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Original Research

The Effect Of Postpartum Yoga On Lochea Discharge And Decreased Fundus Uteri Height

Ni Putu Dian Ayu Anggraeni[1], Ni Putu Karunia Ekayani[1], Sudarmi[1], Yudha Anggit Jiwantoro[1]

[1]Department of Midwifery, Poltekkes Kemenkes Mataram, Indonesia

Background: *An abnormal involution process can cause the uterus to fail to return to normal and result in the uterine reduction process being hampered and post partum bleeding occurring. Postpartum yoga is effective in accelerating uterine involution, so that it can decreased the fundus uteri height. Aim of this study is analyzing the effect of postpartum yoga on lochea expulsion and uterine fundus decline.*

Methods: *Quantitative quasi-experimental design with a pre and post test approach with control group design. The population in this study were all normal postpartum mothers recorded in March – May 2021. The number of samples in this study was 19 people for each group or 38 people for two groups using a simple random sampling technique. Yoga was given from the first day to the seventh day postpartum. Analysis used Wilcoxon and Mann Whitney*

Results: *Data showed in the control group on day 1 and a p value of 0.328 on day 3 (p value > 0.005). The intervention group on day 5 and day 7 with a p value of 0.000 on day 5 and a p value of 0.001 on day 7 (p value < 0.005).*

Conclusion:*Yoga is effective decreased fundus uteri height. Post partum mothers are advised to do yoga regularly from birth until the 6th week.*

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CONTACT
Ni Putu Dian Ayu Anggraeni
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niputudianayu@gmail.com
Department of Midwifery, Poltekkes Kemenkes Mataram, Indonesia.

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INTRODUCTION

The postpartum period is the process by which the internal and external genital organs return to their pre-pregnancy state, this change is called involution. Uterine involution or uterine contraction is a process where the uterus returns to its pre-pregnancy condition with a weight of only 60 grams (Sukarni, 2014). If the involution process does not proceed normally, it can cause a condition called uterine subinvolution (Ambarwati, 2010). Subinvolution is the failure of the uterus to follow the normal pattern of involution so that the process of uterine reduction is hampered, one of the signs of which is bleeding (Walyani, 2015).

The uterine involution process is influenced by adaptation to physical and psychological changes, where psychological disorders can interfere with the success of the adaptation process which is by various symptoms or syndromes (Rymma, 2017).

If the uterine involution process is not detected properly it can have fatal consequences which can cause bleeding. The highest cause of post partum bleeding is 50-60% due to inadequate uterine contractions (Fraser & Margaret, 2009). Pharmacological efforts to prevent postpartum hemorrhage by administering oxytocin 10 IU in the third stage of labor. The hormone oxytocin influences uterine contractions and plays an important role in the uterine involution process (Astuti et al., 2015). Apart from that, various non-pharmacological efforts are also being developed in Indonesia as *Complementary and Alternative Medicine* (CAM) therapy to improve uterine contractions. The types of CAM commonly performed by midwives are massage therapy, aromatherapy, acupuncture/acupressure, and yoga (Szabo et al., 2019).

Dian's previous research on 2019 about effectiveness of postpartum yoga on cortisol hormone levels and uterine involution. On this research was that postpartum yoga was more effective in reducing uterine involution compared to postpartum exercise with an effect size value of 1.5 and an effect of 40.3% simultaneously. However, in this study, postpartum yoga was only carried out twice, namely before and after. In contrast to this study, yoga was carried out 4 times, namely the 1st, 3rd, 5th and 7th days, so that the effect could be measured in detail and continuously. Postpartum yoga is beneficial for uterine muscle strengthening, blood circulation enhancement, and neurohormone stimulation, which can accelerate the involution of the uterus. Daily measurements of the uterine fundus can be made through additional research (Anggraeni et al., 2019).

MATERIALS AND METHODS

Study this method uses a quasi-experimental design with a pre and post test approach with control group design. The population in this study were all normal postpartum mothers recorded in March – May 2021 in the working area of the UPT Puskesmas Cakranegara. The number of samples in this study was 19 people for each group or 38 people for two groups using a simple random sampling technique. The intervention group in this study received Postpartum Yoga while the control group received Postpartum Exercise, each of which was given from the first day to the seventh day postpartum.

Data collection in this research includes primary data and secondary data. Primary data through observation of lochea discharge and decline of the uterine fundus, as well as respondent characteristics including parity, age and education. Data on respondents' estimated birthdays were obtained from maternity bags and medical records. The instruments in this study consisted of 1) Observation sheet on respondent characteristics and uterine involution; 2) measurement of the height of the uterine fundus using a standardized meterline and observation for lochea discharge on days 1, 3, 5 and day 7. This research has been declared ethically appropriate by the Health Research Ethics Committee of the Faculty of Medicine, Mataram University number 151/UN18.F7/ETIK/2021Data analysis used the SPSS 22 software program.

