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Research Article

The Effect of Postpartum Exercise to Uterine Involution

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Abstract: The process of involution good if uterine contractions strong that effort should be made to improve through postpartum exercise. The purpose of research can be applied to accelerate the process of postpartum exercise to uterine involution postpartum at RSU PKU Muhammadiyah Bantul. This study is experimental with posttest only design. Samples were selected by purposive sampling a number of 40 subjects, 20 persons as respondent's experimental group and 20 as control group respondents. Tool collects data with high observation sheet measurement results fundus and the uterine contractions respondents, statistical analysis with saples independent t-test. Results of statistical analysis using independent samples t test showed a significance value $0,000 < \alpha = 0,05$, so helpful postpartum exercise effective in accelerating uterine involution at RSU PKU Muhammadiyah Bantul. The main advices for health workers can teach and motivate postpartum mothers routinely carry out postpartum exercise.

Keywords: pstpartum exercise, uterine involution.

INTRODUCTION

Health development in principle is always directed to improve the degree of public health, including development in the field of maternal and child health. One indicator used to measure the degree of public health is the mortality rate of postpartum and infant mothers. The indicator of the ability of a country's health services according to WHO can be seen from the maternal mortality rate during the perinatal, intranatal and postnatal period. This is in accordance with the vision set by the United Nations and the Indonesian government. The healthy Indonesia vision of 2015 has eight MDGs, one of which is reducing infant and maternal mortality at the time of delivery.

The Maternal Mortality Ratio (MMR) in Indonesia according to the 2002-2003 IDHS data is 307 / 100,000 live births. While the maternal mortality rate in West Java Province is still quite high compared to the national average of 321.15 / 100,000 live births. Maternal mortality rates are caused by several factors, including due to bleeding. Bleeding is a major cause of maternal death in Indonesia. The second cause is eclampsia and infection (DepKes RI, 2012).

Efforts to prevent post partum hemorrhage can be carried out since the third and fourth stage of labor with oxytocin administration. The hormone oxytocin is

very important in the process of uterine involution. The process of involution will go well if the uterine contractions are strong so action must be taken to improve uterine contractions. Efforts to control the occurrence of bleeding from the placenta by improving contraction and retraction of strong myometrial fibers with early ambulation and exercise. Therefore efforts to maintain uterine contractions can be done through puerperal gymnastics (Larson, 2012).

In the study of Larson (2012), who conducted a randomized survey of the effects of postpartum exercise for postpartum mothers in 1003 American women admitted after participating in the puerperal gymnastics program with regular exercise experienced stronger uterine contractions, while also decreasing body weight during six weeks after giving birth. And in a study of 1432 postpartum women in Sweden who performed puerperal exercise it was found that the majority of 71% of women experienced a smooth metabolism, and faster physical recovery. Benefits of puerperal gymnastics include helping to heal the uterus, stomach, and hip muscles that are traumatized and speeding up the return of these parts to normal form, helping to normalize the joints that become loose due to pregnancy and childbirth, and prevent further weakening and stretching (Danuatmaja, *et al.*, 2010).

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Postpartum exercise can begin 24 hours after giving birth.

From the results of interviews with researchers on 2 postpartum mothers who were treated in the Medical Room of PKU Muhammadiyah Bantul Hospital, that postpartum exercise was not routinely carried out by mothers who had given birth. First because after being taught by physiotherapy, they cannot memorize their movements to repeat independently. Second because it's happy to give birth to healthy children, so those who think only about how to take good care of children. Third, because the condition of the mother's body is still weak and to wake up still hurts, it is unthinkable for the mother to do parturition.

No studies have been conducted with the aim of knowing the effects of postpartum gymnastics on uterine involuntary changes. Based on these problems, researchers are interested in conducting research "The effect of postpartum gymnastics on uterine involution in PKU Muhammadiyah Bantul Hospital".

