the volume of breast milk production of breastfeeding mothers before oxytocin massage the majority had a low volume of breast milk production, namely 23 participants (76.7%) and the minority had a good volume of breast milk production, namely 7 participants (23.3%). After the oxytocin massage, the majority of the breast milk production volume of breastfeeding mothers had an increased volume of breast milk production, namely 22 participants (73.3%) and the minority had a volume of breast milk production that remained less, namely 1 participant (3.3%). The frequency of breastfeeding after the oxytocin massage was performed, the majority had an increased frequency of breastfeeding, namely 23 participants (76.7%) and the minority had a lower frequency of breastfeeding, namely 1 participant (3.3%). From the results of the study, it can be concluded that oxytocin massage can increase breast milk production of breastfeeding mothers through increased milk volume and frequency of breastfeeding babies (Dinas Kesehatan Provinsi Riau, 2019).

World Health Organisation (WHO) data states that the exclusive breastfeeding target to be achieved by 2030 is 80% (World Health Organization, 2022). The percentage of exclusive breastfeeding in Indonesia is still low at only 74.5%. This is still far from the global exclusive breastfeeding target of 80%. According to the Ministry of Health's Data and Information Centre 2017, exclusive breastfeeding in Indonesia is only 35%. This figure is still far below the WHO (World Health Organisation) recommendation of 50% (World Health Organization, 2014). Based on data obtained from the results of the 2018 RISKESDES survey, the proportion of exclusive breastfeeding was 37.3%, partial breastfeeding 9.3%, and predominant breastfeeding 3.3%. Meanwhile, in Riau Province, exclusive breastfeeding was 38.0%, partial breastfeeding was 13.0% and predominant breastfeeding was 5%. From these data, exclusive breastfeeding in Riau Province is still low (Kementerian Kesehatan Republik Indonesia, 2018).

Based on the Riau Province Health Profile in 2019. Coverage of infants who were exclusively breastfed until 6 months of age in Riau Province in 2018 was 35% while in 2019 it was 68%. However, the achievement in 2020 has decreased by (47%) (Dinkesprov, 2019). Based on the Pekanbaru City Health Office Profile in 2021, one of the areas that has the highest number of toddlers and low exclusive breastfeeding coverage is in the Simpang Tiga Puskesmas Working Area, Marpoyan Damai District, namely 265 babies 0-6 months, only 88 babies are exclusively breastfed with a percentage of (33.2%) (Dinas Kesehatan Provinsi Riau, 2013).

According to research conducted by (Muawanah & Sariyani, 2021), the increase in breast milk production was the volume of breast milk production of breastfeeding mothers before oxytocin massage was done, the majority had a low volume of breast milk production, namely 23 participants (76.7%) and the minority had a good volume of breast milk production, namely 7 participants (23.3%). After the oxytocin massage, the majority of breast milk production volume of breastfeeding mothers had an increased volume of breast milk production, namely 22 participants (73.3%) and the minority had a volume of breast milk production that remained less, namely 1 participant (3.3%). The frequency of breastfeeding after the oxytocin massage was performed, the majority had an increased frequency of breastfeeding, namely 23 participants (76.7%) and the minority had a lower frequency of breastfeeding, namely 1 participant (3.3%). From the results of the study, it can be concluded that oxytocin massage can increase breast milk production of breastfeeding mothers through increasing the volume of breast milk and the frequency of breastfeeding babies (Dinas Kesehatan Provinsi Riau, 2019). Therefore, the purpose of this study was to determine the effectiveness of oxytocin massage on increasing breast milk production and infant weight gain at the Arrabih Pratama Clinic.

RESEARCH METHODS

This research method has a type of quantitative analytical research with a Quasi Experiment design using two group posttest to test paired variables. This study was conducted at Arrabih Primary Clinic on 21 August - 21 September 2023. The population in this study were all postpartum women who visited the Arrabih Pratama Clinic and the sample in this study were postpartum women who breastfed as many as 30 samples divided into 2 intervention and control groups. The sampling technique in this study used Total Sampling based on certain considerations according to the inclusion criteria, namely postpartum mothers who were willing to become respondents, had babies aged 0-6 months, mothers who were recorded at the Pratama Arabih Clinic and exclusions were mothers who had babies> 6 months-12 months, cancelled their willingness to become respondents, who were recorded but could not be met or contacted. The research flow was carried out by obtaining a research permit from the campus, then getting a recommendation to carry out research at the Arrabih Pratama Clinic, then all 30 mothers were divided into 2 groups, namely the intervention group of 15 people and the control group of 15 people, using the observation sheet instrument and the oxytocin massage SOP. The analysis used was univariate and bivariate analysis with the statistical test used was the Dependent T-Test. This research has gone through ethical review procedures from the Ethics Committee of Hang Tuah University Pekanbaru with No: 025/KEPK/UHTP/IV/2023.

