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Research Article

Effectiveness of Oxytocin Massage on Uterine Involution and Milk Production in Postpartum Mothers at the Gerakan Sayang Ibu dan Anak Clinic Nabire Papua

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Abstract

Aims: Knowing the effectiveness of oxytocin massage on uterine involution and milk production in postpartum mothers
Methods: Quasi-experimental with case-control research type. The sample in this study were all postpartum patients at the GSIA Nabire Clinic, Papua in March 2022 as many as 30 people were divided into 2 groups, 15 intervention groups, and 15 control groups (total sampling).
Results: Most postpartum mothers with normal uterine involution (80%) and milk production (50%). There is the effectiveness of massage on uterine involution and milk production in postpartum mothers with a p-value < 0.05
Conclusion: Massage effectiveness affects uterine involution and milk production in postpartum mothers. It is hoped that oxytocin massage will be used as a procedure at the GSIA Clinic so that postpartum mothers can provide exclusive breastfeeding to their children.

Keywords:
Oxytocin Massage, Uterine Involution, Breast Milk Production

INTRODUCTION

The World Health Organization defines maternal death as death that occurs during pregnancy or within 42 days of birth. According to the World Health Organization 295,000 women died globally during and after pregnancy and delivery in 2020. Africa, Sub-Saharan Africa, and South Asia account for around 86% of all maternal deaths globally. If progress is made quickly enough to meet the SDG targets (lowering the worldwide MMR to less than 70 per 100,000 live births), at least one million women's lives will be saved (1).

The success of initiatives to improve maternal health can be measured, in part, by the Maternal Mortality Rate (MMR). From 1991-2015, Indonesia's MMR dropped from 390 to 305 deaths per 100,000 newborns, a significant improvement. Despite a downward trend, Indonesia's maternal mortality rate (MMR) in 2020 was 230 per 100,000 live births. This is well over the MDGs target of 102 per 100,000 live births by 2015 (2).

Representatives from UNICEF in Papua have stated that the province continues to have Indonesia's highest maternal death rate. In Papua, there are 305 maternal deaths for every 100,000 live births. One of the reasons why Papua still has a high maternal mortality rate, especially among women who give birth without medical help. Several factors contribute to a mother's poor health, including excessive bleeding during pregnancy and labor, among others. The World Health Organization estimates that 95 percent of maternal deaths can be avoided with proper antenatal care, medically assisted delivery, and postpartum care (3).

Complications that arise during and after delivery account for 90% of maternal deaths. The "Classical Triassic" causes are hemorrhage (30.0%), hypertension

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(27.1%), infection (7.3%), extended labor (1.8%), abortion (1.6%), and others (40.8%). Meanwhile, anemia, diabetes, chronic lack of energy (KEK) (37%), and anemia (Hb 11gr) 40% are the leading indirect causes of maternal death. These factors can be avoided with proper prenatal care (4).

Bleeding is the main cause of maternal death in Indonesia by 50-60%, generally due to weakness or absence of uterine contractions (uterine atony), and mishandling of the third stage of labor, so that the delivery of the placenta occurs more slowly and increases the amount of bleeding. In addition, postpartum hemorrhage is also caused by tears in the vagina, placenta previa, and uterine rupture .

Efforts to prevent postpartum hemorrhage can be carried out during the third and fourth stages of labor by giving oxytocin. After the expulsion of the placenta, there will be strong and continuous uterine contractions and retractions to prevent postpartum hemorrhage. In the third stage, the level of oxytocin in the plasma increases, where the oxytocin hormone plays a very important role in the process of uterine involution. Uterine involution or uterine contraction is a process in which the uterus returns to its pre-pregnancy state with a weight of about 60 grams (5).

Attempts to control the occurrence of bleeding from the placental site by improving contractions and retractions as well as strong myometrium. Therefore, efforts to maintain uterine contractions through manual massage or stimulate the release of the hormone oxytocin are an important part of post-partum care (Intan, 2019).

Oxytocin massage is an act of spinal massage starting from the 5th-6th rib to the scapula which will speed up the work of the parasympathetic nerves to convey commands to the back of the brain so that oxytocin comes out. The hormone oxytocin is useful for strengthening and regulating uterine contractions, compressing blood vessels, and assisting maternal hemostasis, thereby reducing the incidence of uterine atony, especially in prolonged labor. Strong uterine contractions will result in a better involution process (6).

