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Effect of Prenatal Yoga on Duration of the First Stage of Labor and Perineal Rupture in Primigravida Mothers

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KEYWORDS

Prenatal Yoga; Duration of the first stage of labor; Perineal Rupture

Abstract In primigravidas, the first stage of labor has a longer duration than multiparous. The first stage of labor in primiparous is around 13-14 hours, while in multiparous it is about 7 hours. Prolonged labor is one of the causes of maternal death. Yoga in pregnancy can maintain elasticity and strength of the ligaments of the pelvis, hips, and leg muscles, so that it can reduce pain during labor and provide space for the birth canal. The comparative analytical research method used pre-experimental design with the one shot case study design. With a sample of 26 trimesters III primigravida pregnant women who were divided into 2 groups, namely n = 13 groups who did prenatal yoga, and n = 13 groups who did not do prenatal yoga. The analysis of this research was univariate and bivariate using the Mann Whitney test. Assessment is carried out during the delivery process. As a result, the intervention and control groups with active phase I labor duration obtained p = 0.000, and perineal rupture p = 0.000. There was a significant difference in the length of the first stage of labor and perineal rupture between the yoga group and the non-yoga group. Prenatal yoga affects the duration of the first stage of labor and perineal rupture.

Introduction

Prolonged labor is one of the causes of maternal death. On average, prolonged labor in the world causes maternal mortality by 8%, and in Indonesia it is 9%. Prolonged labor can be influenced by the mother's psychological condition which includes the mother's perception of pain during childbirth. Labor pain can cause stress which releases excessive hormones such as ketochamines and steroids. This hormone can cause smooth muscle tension and vasoconstriction of blood vessels, resulting in decreased uterine contractions, decreased uteroplacental circulation, reduced blood flow and oxygen to the uterus, and uterine ischemia that causes more pain impulses (Cunningham, 2014).

In primigravidas, the first stage of labor has a longer duration than multiparous. The first stage of labor in primiparous is around 13-14 hours, while in multiparous it is about 7 hours (Wiknjosastro, 2009). The duration of the first stage of labor in this primiparous causes longer pain, so the risk of fatigue will be greater, so that you feel anxious, tense, afraid and even panic.

The main cause of maternal mortality in Indonesia is bleeding (28%), one of which can be caused by a birth canal rupture including perineal rupture.

One of the goals of prenatal care is a physiological delivery with a healthy mother and child. This natural and smooth delivery can be achieved if the uterus contracts properly, rhythmically and firmly with the lower uterine segment, cervix and pelvic muscles in a relaxed state, allowing the baby to easily pass through the birth canal. There are several types of physical exercise in pregnancy, including pregnancy exercise, pilates, yoga, Kegel and Yophita. Exercises that are often followed by pregnant women today are pregnancy exercise and pregnancy yoga.

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Prenatal Yoga makes mothers more self-controlled and enjoys every labor process so that labor pains can be ignored. This strengthens the evidence that prenatal yoga practice can be used as a non-pharmacological treatment for labor pain with minimal side effects (Jahdi, 2018).

Therefore, the aim of this study is to prove the effect of prenatal yoga on the first stage and perineal rupture in primigravida mothers.

Materials and Methods

The comparative analytical research method used a pre-experimental design with the one-shot case study design. With a sample of 26 trimesters III primigravida pregnant women who were divided into 2 groups, 13 pregnant women in the intervention group who did prenatal yoga at the Kediri Public Health Center, and 13 pregnant women in the control group who did not do prenatal yoga at the Perampun Community Health Center. This study uses a sampling technique, namely the entire population that meets the inclusion criteria.

The yoga intervention group performed at a mean gestational age of 32 weeks until delivery. The implementation of prenatal yoga practice was carried out in 1 meetings. In this study, the data collection tool was an observation sheet based on a partograph to determine the duration of the first stage of labor in the active phase and perineal rupture. The analysis of this research was univariate and bivariate using the Mann Whitney test with computer software.