The general objective of this study is to know the effect of postpartum gymnastics on uterine involutio in postpartum mothers in PKU Muhammadiyah General Hospital Bantul. The specific purpose of this study, can be known uterine involution in postpartum mothers who perform postpartum exercise routinely at PKU Muhammadiyah General Hospital Bantul. He can know the uterine involution in postpartum mothers who do not do postpartum exercise routinely at PKU Muhammadiyah General Hospital Bantul. The results of this study are expected to add to the database of nursing knowledge, especially maternity nursing in the implementation of postpartum gymnastics for postpartum mothers. For maternity nursing service units can make operational standard reference procedures in improving services to postpartum mothers.

RESEARCH METHODS

The design of the study uses an experimental method (experiment research) which is an experimental

A. Age of Respondents

Table 1. Characteristics of respondents based on age

Age	Experiment Group		Control Group	
	Frequency	Percentage	Frequency	Percentage
<20 years	1	5%	2	10%
20-35 years	18	90%	14	80%
> 35 years	1	5%	2	10%
Amount	20	100%	20	100%

In table 1. shows the majority aged 20-35 years, as many as 18 respondents (90%) experimental

activity (research) with the aim to find out a phenomenon or influence that arises as a result of the existence of a particular treatment. The experimental design used in this study used Posttest Only Design. This design uses a comparison group, testing the differences after the treatment given.

The population in this study were all normal postpartum mothers in PKU Muhammadiyah General Hospital Bantul. The sampling technique using purposive sampling is sampling that has met the requirements or criteria set by the researcher. The number of samples in this study were 40 postpartum mothers, 20 people as the experimental group respondents and 20 people as the control group respondents. The tool used to collect data is the observation sheet the results of measurements of fundus height of the uterus and contractions of the uterus of the respondent.

Parametric analysis tests work based on the assumption that each variable will be analyzed based on normal distribution. Before the parametric statistical test, the data normality test was carried out using the Kolmogov-Sminorv χ^2 sample test. The test results at the level of error $\alpha > 0.05$ then H_0 is accepted and H_a is rejected, meaning that the data are normally distributed. Data analysis performed for unpaired data that is normally distributed is by using independent sample t-test. If the results of statistical tests prove significance $\alpha < 0.05$, it can be concluded that H_0 is rejected and H_a is accepted. H_a : There is effectiveness of postpartum gymnastics on mood changes in postpartum mothers in PKU Muhammadiyah General Hospital Bantul. H_0 : There is no effectiveness of postpartum exercise on mood changes in postpartum mothers in PKU Muhammadiyah Hospital Bantul.

RESEARCH RESULTS AND DISCUSSION

The results of the descriptive analysis of the characteristics of respondents can be described as follows:

group and as many as 14 respondents (80%) in the control group.

b. Parity Status

Table 2. Characteristics of respondents based on parity status

Parity Status	Experiment Group		Control Group	
	Frequency	Percentage	Frequency	Percentage
1 time	10	50%	12	60%
2 times	8	40%	5	25%
≥ 3 times	2	10%	3	15%
Amount	20	100%	20	100%

In table 2. shows in the experimental group the most with a one-time parity status that is as much as 10 respondents (50%). In the control group, the

majority of respondents with 1 times parity status were 12 respondents (60%).

c. Results of Uterine Involution Studies

Table 3. Results of Measurement of Uterine Fundus Height of Experimental Group and the Control Group.

Decrease of TFU	Experiment group		Control group	
	Frequency	Percentage	Frequency	Percentage
≥ 2 cm (Good)	12	60%	1	5%
1-2 cm (Enough)	6	30%	12	60%
< 1 cm (Bad)	2	10%	7	35%
Amount	20	100%	20	100%

Table 3. This shows the change / decrease in fundal uterine height from day 0 postpartum to the second day postpartum. In the experimental group after being given 1 day puerperal gymnastic exercise, the decrease in TFU on day 2 was the most in the good

category, which decreased by 2 cm or more by 12 respondents (60%). In the control group, only the written puerperal gymnastics was given in writing, most of the 12 respondents (60%) in the adequate category with 1-2 cm decrease.