Alternative methods of stimulating milk production include oxytocin massage. Comfort for the mother, decreased edema, lessened milk blockage, increased oxytocin release, and sustained milk production in the face of illness are all benefits of oxytocin massage. After giving delivery, some women find it helpful to have someone massage them from the base of their spine (vertebrae) all the way up to their fifth or sixth rib (7).

According to the findings of a pilot study conducted in the GSIA Nabire Clinic's birth room in Papua, there has never been a study on the effect of oxytocin massage on enhancing breast milk production and its effect on uterine involution. An discussion with one of the delivery room midwives revealed that they had never offered oxytocin massage to normal postpartum women to promote uterine contractions or stop bleeding. So far, pharmaceutical treatments in the form of injectable oxytocin administration in the active management of the third stage and uterine massage in the fourth stage have been used to promote uterine contractions in postpartum patients. The number of deliveries at the Nabire Papua GSIA Clinic has increased year after year; on average, there are 30-35 deliveries each month. Based on the foregoing, the authors would like to perform a study on "the effectiveness of oxytocin massage on uterine involution and milk production in postpartum mothers at the GSIA Nabire Clinic in Papua in 2022."

METHODS

The study employs a quasi-experimental design with case-control research. Data retrieval is accomplished by the use of primary data, namely data gathered from observations. An observation sheet for moms in labor was utilized to collect data. In

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this study, all postpartum patients at the GSIA Nabire Clinic in Papua in March 2022 were separated into two groups, 15 intervention groups and 15 control groups (total sample). The method of analysis employed is univariate and bivariate analysis with a chi-square test.

RESULTS

Table 1. Distribution of Uterine Involution Frequency in Postpartum Mothers at GSIA Nabire Clinic Papua in 2022

No	Uterine Involution	Frequency	%
1.	Normal	24	80,0
2.	Abnormal	6	20,0
	Total	**30**	**100.0**

According to the table above, the majority of the 30 respondents had normal uterine involution, with as many as 24 (80.0%) and 6 (20.0%) having aberrant uterine involution.

Table 2. Distribution of Milk Production Frequency in Postpartum Mothers at GSIA Nabire Clinic Papua in 2022

No	Breast milk production	Frequency	%
1.	Fluent	15	50,0
2.	Smooth enough	8	26,7
3.	Not that smooth	7	23,3
	Total	**30**	**100.0**

According to the table above, the majority of milk production was smooth for as many as 15 individuals (50.0%), pretty smooth for as many as 8 people (26.7%), and less smoothly for as many as 7 respondents (23.3%).

Table 3. Distribution of Oxytocin Massage Frequency to Postpartum Mothers At GSIA Nabire Clinic Papua in 2022

No	Breast milk production	Frequency	%
1.	Oxytocin massage done	15	50,0
2.	No oxytocin massage	15	50,0
	Total	**30**	**100.0**

According to the table above, of the 30 respondents who received oxytocin massage treatment, as many as 15 (50.0%) responded, and as many as 15 (50.0%) did not receive oxytocin massage treatment.

Table 4. The Effectiveness of Oxytocin Massage on Uterine Involution in Postpartum Mothers at the GSIA Nabire Clinic, Papua in 2022

Oxytocin Massage	Uterine Involution				Total		*P. Value*
	Normal		Abnormal				
	F	%	F	%	F	%	
Oxytocin massage done	15	100,0	0	0,0	15	100,0	
No oxytocin massage	9	60,0	6	40,0	15	100,0	**0,017**
Total	**24**	**80,0**	**6**	**20,0**	**30**	**100,0**	

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According to the table above, 15 of the 15 respondents who received oxytocin massage had normal uterine involution (100%), while 9 of the 15 respondents who did not receive oxytocin massage had normal uterine involution (60%). The Chi-Square statistical test yielded a p-value of 0.017 (p-value 0.05), indicating that oxytocin massage is effective on uterine involution in postpartum moms at the GSIA Nabire Clinic in Papua in 2022.

