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ORIGINAL RESEARCH

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EFFECT OF YOGA ON DURATION OF THE SECOND STAGE OF LABOR AND PERINEAL RUPTURE IN PRIMIGRAVIDA MOTHERS

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Abstract

Objective: To determine the effect of yoga on the duration of the second stage of labor and perineal rupture in primigravida mothers.

Methods: This was a quasi-experimental study with posttest group only design. The study was conducted in the Public Health Center of Pekalongan, Central Java, Indonesia from December 2016 until January 2017. There were 50 mothers selected using purposive sampling, which 25 assigned in the experiment and control group. Independent t-test and Chi Square test were used for data analysis.

Results: There was a statistically significant difference in the duration of second stage of labor ($p=0.000$) and perineal rupture ($p=0.001$) between experiment and control group.

Conclusion: There was a significant effect of yoga on the duration of the second stage of labor and perineal rupture in primigravida mothers. Therefore, yoga is recommended for midwife to be included in the antenatal care.

Keywords: yoga; second stage of labor; perineal rupture

INTRODUCTION

The process of labor occurs in several stages over many hours or even a few days—from early labor through delivering the baby and the placenta ([Varney, Kriebs, & Gegor, 2007](#)). During labor, contractions in uterus open the cervix and move the baby into position to be born. The delivery process is also supported by the condition of the fetus, birth canal, labor and psychological condition of mothers ([Lothian, 2009](#)).

Length of labor is one of indicators of the normal birth. The duration of labor that occurs in the second stage is the last phase of a labor, which if it lasts too long resulting in symptoms such as dehydration, infection,

maternal fatigue and asphyxia and intra uterine fetal death. In addition, the strength of pelvic floor muscles also plays a role in the smoothness and comfort of labor, including the perineal muscles ([Noviatri & Prihatiningsih, 2015](#)). Lack of its strength leads to perineum rupture. Previous study revealed that spontaneous perineum rupture occurred in primigravida (51.6%) and multigravida (48.4%) ([Noviatri, 2015](#)).

Spontaneous perineum rupture occurs because of tension in the vaginal area at the time of delivery, and a discrepancy between the birth canal and the fetus as well as psychological burden in facing labor process. This rupture,

without proper management, will result in discomfort, bleeding, including death in postpartum mothers ([Noviatri, 2015](#)). Yoga is considered as one of alternative therapies to prepare pregnant women physically, mentally and spiritually in facing birth process as well as to prevent perineum rupture ([Shindu, 2014](#)).

Yoga is also useful to train and master the breathing techniques that play a very important role during pregnancy and labor. It is also important to strengthen and maintain elasticity of abdominal wall muscles, ligaments, basic hip muscles and inner thigh muscles, thus the process of labor can be mastered. The relaxation process will be perfect by doing the contractions and relaxation necessary to overcome the tension or pain during labor. One exercise to strengthen and maintain elasticity is the exercises of pelvic floor muscles. So, at the time of straining, the muscle will relax actively so that the baby's head will come out easily, thus will facilitate the delivery process ([Shindu, 2014](#)).

Based on preliminary study conducted at the Public Health Center of Pekalongan Barat in June – July 2016, from 28 primigravida mothers, according to the result of partograph, there were 13 mothers (46.4%) had prolonged second stage of labor and 15 mothers (53.6%) did not experience prolonged second stage of labor. However, the effects of prolonged second stage can result in fatigue and bleeding in mother and impact in the fetus. Of the 28 deliveries, 5 mothers (17.9%) had a perineal rupture of grade I, 10 mothers (35.7%) had perineal rupture of grade II, and 13 mothers (46.4%) had perianal rupture of grade III. This study aimed to examine the effect of yoga on the duration of the second stage of labor and perineal integrity in primigravida mothers.

METHODS

Study Design

This was a quasi-experimental study with posttest group only design.

Settings

The study was conducted in the Public Health Center of Pekalongan, Central Java, Indonesia

from December 2016 until January 2017 (6 weeks).

Sample

The target population in this study was all primigravida mothers trimester III in the working area of public health center of Pekalongan amounted to 74 mothers. There were 50 mothers selected using purposive sampling, which 25 assigned in the experiment and control group.

The inclusion criteria of the sample included: a primigravida mother with gestational age >32 weeks, 20-30 years old, mother with single pregnancy, baby's weight 2500-4000 grams, normal pelvic size, and was not suffering from chronic lung disease, diabetes mellitus and hypertension. The exclusion criteria were: pregnant women who experienced complications in pregnancy and labor such as hypertension in pregnancy, antepartum bleeding, premature rupture of membranes, narrow pelvis, not a head presentation, and fetal distress.

Intervention

Yoga was administered in the experiment group once a week for four times, with each session was performed in 30 minutes. In addition, experiment group also got a routine antenatal examination. Yoga is a body movement performed by primigravida women at 32 weeks of gestation, consisting of posture pranayama (breathing), suryanamaskar (heating and core), nidhra (deep relaxation) and dhyana (mind concentration). This exercise was guided and trained by a yoga instructor. While the control group only received routine antenatal checks.

Instrument

The duration of the second stage of labor and perineal integrity were observed by the researcher and evaluated in perineal sheets. The duration was noted in minutes.

Ethical consideration

Ethical clearance of the research was obtained from the Ethics Commission of Poltekkes Kemenkes Semarang No.032 / KEPK/Poltekkes-Smg / EC / 017. Each participant signed informed consent prior to data collection.

