

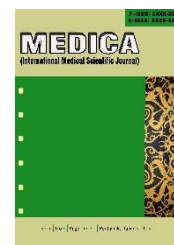
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The Effect of Oxytocin Massage on Uterine Involution in Postpartum Women in The Work Area of The Technical Implementation Unit of The Sei Pancur Community Health Center, Batam City 2023

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Abstrak

One of the complications of mother partum is the involution process that does not go well, called sub-involution which will cause bleeding and maternal death. One of the efforts that can be used is oxytocin massage. Oxytocin massage is done to stimulate the oxytocin reflex, stimulate uterine contractions, and accelerate uterine involution. This study aims to analyze the effect of oxytocin massage on uterine involution in postpartum mothers in the work area of the Technical Implementation Unit of the Sei Pancur Community Health Center in 2023. This type of research uses Pre-Experimental with One Group Pretest Posttest Design. The research sample amounted to 15 mothers, using an accidental sampling technique. The independent variable is oxytocin massage and the dependent variable is uterine involution. The instruments in this study were operational standards and observation sheets. The results of this study showed that uterine involution before giving oxytocin massage all experienced abnormal uterine involution 15 (100%), after giving oxytocin massage obtained normal involution 11 (73.3%) and abnormal 4 (26.6%). The Wilcoxon statistical test shows that the significant value of $p\text{-value} = 0.001 < \alpha (0.05)$ so there is a conclusion that there is an effect of oxytocin massage on uterine involution in postpartum mothers in the work area of the Technical Implementation Unit of the Sei Pancur Community Health Center, Batam City Year 2023.

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1. INTRODUCTION

The puerperium or postpartum period is a period that begins from the time the placenta and fetal membranes come out until the return of the female reproductive tract to its original state (before pregnancy), and lasts for 6 weeks or 42 days after birth. During the postpartum period, changes occur both physically and psychologically. This process of change should run normally but sometimes it is not noticed by postpartum women or even they do not know about it, so it can cause postpartum complications. One of the complications of puerperium is the process of involution that does not go well, which is called sub-involution which will cause bleeding and maternal death (Hidayanti, 2022).

The Maternal Mortality Rate (MMR) worldwide according to the World Health Organization (WHO) in 2020 will be 295,000 deaths with the causes of maternal deaths being high blood pressure during pregnancy (pre-eclampsia and eclampsia), bleeding, postpartum infection and unsafe abortion (WHO, 2022).

According to the Ministry of Health in 2021, the number of MMR in Indonesia showed 7,389 deaths, this number shows an increase compared to 2020 of 4,627 deaths. Most of the causes of maternal deaths in 2021 were related to COVID-19 with 2,982 cases (40.35%), bleeding with 1,320 cases (17.86%), and hypertension in pregnancy with 1,077 cases (14.57%) (Kemenkes RI, 2022).

According to the Riau Islands Provincial Health Office in 2021, the MMR was 241 per 100,000 live births. The MMR of Riau Islands Province could not reach the target of the MMR Performance Indicator in 2021. The causes of maternal mortality were dominated by Covid-19 by 40%, bleeding by 22%, and hypertension in pregnancy by 15% (Dinas Kesehatan Kepulauan Riau, 2022).

Based on preliminary studies conducted at the Batam City Health Office, data obtained in 2022 showed that the maternal mortality rate in 2022 was 22 people died with the causes of death bleeding 4 people (18.2%), hypertension 9 people (40.9%), infection 2 people (9.1%), metabolic disorders 1 person (4.5%) and others 6 people (27.3%). The highest rate of maternal complications caused by bleeding was 92 people (44.2%) in Sei Pancur Community Health Center, 33 people (15%) in Botania Community Health Center and 20 people (9.6%) in Tiban Baru Community Health Center (Dinas Kesehatan Kota Batam, 2022).