RESULTS

Table 1. Characteristics of Respondents Based on Age, Occupation and Education of Breastfeeding Mothers at the Pratama Arrabih Clinic, Pekanbaru City

Variables	Intervention Group			Control Group		
	N	Frequency	Percentage (%)	N	Frequency	Percentage (%)
Mother's age	15			15		
<20 and >35 years		3	20,0		5	33,3
20-35 years		12	80,0		10	66,7
Work	15			15		
Working		3	20,0		4	26,7
Not Work		12	80,0		11	73,3
Education	15			15		
SD-SMP		2	13,3		2	26,7
SMA-PT		13	86,7		13	86,7
Parity	15			15		
Primigravida		3	20,0		4	26,7
Multigravida		12	80,0		11	73,3
Breast Care	15			15	100	100
No		13	86,7		100	100
Yes		2	13,3		0	0

Variables	Intervention Group			Control Group		
	N	Frequency	Percentage (%)	N	Frequency	Percentage (%)
Breast Care Consumption	15			15		
No		13	86,7		100	100
Yes		2	13,3		0	0

Based on table 1 above shows that the Characteristics of Respondents Based on Age, Occupation and Education in Breastfeeding Mothers at the Pratama Arrabih Clinic in Pekanbaru City are divided into 2 variables, namely the intervention group and the control group for the intervention group, almost all respondents were 20-35 years old as many as 12 people (80.0%), most of the respondents did not work as many as 12 people (80.0%) and had a high school education-PT as many as 13 people (86.7%) and most of the parities were multigravida by 12 people (80.0%), most respondents did not do breast care (86.7%), and did not consume breast milk care 13 (86.7%).

Whereas in the control group, most respondents were 20-35 years old as many as 10 people (66.7%), almost all respondents did not work as many as 11 people (73.3%) and had SMA-PT education as many as 13 people (86.7%), and most of the parities were multigravida by 11 people (73.3%), most respondents did not perform breast care (100%), and did not consume breast milk care (100%).

Table 2. Frequency Distribution of Increased Breast Milk Production and Weight Gain of Infants Performed Oxytocin Massage at Arrabih Primary Clinic

(Pre-Test and Post-Test)	N	Min	Max	Mean	SD
Increased Breast Milk Production					
Before	15	50	120	82,40	19,657
After	15	70	120	92,00	18,303
Infant Weight Gain					
Before	15	3,30	8,00	5,4867	1,77316
After	15	4.00	9,00	6,2000	1,89737

Based on Table 2, it can be seen that the average breast milk production before the intervention was 82.40 ml with a standard deviation of 19.657 and the average breast milk production after the intervention was 92.00 ml with a standard deviation of 18.303. Meanwhile, the weight gain before oxytocin massage was 5.4 kg with a standard deviation of 1.773 and after oxytocin massage was 6.2 kg with a standard deviation of 1.897.

Table 3. Frequency Distribution of Increased Breast Milk Production and Infant Weight Gain without Oxytocin Massage at Arrabih Primary Clinic

(Pre-Test and Post-Test)	N	Min	Max	Mean	SD
Increased Breast Milk Production					
Before	15	30	70	44,27	12,285
After	15	29	69	43,53	11,186
Infant Weight Gain					
Before	15	3,30	8,00	5,3867	1,57701
After	15	4,00	8,00	5,6933	1,48683

Based on Table 3, it can be seen that the average breast milk production before the intervention was 44.27 ml with a standard deviation of 12.285 and the average breast milk production after the intervention was 43.53 ml with a standard deviation of 11.186. While the weight gain before oxytocin massage was 5.3 kg with a standard deviation of 1.577 and after oxytocin massage was 5.6 kg with a standard deviation of 1.486.

Table 4. Results of Normality Test of Respondents Based on Pre-Test and Post-Test of Breast Milk Production and Infant Weight Gain in the Intervention Group

Variables	Frequency	Kolmogorv-smirnov		
		Statistic	Df	Sig.
Pre-Test Performed Breast Milk Production Massage	15	0,407	15	0,002
Post-Test of Breast Milk Production Massage	15	0,385	15	0,026
Pre-Test Baby weight gain	15	0,367	15	0,050
Post-Test Baby weight gain	15	0,367	15	0,026

Based on table 4, it is known that the results of the normality test using Kolmogorv-smirnov obtained sig value. In the pre-test of the intervention group, namely 0.002 and the post-test of the intervention group, namely 0.026 and in the pre-test normality test of the baby weight gain intervention group, namely 0.050 and the post-test of the baby weight gain intervention group, namely 0.026, which means that the sig. value in both groups is smaller than 0.05 (p-value> 0.05). Based on the results of the above research, the data is not normally distributed, so the statistical test used is a nonparametric statistical test, namely the Wilcoxon test. The wilcoxon test is a nonparametric test to measure the significance of differences between 2 groups of paired ordinal or interval scale data, with data that is not normally distributed.