d. Results of Statistical Analysis

Table .4. Independent Samples T-Test Analysis Results

Hasil	t	df	Sig. (2-tailed)	Mean Difference	St. error	95% CI	
						Lower	Upper
TFU	4.000	38	0.000	0.8000	0.2000	0.3951	1.2049

Based on the tendency of the cross tabulation results in table 4, as evidenced by the results of the statistical analysis of independent samp³ t-test, the results of t count 4,000 are greater than t table with a significance level of 0,000 smaller than a³ 0.05. Based on these results it can be concluded that Ho is rejected and Ha is accepted, meaning that with puerperal exercise given every day it is significantly beneficial in accelerating the process of involuntary uterine postpartum mothers.

done after giving birth, then regularly every day. By doing puerperal exercise as soon as possible, the results obtained are expected to be optimal. In its implementation, it must be done in stages, systematically, and continuously (Devenport, 2011).

One way to keep contractions good until the end of childbirth is mobilization and simple movements such as puerperal gymnastics. Because with parturition, the muscles in the uterus will contract and retract, which can cause blood vessels in the uterus to stretch so that bleeding can be avoided. According to the research results of Davenport *et al.*, (2011) state that postpartum mothers who do postpartum exercise regularly will reduce the risk of postpartum-related diseases such as postpartum hemorrhage, even chronic diseases such as metabolic syndrome, diseases due to obesity and cardiovascular disease. Postpartum exercise should be

Postpartum gymnastics is carried out to train early postpartum mother mobilization, so that it can help the body's recovery process after childbirth. Postpartum exercise performed after giving birth is one form of early ambulation to restore physical changes such as before pregnancy and restore the tone of the lower abdominal muscles. Contraction of the muscles will help the process of involution which starts after the placenta comes out immediately after giving birth. Ambulation as soon as possible and frequency is often very necessary in the process of involution (Saunder, 2002 in Indriyastuti, 2014). In connection with uterine involution process, then by performing postpartum exercise is expected to accelerate the process of uterine involution (Rahmawati, 2014).

Revealed by Mulyani, A *et al.*, (2017), postpartum exercise performed on post partum mothers affected nine times better physical recovery in women who were not given puerperal gymnastics intervention. Physical exercise in the form of puerperal gymnastics during the post partum period affects the physical recovery of post partum mothers more quickly. Postpartum mothers who do puerperal gymnastics regularly and in accordance with the correct technique that has been taught can help strengthen the contractions of the uterine muscles, where the increase in uterine muscle work will result in the muscles in the uterus pinched and blood vessels will also rupture, causing tissue muscles lack substances needed so that muscle tissue can shrink and the size of the uterus will also shrink (Basten dan John, 2009). The results of other studies suggest that postpartum gymnastics carried out regularly can help immediately improve the quality of life for postpartum mothers.

Rhythmic movements performed on puerperal gymnastics can help increase uterine contractions, increase intestinal peristalsis, blood circulation, thus avoiding various diseases that can occur postpartum. The emotional relationship between the baby and mother will be more closely intertwined because Mother can immediately care for her baby directly (Daley. *et al.*, 2009).

Uterine contractions can increase with the presence of puerperal gymnastics, this occurs from an increase in calcium ions in extra cells that bind to komudulin, after this komudulin and potassium binds it will increase myosin kinase and phosphorylase occurs in the head of myosin which binds to actin so that muscle pulls occur periodically so that continuous uterine contractions occur. The continuous contraction and retraction of the uterus will clamp the blood vessels so that the blood vessels break and disruption of blood circulation to the uterus. So that causes muscle tissue lack of the necessary substances so that the size of the uterine muscle tissue will shrink. In addition, this lack of blood circulation to the uterus causes the uterus to experience atrophy and the size will return to its original shape. This decrease in TFU occurs gradually, meaning not at once but level by level. This TFU will decrease 1-2 cm every day and on the 9th day the uterus cannot be palpated. In mothers who have postpartum exercise the decrease in TFU takes place faster than that which is not gymnastic (Na'im, 2010).