Ethical Consideration

This research has passed an ethical review and obtained a statement of ethical suitability at the Faculty of Medicine, University of Mataram No.164/UN18.F7/ETIK/2020. The data was taken after it was approved to make a research permit to the National and Political Unity Agency of West Lombok Regency with No. 070/245/02-Bapedda/2020.

Results and Discussion

Table 1 The Characteristics of Primigravida Mothers at the Kediri and the West Lombok Public Health Centersin 2020

Characteristics	Group		*P Value*
	Intervention	Control	
	n=13	n=13	
Age			
<20 years old	0	0	0.361
20-25 years old	11	9	
>25 years old	2	4	
Education			
None	0	0	0.083
Senior High School	10	11	
College	3	2	
Occupation			
Employment	3	2	0.027
Unemployment	10	11	

In Table 1, we can see the results of the characteristics of the respondents in this study consisted of age, education, and occupation. There were no significant differences in the characteristics of respondents in the intervention group and the control group. In conclusion, there

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is no influence of age, education, occupation, and baby's weight on the first stage of labor and perineal rupture.

The Effect of Yoga on the Duration of the first stage of labor in the Intervention and Control Groups

Prenatal Yoga is useful for practicing and mastering breathing techniques during childbirth. Breathing technique exercises are useful for exercising tension, improving blood circulation, and meeting the oxygen needs of the mother and fetus. Prenatal yoga exercises also function to strengthen and maintain the elasticity of the abdominal muscles, ligaments, pelvic muscles, and hip muscles, so that the delivery process can run quickly and safely. Besides, yoga practice can also affect joints, which have a role in accelerating the labor process (Evrianasari, 2020).

The results of statistical tests with Mann Whitney showed that there was a significant difference in Prenatal Yoga among Primigravida mothers on the duration of labor with p-value p = 0.000 <0.05. The duration of the first stage of labor in the intervention group was <3 hours, while in the control group was 5-6 hours. In conclusion, the delivery time for primigravida mothers who do Prenatal Yoga is much shorter than Primigravida mothers who do not do Prenatal Yoga. This result is also following the theory by Wiadnyana, which states that pregnant women who practice yoga regularly will benefit from smoothing the delivery process, reducing cesarean section, and reducing the occurrence of fetal distress at delivery. (Wiadnyana, 2010).

The results of research by Khalajzadeh show that yoga pregnancy exercises can strengthen the pelvic muscles, strengthen the muscles of the lower abdomen, muscles under the pelvis, facilitate childbirth (Khalajzadeh *et al*., 2012). It is also in line with research by Elok Sari Dewi *et al.* (2016), with the average length of delivery in the treatment group and the control group after statistical tests were carried out with the Wilcoxon test, the p-value = 0.003 was less than 0.05, meaning that there was an effect of a combination of prenatal yoga and pregnancy exercise on the duration of the first stage of labor (Dewi *et al.*, 2016).

Whereas in the research of Maharana et al (2013), prenatal yoga interventions carried out 1 hour per day from 19-20 weeks of gestation made the duration of the first stage of labor shorter than the control group. Besides, according to Almasyhur (2010), there is an effect of yoga pregnancy exercise on the strength of the pelvic floor muscles of vaginal primigravida postpartum women of 1.75 mmHg without contractions and 1.5 mmHg with contraction.

Table 3. The Effect of Yoga on Perineal Rupture in the Intervention and Control Groups

Perineal Rupture	Intervention n=13	Control n=13	P Value
			0.000*
No Rupture	2(15%)	0(0%)	
First degree rupture	7(53.8%)	0(0%)	
Second degree rupture	3(23.1%)	2(15.4%)	
Third degree rupture	1(7.7%)	11(84.6%)	

*Mann Whitney

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Table 3 shows that the effect of prenatal yoga on perineal rupture in the intervention group experienced a first-degree rupture, while the control group experienced a third-degree rupture. The t-test results in the intervention group and the control group on perineal rupture obtained p-value p = 0.000 <0.05, meaning that ho is rejected and ha is accepted. In conclusion, there is a significant difference between Yoga and non-yoga Primigravida mothers.