Table 5. Effectiveness of Oxytocin Massage on Increased Breast Milk Production and Infant Weight Gain at Arrabih Primary Clinic

Maternal Breastmilk Production and Infant Weight Gain	N	Mean	ρ-Value
Breast milk production group	15	92,00	0.000
Infant weight gain group	15	6,200	

Based on table 5 above, the ρ-value = 0.000 (<0.05) can be concluded that Ha is accepted, meaning that there is an effect of oxytocin massage on increasing breast milk production of nursing mothers and increasing baby weight gain.

DISCUSSION

Based on the results of the study, it was found that the average breast milk production of nursing mothers in the intervention group before the intervention (Oxytocin Massage) was 82.40 ml and after the intervention (Oxytocin Massage) was 92.00 ml. This result shows there is an increase in breast milk production by 9.6 ml. While before and after in the control group were 44.27 ml and 43.53 ml. The average baby weight in the intervention group before being given intervention (Oxytocin Massage) was 5.48 kg and after being given intervention (Oxytocin Massage) was 6.2 kg. These results showed there was an increase in baby weight of 0.52 kg. While the average increase in baby weight before and after in the control group was 5.38 kg and 5.69 kg. Obtained with a p-value = (0.000) < α (0.05), it can be concluded that there is an effect of oxytocin massage on increasing breast milk production and increasing baby weight at Arrabih Primary Clinic.

Oxytocin massage can affect psychological factors to increase relaxation and comfort levels in the mother, thereby triggering the production of the hormone oxytocin and affecting milk production. The effect of oxytocin massage is that the glandular cells in the breast secrete breast milk so that the baby gets breast milk according to the needs, namely the baby's weight increases, the baby's urine per - 24 hours 30 - 50 mg (6-8 times), the baby defecates 2-5 times, the baby falls asleep for 2-3 hours (Maryunani, 2010). This is in line with the theory (Muslihatun, 2011) that oxytocin massage for breastfeeding mothers serves to stimulate the oxytocin hormone in order to facilitate milk production and increase maternal comfort. Oxytocin massage is one of the solutions to overcome the lack of milk production (Sari, Salimo, & Budihastuti, 2017; Amaliasari, & Pradanie, 2020; Wulandari, et al., 2022; Sandriani, Fitriani, & Rahayu, 2023; Kartilah, & Februanti, 2023). Oxytocin massage is a massage along the bones (vertebrae) to the fifth-sixth costae bone and is an attempt to stimulate the prolactin and oxytocin hormones after childbirth. this massage is done to stimulate the oxytocin reflex or milk ejection reflex.

This study is in line with research Muawanah, & Sariyani, (2021) the average difference in baby weight in postpartum mothers given oxytocin massage by their husbands was 351.75g. The conclusion is that there is a significant difference in the average difference in baby weight. Stating the percentage change in birth weight is used as an indicator of breastfeeding adequacy and usually weight loss is used as a marker of inadequate intake due to insufficient milk supply or ineffective milk transfer. Weight change is an important assessment as is newborn weight loss as underfeeding. Judging from the results of the analysis of the difference in the average weight of the baby although it did not increase so much compared to combining breast care with oxytocin massage, but the oxytocin massage suit is more practical in the process of use because it does not require warm compresses that have been replaced by infrared, and the help of other people in the massage process because it has been replaced by a robot massager that can massage automatically, In addition, the comfort can be adjusted to the user, the mother's privacy is maintained because there is a cover shirt and can be adjusted in size, besides that the oxytocin massage suit can also be used when the mother is breastfeeding the baby, so that the results of breast milk production are more effective because of the stimulation of the baby's suction so that oxytocin stimulation comes from two points, namely from the back massage and the baby's suction. The massage time can be determined by the mother for 5 minutes, 10 minutes, and 15 minutes. In this study, researchers used a massage time of 15 minutes because researchers only did 1 time in 1 day. Kiftia.37 stated in his research that massage was carried out for 15-20 minutes to get more effective results (Muawanah & Sariyani, 2021).

According to the researcher, the increase in breast milk production experienced by postpartum mothers at the Arrabih Pratama Clinic after oxytocin massage produced more breast milk. The increase in breast milk production is influenced by two factors, namely production and expenditure. Breast milk production is influenced by the hormone oxytocin. The oxytocin hormone will come out through stimulation to the nipple through the baby's suction or through massage on the baby's mother's spine, by doing a massage on the mother's spine. This shows the suitability of the research results with the theory. If oxytocin massage is not done, breast milk production is less compared to mothers who do oxytocin massage, and oxytocin massage can also increase the baby's weight due to increased breast milk production in the mother so that the baby is more sufficient breast milk so that the baby's weight increases.

CONCLUSION

Based on the results of this study, there is an effect of oxytocin massage on increasing breast milk production of breastfeeding mothers and infant weight gain. Therefore, it is necessary to provide oxytocin massage facilities at Kilinik Pratama Arrabih so that postpartum mothers can provide breast milk to their babies and it is advisable for health workers at Klinik Pratama Arrabih to attend maternal and infant massage training. For midwifery institutions, it is necessary to conduct community service for the socialisation of oxytocin massage to targeted pregnant women so that when they give birth the baby can breastfeed early.

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