Table 5. The Effectiveness of Oxytocin Massage on Breast Milk Production in Postpartum Mothers at the GSIA Nabire Clinic, Papua in 2022

Oxytocin Massage	Breast milk production						Total		*P. Value*
	Fluent		Smooth enough		Not that smooth				
	F	%	F	%	F	%	F	%	
Oxytocin massage done	13	86,7	2	13,3	0	0,0	15	100,0	
No oxytocin massage	2	13,3	6	40,0	7	46,7	15	100,0	**0,000**
Total	**15**	**50,0**	**8**	**26,7**	**7**	**23,3**	**30**	**100,0**	

According to the table above, of the 15 respondents who received oxytocin massage treatment, the majority of their milk production was smooth as many as 13 people (86.7%), whereas the majority of the milk production of the 15 respondents who did not receive oxytocin massage treatment was substandard and did not even come out as much. 7 individuals (46.7%). The Chi-Square statistical test yielded a p-value of 0.000 (p. value 0.05), indicating that oxytocin massage had an influence on breast milk production in postpartum moms at the GSIA Nabire Clinic in Papua in 2022.

DISCUSSION

The Effectiveness of Oxytocin Massage Against Uterine Involution in Postpartum Mothers

Based on the results of the study, it can be seen that of the 15 respondents who were given oxytocin massage treatment, all of them with normal uterine involution were 15 people (100%), and of the 15 respondents who were not given oxytocin massage treatment, most of the normal uterine involution were 9 people (60.0%).). The results showed that the Chi-Square statistical test obtained a p-value of 0.017 (p. value <0.05), which means that there is an effect of oxytocin massage on uterine involution in postpartum mothers at the GSIA Nabire Clinic, Papua in 2022.

Uterine involution is the return of the uterus to its pre-pregnancy state in shape and position. This involution can shrink the uterus after delivery to return to its original shape weighing about 60 grams. This process begins after the placenta is born due to the contraction of the smooth muscles of the uterus (8).

Results from a more in-depth examination of the intervention group showed that all 15 women had normal uterine involution, with the fundal height of the uterus being 1 cm below the midline on the first postpartum day. According to the notion put forth by (9), a normal uterine fundal height on the first postpartum day is 1 cm below the midline. On day one after giving birth, a woman's uterine fundus is around 1 cm (one finger's width) below the midline. By the fifth day after giving birth, the uterus has shrunk to one-third of its pre-pregnancy size. And by day 10, it is already tough to palpate the fundus above the symphysis. According to (10) uterine fundal height decreases by 1 cm sub-center daily after delivery. Involution is the process through which it shrinks back to its size before pregnancy. That "the uterus gradually becomes small (involution) so that it finally returns to what it was before pregnancy" is essentially the same message

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delivered by (11). As the uterine muscles pull together, they will also pinch the blood vessels that run between the webs. As soon as the placenta is extracted, the bleeding will cease thanks to this method.

To increase prolactin and oxytocin production, a massage is performed along the spine from the neck to the fifth or sixth rib. Uterine involution is improved and accelerated by oxytocin's stimulation of uterine muscular contractions. Having strong uterine contractions to boost uterine contractions is beneficial for the involution process (12). The hormone oxytocin, which is produced in response to an oxytocin massage, is helpful in minimizing the occurrence of uterine atony, particularly in prolonged labor, by intensifying and controlling uterine contractions, compressing blood vessels, and assisting maternal hemostasis. Involution is enhanced by vigorous uterine contractions.

The results of this study are in line with the results of the research by (13) which said that the study of uterine involution was faster in all post-partum mothers who received effleurage massage and oxytocin massage, while in the postpartum exercise group almost all respondents, this was more compared to the group without intervention, the majority of respondents showed that the uterine involution was slow, p-value <0.05. That the effleurage massage group and oxytocin massage had a p-value of 0.005 (≤ 0.05), and the postpartum exercise group had a p-value of 0.011 (≤ 0.05).