Based on preliminary data collection conducted in August at Sei Pancur Community Health Center in January-July 2023 there were 1,486 births. Based on the initial survey conducted by researchers in the working area of the Sei Pancur Health Center in August at 4 locations of independent midwife practices during January-July 2023, namely the Jumiati Independent Midwife Practice (IMP) with a total of 53 births and obtained 3 (5.6%) people who experienced sub-involution in postpartum. At IMP Melda with a total of 46 births and obtained 2 (4.3%) people who experienced subinvolution. At IMP Aminah, the number of deliveries was 26 births, and obtained 3 (11.5%) postpartum mothers who experienced sub-involution. Then at IMP Fifin, the number of deliveries was 23 births and 3 (13%) people who experienced sub-involution in postpartum so that they experienced postpartum bleeding.

postpartum bleeding is not a diagnosis but an event that must be sought for causes, for example postpartum bleeding due to uterine atony, postpartum bleeding due to birth canal tears, postpartum bleeding due to placental remnants or due to blood clotting disorders. The nature of bleeding in postpartum hemorrhage can be profuse, clotted to the point of causing shock or continue to seep little by little without stopping (Sarwono, 2020).

Postpartum hemorrhage is the most common cause of maternal death, all women who are pregnant are at risk of postpartum hemorrhage. Postpartum hemorrhage, which causes maternal death, 45% occurs in the first 24 hours after the baby is born, 68-73% in one week after the baby is born and 82-88% in two weeks after the baby is born. Based

on the causes of bleeding are uterine atony (50-60%), placental retention (16-17%), placenta remnants (23-24%), birth canal laceration (4-5%), blood disorders (0.5-0.8%) (Kemenkes RI, 2022). Predisposing factors for uterine atony are non-contracting, flaccid, overly stretched and large uterus, uterine abnormalities such as uterine myoma and placental abruption (Syafliandawati et al., 2017).

Postpartum hemorrhage is a national problem. Postpartum hemorrhage has a high level of urgency with high morbidity and mortality. As such, reducing maternal mortality to <70/100,000 live births is part of the Sustainable Development Goals (SDG's) target for 2030 (WHO, 2022). Although maternal mortality has decreased over the years due to pregnancy screening and care, hospital deliveries and blood transfusion facilities, bleeding still remains a major factor in maternal mortality. Even if a woman survives after experiencing postpartum hemorrhage, the impact will result in severe blood deficiency (severe anemia) and will experience prolonged health problems (Hidayanti, 2022).

Efforts to prevent postpartum hemorrhage can be made since the 3rd and 4th stage of labor by administering oxytocin. After placental expulsion, there will be strong and continuous uterine contractions and retractions to prevent postpartum hemorrhage. In the third stage of labor, oxytocin levels in the plasma increase where the hormone oxytocin is very instrumental in the process of uterine involution. Uterine contraction is a complex process and occurs due to the meeting of actin and myosin. The hormone oxytocin will trigger smooth muscle contractions in the uterus so that uterine involution will occur and prevent bleeding. Oxytocin is a hormone that can increase the entry of calcium ions into the intracellular. The release of oxytocin hormone will strengthen actin and myosin bonds so that uterine contractions are stronger and the process of uterine involution is getting better (Hidayanti, 2022).

Uterine involution is a process where the uterus returns to its pre-pregnancy condition with a uterine weight of around 60 grams. The involution process will run well if uterine contractions are strong so action must be taken to improve uterine contractions. Subinvolution uteri is the failure of physiological changes in the reproductive system in the postpartum period that occurs in every reproductive organ and channel to return to a non-pregnant state caused by infection and the remaining placenta in the uterus so that the process of uterine involution does not run normally or late if sub involution uteri is not handled properly, it will result in continued bleeding or postpartum haemorrhage. (Widiawati & Utami, 2020).