Descriptive analysis included the frequency distribution of age, parity and education as well as the average value and standard deviation of breastfeeding frequency. Analysis used the Friedman test followed by the Wilcoxon post hoc test. Meanwhile, analysis of differences in measurement data between research groups used the Mann Whitney test.

RESULTS

Table 1. Results of fundus uteri measurements from day 1 to day 7 in the intervention and control groups

Variable	Intervention Group (n = 19)				Control Group (n = 19)			
	Mean	elementary school	Min	Max	Mean	elementary school	Min	Max
TFU day 1	14.05	1,182	12.00	16.20	13.86	1,008	11.50	15.30
TFU day 3	13.03	1,373	10.80	15.40	13.41	1,187	10.50	15.00
TFU day 5	7.94	1,509	5.00	10.40	10.12	1,387	6.70	11.80
TFU day 7	4.26	2.43015	0.00	7.10	6.55	1,304	3.70	8.00

Based on the results of the Friedman test, the data obtained was that the average fundus uteri height on day 1 in the intervention group was 14.05 cm with a minimum fundus uteri height value of 12.00 cm and a maximum of 16.20 cm. On day 3, fundus uteri height measurements were taken with an average of 13.03 cm. , day 5 with an average of 7.94 cm, and day 7 with an average of 4.26 cm with a minimum of 0.00 cm and a maximum of 7.10 cm. Meanwhile, in the control group, the average fundus uteri height data on day 1 was 13.86 cm with a minimum fundus uteri height value of 11.50 cm and a maximum of 15.30 cm. On day 3, fundus uteri height measurements were taken with an average of 13.41 cm, on day 5 with the average fundus uteri height was 10.12 cm, and on day 7 the average fundus uteri height was 7.10 cm with a minimum value of 3.70 cm and a maximum of 8.00 cm.

Table 2. Effect of Postpartum Yoga on Uterine Fundal Height

TFU	Group	n	*Mean Rank*	*p value*
Day 1	Intervention	19	20.47	0.589
	Control	19	18.53	
Day 3	Intervention	19	17.74	0.328
	Control	19	21.26	
Day 5	Intervention	19	12.42	0,000*
	Control	19	26.58	
Day 7	Intervention	19	13.39	0.001*
	Control	19	25.61	

**Significance level <0.05*

Based on the results of the Mann Whitney test, data showed that there was no significant difference in fundus uteri height on days 1 and 3 in the intervention group and the control group with a p value of 0.589 on day 1 and a p value of 0.328 on day 3 (p value > 0.005). However, a significant difference was found between the intervention group and the fundus uteri height control group on day 5 and day 7 with a p value of 0.000 on day 5 and a p value of 0.001 on day 7 (p value < 0.005).

Lochia discharge from day 1 to day 7 in the intervention group

The results of the chi square test in the intervention group showed that data on lochia discharge on day 1 of all respondents was lochia rubra for 19 people (100%). On the 3rd day, the majority of 12 people (63.2%) had lochia rubra and 7 people (36.8%) had lochia sanguinolenta. On the 5th day, 13 people (68.4%) had lochia sanguinolenta and 6 people (31.6%) had lochia serosa. Meanwhile, on the 7th day, 12 people (63.2%) had lochia serosa, 5 people (26.3%) had lochia sanguinolenta, and 2 people (10.5%) had lochia Alba. The graph of respondents' lochia discharge from days 1 to 7 in the intervention and control group can be seen in the following table:

Table 3. Lochia discharge from day 1 to day 7 in the intervention and control groups

Group	Variabel	Rubra		Sanguinolenta		Serosa		Alba	
		n	%	n	%	n	%	n	%
Intervention	Lochea Day 1	19	100	-	-	-	-	-	-
	Lochea Day 3	12	63,2	7	36,8	-	-	-	-
	Lochea Day 5	-	-	13	68,4	6	31,6	-	-
	Lochea Day 7	-	-	-	-	12	63,2	2	10,5
Control	Lochea Day 1	19	100	-	-	-	-	-	-
	Lochea Day 3	18	97,4	1	5,3	-	-	-	-
	Lochea Day 5	5	26,3	14	73,7	-	-	-	-
	Lochea Day 7	-	-	6	31,6	13	68,4		

In the control group on day 1 all respondents with lochia rubra discharge were 19 (100%). On day 3, 18 people (94.7%) had lochia rubra and 1 person (5.3%) had lochia sanguinolenta. On the 5th day, 14 people (73.7%) had lochia sanguinolenta and 5 people (26.3) had lochia rubra. Meanwhile, on the 7th day, 13 people (68.4%) had lochia serosa and 6 people (31.6%) had lochia sanguinolenta.