The results of this study assume that 9 of the 18 participants in the oxytocin massage treatment group (intervention group) had normal uterine involution (60.0%), while 6 of the 18 participants in the control group (no oxytocin massage treatment group) had abnormal uterine involution (40%). This is due to the fact that oxytocin massage can trigger the body to release the oxytocin hormone. The existence of three regulators related to hormonal reactions and pharmacological factors in uterine contractions necessitates oxytocin massage as a part of the mechanism of uterine contractions. These hormonal responses are controlled by cAMP-mediated phosphorylation, calcium calmodulin, and myosin light chain kinase. Uterine atony is less common when oxytocin is used to increase and regulate contractions, compress blood vessels, and aid in maternal hemostasis, all of which are important during prolonged labor. The involution process works best when the uterus contracts strongly.

The p-value for the correlation between oxytocin massage and uterine involution was found to be less than 0.05 after further investigation. Abnormal uterine involution is more likely to occur in the control group that does not get oxytocin massage. The involution of the uterus was found to be different in those who received oxytocin massage compared to those who did not. That is to say, the uterus did not shrink as much after receiving an oxytocin massage.

The Effectiveness of Oxytocin Massage on Breast Milk Production in Postpartum Mothers

According to the findings, 13 out of 15 study participants who received oxytocin massage treatment reported experiencing relatively smooth breast milk production. In contrast, 7 out of 15 study participants who did not receive oxytocin massage treatment reported experiencing less. smooth or nonexistent breast milk production. A p-value of 0.000 (p-value 0.05) from the Chi-Square test indicates that oxytocin massage improves breast milk production in postpartum moms at the GSIA Nabire Clinic in Papua in 2022.

In order to secrete the milk produced by the mammary glands, oxytocin acts on the myoepithelial cells that surround the mammary alveoli (7). Postpartum women who are having trouble producing breast milk are often helped by oxytocin massage. In order to encourage milk production, this oxytocin massage focuses on the back. A massage technique that places special emphasis on the spine has been shown to

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increase levels of the feel-good hormone oxytocin in the body. Breast milk production is controlled by the feel-good hormone oxytocin. The hormone oxytocin is most easily released in response to a soothing touch. Massage with oxytocin has been shown to reduce levels of cortisol, the stress hormone. That is why oxytocin massage is among the more all-natural approaches to boosting milk supply and protecting against health issues in general. The husband's hands will have more of an effect while giving an oxytocin massage. During breastfeeding, women will experience a sense of companionship, affection, and care (14).

This study's findings are consistent with those of (15), who found that oxytocin massage reduced milk production in first-time mothers after delivery at PKU Muhammadiyah Hospital Gombong. The effect size was p = 0.00 (p 0.05). The findings of this study are supported by those of (16) study, which found that the average expenditure of breast milk for respondents in the treatment group increased from 12.2 ml before the oxytocin massage (pre-test) to 24 0.0 ml after the massage (post-test). The p-value for the analysis of data using a paired t-test is 0.000 (0.005). With a p-value of 0.000 (= 0.05), we can infer that oxytocin massage stimulates postpartum mothers to produce more breast milk.

Researchers hypothesized that because oxytocin massage helps postpartum mothers relax, it has a significant impact on breast milk supply and the quality of the milk they produce. If a new mother is given an oxytocin massage after giving birth, she will feel more at ease and peaceful, which will allow her milk supply to increase and her baby's nutritional demands to be met. The husband's and family's active participation also helps the nursing process go more smoothly. Fear of damaging the shape of the breast, work, worry, pain while breastfeeding, confusion, shame about breastfeeding, and lack of support are all factors that can reduce oxytocin production; however, if the mother is provided with a sense of comfort, these factors will not be an issue. Therefore, researchers provide education health regarding the physiology of lactation, nutrition for nursing mothers, comfortable positions for breastfeeding, and motivate mothers to always think positively. The results of this study show that breast milk production was more consistent and of higher quality in the intervention group that received oxytocin massage than in the control group that did not receive oxytocin massage.

CONCLUSION

Most postpartum mothers have typical uterine involution (80%), and 50% produce breast milk. Massage had a p-value of 0.017 influence on uterine involution in postpartum women at the GSIA Nabire Clinic Papua in 2022. There is a p-value of 0.000 for the effectiveness of massage on breast milk production in postpartum women at the GSIA Nabire Clinic Papua in 2022.

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