Oxytocin is obtained in various ways, namely by doing oral, intranasal, intramuscular, or by massage that stimulates the release of oxytocin hormone. Oxytocin massage is a massage along both sides of the cervical spine, back, or along the 6 vertebrae (vertebrae) to the fifth to sixth costae bone. Oxytocin massage is performed to stimulate the oxytocin reflex, stimulate uterine contractions, stimulate milk ejection reflex and treat bleeding. Repeated massage treatments can increase the production of oxytocin hormone. The effect of oxytocin massage can be seen after 6-12 hours of massage. Oxytocin massage is also performed to accelerate uterine involution. In addition, oxytocin massage is beneficial to providing comfort to the mother, reducing swelling (engorgement), reduce breast milk blockage, stimulate the release of oxytocin hormone, maintain breast milk production when the mother and baby are sick, and accelerating the process of uterine involution. Oxytocin massage is done for 15 minutes. Oxytocin massage is more effective if done twice a day, namely every morning and evening (Rochmayanti, 2022).

According to research conducted by Khairani, Komariah, M., & Mardiah, (2012) with the title "The effect of oxytocin massage on uterine involution in partum mothers at IMP I Citeurup" which was carried out starting 2 hours after postpartum until the third day with a length of massage time of 15 minutes obtained from the Intervention group before oxytocin

massage with a total of 18 respondents, the majority of height of fundus uteri was 10 people (55.5%), and height of fundus uteri is as many as 8 people (44.5%) and from the Intervention group after oxytocin massage with the number of respondents 18 people, the majority of mothers with normal uterine involution is as many as 3 people (16.7%) while in height of fundus uteri (HFU midway between the center and symphysis) is as many as 15 people (83.3%), this shows a significant increase in the intervention group after oxytocin massage. There is an influence between oxytocin massage on the acceleration of uterine involution in postpartum mothers at IMP I Citeurup.

According to research conducted by Sarli et al. with the title "The Effect of Differences in Oxytocin Levels Through Oxytocin Massage on Uterine Involution and Bleeding in Mothers 2 hours Postpartum" there was a significant difference between the amount of maternal bleeding 2 hours postpartum in the intervention group and the control group. The higher the oxytocin level, the faster the amount of uterine involution decreases and the less bleeding (Sarli et al., 2015). This is in line with research conducted by Hamrani on "The Effect of Oxytocin Massage on Uterine Involution in Postpartum Mothers with Long Labor" conducted at 2 hours postpartum to the third day, it was found that normal uterine involution was obtained after massage (Hamrani, 2012).

One of the government's efforts is to conduct early detection of infections and complications that may occur during the postpartum period as a national program by conducting four visits during the postpartum period. Midwives have a very important role in this period through health education, monitoring, and early detection of postpartum hazards (Kemenkes RI, 2022)

Visits during the postpartum period are often considered unimportant by health workers because they feel good and then go smoothly. The concept of early ambulation in the postpartum period is something that needs attention because of hormonal changes. During this period, mothers need instructions and advice from midwives so that the adaptation process after childbirth takes place properly (Islami & Aisyaroh, 2019).

Midwives play an important role in government efforts to improve public health and understanding through the concepts of promotive, preventive, curative and rehabilitative. In the midwifery service standards, midwives provide services for mothers in the postpartum period through home visits on the third day, second week and sixth week after delivery to assist the recovery process of mothers and babies through proper umbilical cord handling, early discovery, handling or referral of complications that may occur in the postpartum period, as well as providing explanations about general health, personal hygiene, nutrition, newborn care, breastfeeding, immunization and family planning.

Health workers always conduct monitoring because the implementation is not optimal, which can cause mothers to experience various problems and can even lead to complications of the puerperium, such as puerperal sepsis. Infection is the second leading cause of death after bleeding, so it is very appropriate if health workers pay high attention to this period (Novembriany, 2022).

This study aims to analyze the effect of oxytocin massage on uterine involution in postpartum mothers in the work area of the Technical Implementation Unit of the Sei Pancur Community Health Center in 2023.

2. METHOD

This research was conducted in the Work Area of the Technical Implementation Unit of the Sei Pancur Community Health Center, Batam City September 01 - October 08, 2023. This study used an experimental method which is defined as a quantitative research approach with the Pre-Experimental Design research type. The population in this study were all postpartum women with normal labor in the Working Area of the Technical Implementation Unit of the Sei Pancur Public Health Center, Batam City in 2023, namely

1486 deliveries. The sampling technique is non-probability sampling using Accidental Sampling. The independent variable in this study was Oxytocin Massage while the dependent variable in this study was Uterine Involution. The analysis used was univariate and bivariate. Univariate analysis was carried out to measure uterine involution using observation sheets on mothers who took measurements at the beginning and end. Bivariate analysis was conducted to determine the relationship between the two variables whether significant or not and to determine whether or not there was an effect of oxytocin massage on uterine involution in postpartum mothers. The statistical test used is a non-parametric statistical test, namely the Wilcoxon test using a significance level of 5%.