DISCUSSION

The results showed that the decrease in uterine fundal height varied significantly on day 5 with a p value of 0.000 and on day 7 the p value was 0.001 in the group given Postpartum Yoga and the group given postpartum exercise (p value <0.05). Likewise with vaginal discharge in the Postpartum yoga group, lochea alba discharge occurred on the 7th day, while in the control group on the 7th day most of the respondents experienced lochia sanguinolenta discharge. Stretching during the postpartum phase has an impact on the uterine muscles' shrinkage following labor. The process of the gynecological apparatus returning to its pre-pregnancy state can be impacted by uterine contractions caused by a decrease in muscle elasticity (Situngkir, 2017). The release of the hormone

oxytocin, which the pituitary will continue to produce as long as stimulation is ongoing, affects uterine contractions (Astuti et al., 2015). Oxytocin has properties that can strengthen uterine contractions. After the baby is born, uterine contractions increase due to a very large response to a decrease in intrauterine volume (Sulistyawati, 2009). During the process of uterine contraction and retraction will reduce the occurrence of postpartum hemorrhage. Against myometrial cells, this contraction results in ischemia conditions. The detachment of the placenta causes estrogen hormone levels to decrease rapidly so that the process of synthesizing new proteins in intracellularly stops (Astuti et al., 2015).

In accelerating the process of uterine involution, breastfeeding, early mobilization and physical exercise, as well as good nutritional status are alternatives that need to be emphasized because otherwise it will inhibit the process of uterine involution, which can cause continuous lochia discharge and painless bleeding (Sulistyawati, 2009). The frequency of uterine contractions and the duration of uterine involution for each mother does not occur specifically in a matter of days and varies greatly. The cervix and uterus together undergo a process of returning to their pre-pregnancy state. After delivery, the osteum uteri externa is slightly open until it can be entered by approximately two to three fingers and will close completely after 6 weeks postpartum (Fraser & Margaret, 2009).

The postpartum period there is fatigue and muscle tension that affects the mother's sleep quality so that it can interfere with the process of restoring reproductive organs. This can be prevented by yoga-based physical exercise. Evidenced from research conducted by Hayase (2018), proving that salivary α-amylase levels decreased significantly immediately after practicing yoga during all evaluation periods in the yoga group. Nighttime sleep duration was significantly longer in the yoga group (Hayase & Shimada, 2018).

Postpartum yoga started >6 hours after the mother gave birth with poses tailored to the mother's needs can improve sleep quality, reduce anxiety, increase pelvic floor muscle strengthening so that it helps the mother's uterine involution process run faster than the time marked by the average uterine involution on the seventh day which is 4.26 cm. This is because postpartum yoga focuses attention on the rhythm of the breath, prioritizes comfort and safety in practice so that it can help reduce the tension and physical and psychological discomfort of postpartum mothers.

Muscle endurance is known to physiologically decline following childbirth due to the hormonal changes that take place. It has been demonstrated that low-intensity exercise improves postpartum women's general physical and fitness (Larson-Meyer, 2002; Zourladani et al., 2015). Exercise, particularly yoga, can improve muscle strength, flexibility, and relaxation, which can enhance the quality of life after giving birth (Sun et al., 2015; Timlin & Simpson, 2017).

In line with previous research that which demonstrated that postpartum women who engaged in physical activity right away following childbirth experienced enhanced physical health and a higher quality of life (Mahishale et al., 2014). This is due to the fact that exercise raises endorphin levels in the brain, which function as internal psychoactive agents and produce euphoria—a pleasurable feeling linked to a positive self-image, vigor, control, and contentment. Exercise also causes the body to produce beta-endorphins, which are endogenously produced. (Szabo et al., 2019). Yoga-based physical exercise as a holistic behavior has been shown to be effective in improving psychological well-being, helping to build recovery of physical strength after childbirth, as well as providing social support to postpartum mothers (Buttner et al., 2015; Timlin & Simpson, 2017).

Postpartum yoga begins on the first day (>6 hours) following childbirth. Adapted poses for the mother's needs can enhance the quality of her sleep, strengthen her pelvic floor muscles, and promote physical and mental relaxation. In this study, the postpartum yoga movement emphasizes breathing rhythms, modified crocodile, bridge, and child poses, and prioritizes comfort in order to help reduce tension in the muscles, increase their elasticity, improve blood flow, and, with the relaxation of auto suggestion, stimulate neurohormones to increase the physical and psychological comfort of postpartum mothers. Comfortable conditions for mothers can activate brain's hypothalamus nerve centers, which in turn causes neurohypophise cells (posterior pituitary) to. When nerve fibers are stimulated, oxytocin is released into the bloodstream and travels to the posterior pituitary. These hormones travel to the alveoli through the bloodstream, where they cause the myoepithelium cells to contract. The hormone oxytocin can be increased to influence adequate uterine contractions through smooth blood circulation, neurohormonal stimulation, and an increase in the elasticity of the uterine muscles. Uterine involution can be sped up with sufficient uterine contractions.

CONCLUSION

Yoga is effective decreased fundus uteri height. Post partum mothers are advised to do yoga regularly from birth until the 6th week.

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