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The results of this study are in line with the results of Mulyani, A *et al.* (2017), stating that there are differences in uterine involution between groups that conduct postpartum gymnastics and groups that do not do postpartum exercise. Puerperal gymnastics will stimulate uterine muscle contraction so that the process of involution runs faster. Physical exercise in the form of puerperal exercise can cause stimulation which increases chemical activity, there is an increase in

mitochondrial metabolism to produce ATP as energy for contraction. The results of this study are also in line with the results of Inayati (2004) in (Indriastuti. *et al.*, 2015) on the effect of puerperal gymnastics on the physical recovery of postpartum.primipara mothers in the early puerperium phase in the Flamboyant Room of Dr. Hospital. Koesma Tuban, who mentioned that postpartum mothers who do postpartum exercise are physically faster.

In the control group the results showed that most of the 12 respondents (60%) in the category were enough with a 1-2 cm decrease. In this control group, they were not taught to do postpartum exercise directly, but were given a puerperal gymnastic guide that could be used as a reference for postpartum mothers in performing puerperal gymnastics. The difference is with intervensin groups that in the control group postpartum exercise can be carried out by postpartum mothers independently, but the implementation is not scheduled. In the experimental group the implementation of postpartum exercise is carried out guided and scheduled with the same rhythm every day. (Swanson *et al.*, 2013) in the results of her research stated that without any postpartum care efforts such as guided puerperal gymnastics treatment can cause a disruption of the recovery process of postpartum maternal conditions, namely uterine involution and the incidence of rectus abdominis (separation of abdominal muscles). An imperfect disorder of involutory processes is subinvolutionary which can lead to bleeding, besides it is hyperinvolutionary uterine.

The success of this research is also supported by the majority of respondents aged between 20-35 years. In the experimental group there were 18 respondents (90%) and in the control group 16 respondents (80%). At this productive age respondents are more receptive to information, obedient to the training given and a higher desire to immediately recover from their postpartum condition, so they can perform more optimally more quickly after giving birth. Besides that the respondents in this study were also mostly with primiparous parity status, namely in the experimental group as many as 10 respondents (50%) and in the control group as many as 12 respondents (60%). Postpartum mothers who have just given birth who have not had much experience for postpartum care for the first time so that exposure to information, training aimed at postpartum care will be followed more orderly, disciplined and continuous to achieve the postpartum health that it is undergoing.

In the implementation of this research there were obstacles experienced by researchers that were not predicted beforehand. The researcher encountered obstacles in the selection of research respondents. In planning, the respondents of this study were normal postpartum mothers who were treated in the Annisa Room of PKU Muhammadiyah Yogyakarta Hospital.

This cannot be fulfilled because most patients treated with postpartum in the ANNISA room are due to labor with sectio caesarea. This relates to the provisions of the BPJS service that patients who are indicated can perform normal labor, then the service unit that must be addressed is a level I service unit, the Puskesmas, so that those who cannot be served at the first level unit are then referred to the level II health care unit. So that in this study, researchers used postpartum maternal respondents with caesarean section 0 to the second day post partum. The research also found that respondents dropped out, did not want to continue the implementation of postpartum gymnastics with the reason that the body was not comfortable or the respondent returned before day 2, so the researcher looked for substitute respondents with the same criteria to meet the number of research samples.

CONCLUSIONS AND RECOMMENDATIONS

Significant puerperal exercise is significantly effective in accelerating uterine involutio process indicated by the parameter of decreasing TFU in PKU Muhammadiyah General Hospital Bantul. Suggestions for PKU Muhammadiyah Hospital in Bantul, namely for policy makers, can use the results of this study to make policies in the preparation of SOP for postpartum care, so that postpartum clients can recover quickly and have normal activities.

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