3. RESULTS AND DISCUSSION

Table 1. Characteristics of Postpartum Mothers by Age

Age	Frequency (n)	Percentage (%)
20-35 years	11	73,3
36-45 years	4	26,7
Total	15	100,0

Based on table 1 shows that the age of postpartum mothers is 20-35 years as many as 11 mothers (73.3%) and 36-45 as many as 4 mothers (26.7%).

Table 2. Characteristics of Postpartum Mothers Based on Occupation

Pekerjaan	Frequency (n)	Percentage (%)
Private	4	26,7
Housewife	9	60,0
Civil Servant	2	13,3
Total	15	100,0

Based on table 2 shows that the work of private postpartum mothers has as many as 4 mothers (26.7%), 9 housewives (60%), and 2 mothers (13.3%) civil servants.

Table 3. Characteristics of Postpartum Mothers Based on Parity

Parity	Frequency (n)	Percentage (%)
Two Children	11	73,3
Three Children	4	26,7
Total	15	100,0

Table 3 shows that the parity of partum mothers with two children was 11 mothers (73.3%) and three children (26.7%).

Table 4. Frequency Distribution Based on Uterine Involution of Postpartum Mothers Before Oxytocin Massage

Pre-test 2 Hours	Frequency (n)	Percentage (%)
Normal	0	0
Abnormal	15	100
Total	15	100,0

Based on table 4, shows that the uterine involution of postpartum women before oxytocin massage was performed, all of them experienced abnormal involution, namely 15 mothers (100%).

Table 5. Frequency Distribution Based on Uterine Involution of Post-Partum Mothers After Oxytocin Massage

Post-test 3 Hours	Frequency (n)	Percentage (%)
Normal	11	73,3
Abnormal	4	26,6
Total	15	100,0

Based on table 5, shows that the uterine involution of postpartum women after oxytocin massage who experienced normal involution was 11 mothers (73.3%) and abnormal involution was 4 mothers (26.6%).

Table 6. Cross tabulation of the effect of oxytocin massage on uterine involution of postpartum mothers

Uterine Involution Category	Uterine Involution				<i>p-value</i>
	Before		After		
	(n)	%	(n)	%	
Normal	0	0	11	73,3	0.001
Abnormal	15	100	4	26,6	
Total	15	100	15	100	

Based on table 6, shows that uterine involution before oxytocin massage is done entirely experiencing abnormal involution in 15 mothers (100%), and uterine involution after oxytocin massage is mostly experiencing normal involution in 11 mothers (73.3%).

Based on the data in Table 6 and according to the Wilcoxon statistical test, the significant number or probability value (0.001) is much lower than the significant standard of 0.05 or ($p < \alpha$), then the data H_0 is rejected and H_a is accepted which means there is an effect of oxytocin massage on uterine involution in postpartum mothers in the work area of the Technical Implementation Unit of the Sei Pancur Community Health Center, Batam City 2023.

DISCUSSION

1. Uterine involution of postpartum mothers before and after Oxytocin Massage

Based on the results of the study, show that in the uterine involution of postpartum mothers, before oxytocin massage is done, all of them experience abnormal involution, namely 15 mothers (100%) because the respondents are taken based on the inclusion criteria, namely mothers who experience sub-involution. The observation sheet to measure uterine involution obtained the measurement results before oxytocin massage were all as high as the center or all experienced abnormal involution (sub-involution).