Data Analysis

Shapiro Wilk showed a normal data distribution, thus Independent t-test and Chi Square test were used to determine the effect of yoga on the duration of labor and perineal rupture.

24.36 and the control group was 24.12. The majority of the respondents in both groups had a senior high school background, and not working. The mean of baby's weight in the experiment group was 3148 gr and the control group were 3128 gr. Homogeneity test obtained p-value >0.05, which indicated that there was no significant difference in the characteristics of the respondents between experiment and control group.

RESULTS

Table 1 shows that the mean age of the respondents in the experiment group was

Table 1 Average of characteristics of the respondents based on age, education, occupation and baby's weight

Variable	Group		p value
	Experiment (n=25)	Control (n=25)	
Age (year)	24.36 (SD 3.04; Median 24; Min 20 – Max 30)	24.12 (SD 2.75; Median 24; Min 20 – Max 29)	0.771
Education			
Junior high	11 (44%)	8 (32%)	0.090
Senior high	14 (56%)	17 (68%)	
Occupation			
Not working	7 (28%)	10 (40%)	0.308
Trader	7 (28%)	7 (28%)	
Private employee	7 (28%)	4 (16%)	
Entrepreneur	4 (16%)	4 (16%)	
Baby's weight (Gram)	3148 (SD 245.57; Median 3250; Min 2700 – Max 3600)	3128 (SD 259.84; Median 3100; Min 2700 – Max 3600)	0.781

Table 2. The effect of yoga on the duration of second stage of labor and perineal rupture in primigravida mothers

Variable	Group		P-value
	Control (n=25) Mean±SD; Median; Min±Max	Experiment (n=25) Mean±SD; Median; Min±Max	
Duration of second stage of labor	43.44±15.484;40; 20±78	25.32±7.06;26;10±35	0.000 ^a
Perineal rupture			0.001 ^b
No rupture	0 (0%)	3 (12%)	
Rupture grade I	6 (24%)	14 (56%)	
Rupture grade II	17 (68%)	8 (32%)	
Rupture grade III	2 (8%)	0 (0%)	

^aIndependent t-test, ^bChi Square test

Table 2 shows that the mean duration of second stage of labor in the experiment group was 25.32 minutes and the control group was 43.44 minutes with p-value 0.00 (<0.05), which indicated that there was a significant difference in the duration of second stage of labor between both groups. For perineal rupture variable, the experiment group showed 3 mothers (12%) with no rupture, 14 (15%) mothers with rupture grade I, and 8

(32%) mothers with rupture grade II; while the control group showed 6 (24%) mothers with rupture grade I, 17 (68%) mothers with rupture grade II, and 2 (8%) with rupture grade III. Chi-square test obtained p-value 0.001 (<0.05), which indicated that there was a significant difference in perineal rupture between the two groups.

DISCUSSION

The results of this study revealed that there was a significant effect of yoga on the duration of the second stage of labor and perineal rupture. This finding is in line with the previous study stated that yoga pregnancy exercise can strengthen pelvic and abdominal muscles to facilitate labor ([Khalajzadeh, Shojaei, & Mirfaizi, 2012](#)). Findings in this study revealed that the length of the second stage of labor for mothers who performed yoga was shorter than those who did not perform yoga. It is due to breathing exercise can affect the power, passanger and psychology of the maternal mother. According to previous study, mothers who follow yoga on average 2-3 times during pregnancy have the short duration of the second stage of labor ([Rahmawati & Lestari, 2016](#)). There was a significant effect of yoga on the duration of the second stage of labor. The more the mothers do yoga, the shorter the duration of labor stage II.

This is also in accordance with the theory said that pregnant women who do yoga on a regular basis will benefit from the smooth process of labor and reduce the occurrence of fetal distress at the time of delivery ([Wiadnyana](#)). The results of this study were also supported by research conducted by Songporn Chutharapat on 74 primigravida in Thailand revealed that mothers who performed yoga was more comfortable during delivery and postpartum, and the duration of the second stage of labor was shorter compared with control group ([Chuntharapat, Petpichetchian, & Hatthakit, 2008](#)).

Respondents who regularly participate in yoga can reduce the occurrence of perineal rupture due to yoga can help pelvic floor muscle elasticity. The yoga technique of breathing, contraction and relaxation is useful during the emergence of pain at the time of pelvic dilation, and doing a good push technique at the perfect timing in delivery once the dilation is complete, so the delivery will have effective results with good perineal integrity.

However, respondents who were regularly followed yoga but still having perineal rupture, it might be because of maternal

factor, fetus, and the helper. Maternal factors include the fragile perineum, primigravida, pelvic floor narrowing, flexibility of the birth canal, excessive straining, partus prespitatus, and labor with acts such as vacuum extraction, and forceps ([Mochtar, 2011](#)). Factors of the fetus include large fetuses, abnormal positions, and shoulder dystocia; and the helper factors include the leading skills of contraction, how to communicate with mother, and the skill of holding the perineum at the expulsion of the fetal head and vertical position ([Mochtar, 2011](#)).

CONCLUSION

It can be concluded that there was a significant effect of yoga on the duration of the second stage of labor and perineal rupture in primigravida mothers. Therefore, yoga is recommended for midwife to be included in the antenatal care.

Declaration of Conflicting Interest

None declared.

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Author Contribution

All authors contributed equally in this study.

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