The Effect of Yoga on Perineal Rupture in the Intervention and Control Groups

Prenatal Yoga is one way to help keep the perineum intact. This exercise strengthens the muscles and can also teach you how to relax. Prenatal yoga exercises can keep the perineum strong and flexible.

In this study, the results of statistical tests with Mann Whitney showed that there was a significant difference between Prenatal Yoga in Primigravida mothers and Perineal Rupture with p-value p = 0.000 <0.05. The intervention group experienced first-degree perineal rupture, while the control group experienced third-degree perineal rupture. In conclusion, primigravida mothers who do Prenatal Yoga do not need suturing interventions. Meanwhile, primigravida mothers who do not do Prenatal Yoga need suturing to avoid bleeding and infection.

The results of this study are in line with Setyowati *et al*. (2017), where there is a significant difference in the p-value of 0.000 where there is a significant difference in the Yoga and non-yoga groups. The results of the study by Evrianasari *et al*. (2020) showed that there was a significant difference in a p-value of 0.001 on the perineal rupture between the intervention group and the control group.

Strengthening and maintaining the elasticity of the abdominal muscles, ligaments, pelvic muscles, and thigh muscles is one of the benefits of Prenatal Yoga. The relaxation process will be perfect by doing the necessary contraction and relaxation to deal with tension or pain during labor. One of the exercises that strengthen and maintain elasticity is to strengthen the pelvic muscles to relax the pelvic muscles so that the baby's head will come out easily. Thus it will facilitate the delivery process and reduce the risk of perineal rupture (Treacy, 2016).

With the strengthening and flexibility of the perineum, vaginal, sphincter, and urinary tract muscles and followed by an increase in pelvic diameter, the mother will feel relaxed and can facilitate labor with minimal trauma and reduce the duration of each phase of labor (Jahdi, 2017)

There are still some mothers who experience perineal rupture even though they do Prenatal Yoga due to other factors, namely the higher birth weight of the fetus, the position of the mother during labor, the first delivery, the pushing process too early. The incidence of rupture will also increase if the baby is born too fast, not properly regulating the baby's birth rate. The skills of childbirth assistants are also very influential because if they cannot prevent sudden head expulsion, it will result in a large and irregular perineal rupture, which can even extend to the anal sphincter and rectum.

Mothers who do not experience perineal rupture may be due to correct positioning during labor, pregnancy exercise, perineal massage, and prenatal yoga. Mothers who follow Prenatal Yoga can be beneficial in the labor process, namely, mothers can train calmness in facing the labor process, strengthen and maintain elasticity when straining the pelvic muscles, and actively relax the inner thigh muscles so that the limp pelvic muscles will not tear easily during childbirth (CLaudia *et al*, 2018).

In addition to psychological conditions, the strength of the pelvic muscles also plays a role

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in the smooth and comfortable delivery, including the perineal muscles. At the time of delivery, a perineal rupture occurred in almost all deliveries (primigravida, namely 73.53%, and multigravida 57.14%) (Istianawati & Juaria, 2013). In Indonesia, perineal rupture is also the second cause of postpartum bleeding. According to Rosdiana (2010), labor rupture is influenced by parity, pregnancy distance, birth history, and birth weight. Based on this, the mother should prepare for a comfortable delivery starting from the gestation period. One of them is by doing pregnancy yoga exercises (Wahyuni & Siswanto, 2010).

Conclusions and Suggestion

The results showed that Prenatal Yoga given to primigravida 3rd trimester pregnant women gave a significant difference in the group of mothers who did prenatal yoga and did not do Prenatal Yoga on primigravida mothers. With this Yoga is very influential on the first period and perineal tear.

It is suggested for further researchers to add research variables, namely the position of delivery and the estimated fetal weight which can affect the duration of first stage labor and perineal rupture. In addition, efforts can be made in the process of prenatal yoga training by distributing CDs and making Prenatal Yoga leaflets so that pregnant women do not only do prenatal Yoga at the Puskesmas, but can also do it at home.

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