Involution or uterine shrinkage is a process where the uterus returns to its pre-pregnancy condition with a weight of about 30 grams. This process begins immediately after the placenta is born due to the contraction of the uterine olos muscles (Widyawati & Utami, 2020). Failure of uterine involution to return to a non-pregnant state will cause sub-involution. As for the characteristics of sub-involution, the fundus uteri remains higher in the abdomen/pelvis than it should be or the decrease in the fundus uteri is slow, the consistency of the uterus is soft, the lochea often fails to change, there are blood clots, the lochea smells pungent, the uterus does not contract. The most common cause of uterine sub-involution is retained placental fragments which will cause infection and late postpartum haemorrhage (Walyani, 2017). Efforts to treat postpartum hemorrhage are by administering oxytocin which has an important role in stimulating uterine smooth muscle contractions so that bleeding can be resolved. The hormone oxytocin can be produced through stimulation of oxytocin massage which will accelerate the work of parasympathetic nerves to convey commands to the hypothalamus to produce oxytocin (Hidayanti, 2022).

According to the researcher's assumption, uterine involution before oxytocin massage is included in the category of abnormal uterine involution because the respondent is included in the inclusion criteria category, namely 2 hours postpartum mothers who experience sub-involution.

Based on the results of the study, it shows that the uterine involution of postpartum mothers after oxytocin massage which experienced normal involution was 11 mothers (73.3%) and abnormal involution was 4 mothers (26.6%). The results of the observation sheet on the mother after oxytocin massage were mostly normal involution.

According to Khairani (2012), the involution process that occurs normally if contractions are strong. Therefore, action is needed to improve uterine contractions by giving oxytocin hormone stimulation massage (oxytocin massage).

This is in line with Sofia's theory (2017), oxytocin massage can affect the success of uterine involution because it can stimulate the brain to secrete the hormone oxytocin so that it can cause uterine contractions to carry out the involution process optimally. According to Prawirohardjo (2014), the effect that occurs when oxytocin massage is not performed is the delayed process of uterine involution due to low oxytocin stimulation.

Oxytocin massage is a massage of the cervical spine along the cervical spine (cervical vertebrae) to the 5th to 6th costae bone or the 12th thoracic spine, and will stimulate the work of parasympathetic nerves to convey commands to the back of the brain (hypothalamus) in the posterior pituitary secretes the hormone oxytocin so as to contract the uterus and inject breast milk, strong uterine contractions resulting in a decrease in the height of the fundus uteri or involution (Syahbani dkk, 2021).

Factors that influence uterine involution are age and parity. Elisa et al. (2018) states that age is one of the factors that can affect the process of uterine involution or the decrease in the height of the fundus uteri. At an older age, the decrease in the height of the fundus uteri will be slower when compared to a younger age. The elasticity of the uterine muscles may decrease at the age of more than 35 years. The involution process is influenced by the age factor during childbirth where the ideal age for uterine involution is at the age of 20-35 years (Amelia, 2018).

Parity in multiparous mothers tends to decrease in speed compared to primiparous mothers, as well as the size of the uterus in primi or multi mothers has a difference so that it also has an influence on the involution process. Parity can affect uterine involution, especially in high parity where the uterine muscles are stretched too often, the elasticity will decrease so that it takes a long time in the recovery process. Uterine involution varies in postpartum mothers and usually mothers with high parity have a slower involution process (Sarwono, 2020).

According to the researcher, the decrease in uterine involution is normal because the respondent and the respondent's family are invited to utilize the sensory organs to understand the experiments delivered. The decrease in uterine involution occurred because the oxytocin massage intervention was carried out in accordance with operational standards and where the respondent was very cooperative and felt calm during the massage so that it helped the parasympathetic nerves to express the hormone oxytocin.

According to researchers, mothers with normal involution that occurs in 11 mothers because oxytocin massage has been done which stimulates the brain to secrete the hormone oxytocin so that it can affect the uterus to contract to perform the involution process optimally. After oxytocin massage was performed, 4 mothers experienced abnormal uterine involution, because the 4 respondents were aged 35-45 and had three children according to tables 1 and 3 so that the uterine involution process was slow because they had given birth more than 2 times, it could also be due to the mother's old age which could reduce the elasticity of the uterine muscles to contract.

2. Effect of Oxytocin Massage on Uterine Involution in postpartum mothers

Based on table 6, it shows that uterine involution before oxytocin massage is done entirely experiencing abnormal involution 15 mothers (100%) and uterine involution after oxytocin massage is mostly experiencing normal involution 11 mothers (73.3%). In this study, based on the analysis using the Wilcoxon statistical test with the help of the SPSS 16 program at an error rate of 5%, calculations were carried out to determine whether there was an influence between variables, namely the independent variable and the dependent variable. The results of the analysis and according to the results of the Wilcoxon statistical test obtained a significant number or probability value (0.001) much lower than the significant standard of 0.05 or ($p < \alpha$), then the data H_0 is rejected and H_a is accepted which means there is an Effect of Oxytocin Massage on Uterine Involution in Normal postpartum Mothers in the Work Area of the Technical Implementation Unit of the Sei Pancur Community Health Center, Batam City.

This study is supported by research conducted by Khairani, Komariah, and Mardiah (2012) on the effect of oxytocin massage on uterine involution in postpartum mothers. Based on this research, it was found that there was an effect of oxytocin massage on uterine involution in postpartum mothers with a p-value ($0.01 < \alpha (0.05)$). Another study was conducted by Wada (2014), with the title of the effect of Oxytocin Massage on uterine involution in Postpartum Mothers. The results showed that there was a significant acceleration of TFU reduction ($p=0.000$).

Oxytocin massage can stimulate the work of parasympathetic nerves to convey commands to the back of the brain (hypothalamus) in the posterior pituitary to release the hormone oxytocin so that it contracts the uterus and injects breast milk (Tutik, 2020). So that with this research can affect the release of the hormone oxytocin and help the mother's uterine involution. Oxytocin massage is done for 15 minutes. Oxytocin massage is more effective if done twice a day, namely every morning and evening (Rochmayanti, 2022).

Based on the theory and research above, according to the researcher, uterine involution that occurs in postpartum mothers after oxytocin massage 4 people experience abnormal uterine involution, in general uterine involution for the third day is 3 fingers below the center but there are 4 respondents who have uterine involution 2 fingers below the center on the third day due to age and parity factors that can also affect the process of uterine involution, age and parity factors also affect the process of decreasing the height of the fundus uteri so that the age of 35-45 years and having 3 children the process of muscle stretching and the level of elasticity is reduced in accordance with Amelia, (2018) which says the more the number of children, the process of muscle stretching and the level of elasticity is reduced. The decrease in the height of the uterine fundus determines the condition and health of the postpartum mother. In line with Bahiyatun's theory (2016) which says this involution process begins after the expulsion of the placenta with uterine smooth muscle contractions. And at the end of the third stage of labor, the uterus will be in the middle, approximately 2 fingers or 2cm below the umbilicus, with the fundus in the promontorium of the sacrum. At this time, the uterus weighs about 100g. Within 12 hours, the fundus will rise to the level of the umbilicus or 1 finger above the umbilicus, then the fundus will fall about 1cm every day, on the first day of postpartum 1 finger below the center, on the second day of postpartum 2 fingers below the center, on the third day of postpartum 3 fingers below the center, after 7 days (1 week) of delivery, the fundus is usually in the middle of the center of the symphysis, after 14 days (2 weeks) the uterus should no longer be palpated from the abdomen and has returned to its normal state as before pregnancy after 6 weeks.

4. CONCLUSION

Based on the results and discussion of research on the effect of oxytocin massage on uterine involution in postpartum in the work area of the Technical Implementation Unit of the Sei Pancur Community Health Center, Batam City 2023, it can be concluded that, most postpartum mothers are 20-35 years old, most respondents work as housewives and most respondents have 2 children. The uterine involution of postpartum mothers before oxytocin massage was all abnormal. The uterine involution of postpartum mothers before oxytocin massage was mostly normal. And there is an effect of oxytocin massage on uterine involution in normal postpartum mothers in the work area of the Technical Implementation Unit of the Sei Pancur Community Health Center, Batam City.

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