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INFLUENCE OF KEGEL GYMNASTICS ON PRIMIGRAVIDA PREGNANCY TOWARDS THE INCIDENCE OF A PERINEAL RUPTURE IN BASIC ESSENTIAL OBSTETRIC CARE NEONATES SURAKARTA, INDONESIA

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ABSTRACT

Background: *Kegel gymnastics can strengthen pelvic floor muscles and improve blood circulation and posture so that the perineal muscles and the perineal floor muscles become elastic. Perineal rigidity is the maternal factor which can lead to perineal rupture.*
Aims: *The objective of the study is to determine the effect of Kegel gymnastics for primigravidas on the incidence of perinealrupture.*
Method: *This study employed the quasi-experimental method with the control group design. Its samples were determined through the quota sampling technique. The subjects of the research were primigravidas as many as 40. They were divided equally into two groups – intervention group and control group. The data of the research was collected through observation sheet for evaluation of Kegel gymnastics for at least three weeks and pantograph sheet. They were analyzed by statistical analysis with the Chi-square formula aided with the computer program of SPSS Version 16 for Windows.*
Result: *Only 40% mothers experienced a perineal rupture if excercised kegel gymnastics. It was significantly lower compared to their counterpart in the control group with no exercise (p-value = 0.001).*
Conclusion: *Kegel gymnastics may lower the incidence of perineal rupture among the primigravidas.*

Keywords: *Kegel gymnastics, primigravida, perineal rupture*

INTRODUCTION

Kegel exercises created by Dr. Arnold Kegel in 1984 with the aimed at controlling the postpartum incontinence and to improve the inability to hold urine. Kegel exercises strengthen the pelvic floor muscles to improve sphincter function. Thus, Kegel exercises are important for the improvement of blood circulation, posture, and pelvic floor muscles [1].

Pelvic floor forms the pelvic base, which consists of fascia, levator ani deep and coccygeus muscles and perineal muscles. With Kegel gymnastics, perineal muscles and pelvic floor muscles become elastic and can stretch maximally so that the perineum is not rigid [2].

Perineal rigidity is the maternal factor that can inevitably lead to the perineal rupture. A perineal rupture is the second leading causeof postpartum hemorrhage. Approximately 70% of women who give birth vaginally experienced perineal trauma.Approximately 50% of these cases produced a very broad laceration, namely: Level II and Level III [3].

The result of study by the Center for Research and Development (Research) of Bandung from 2009 to 2010 in several provinces of Indonesia shows that one of five mothers died due to perineal rupture [4].

The impact of the perineal rupture of in the mother includes infection of the wound sutures which can propagate in the bladder or the birth canal that can result in the emergence of complications of bladder infections or infections in the birth canal. Bleeding can also occur because the blood vessels close imperfectly so that the bleeding occurs continuously. The slow management of complications can lead to mortality in post-partum mothers as their physical conditions are still weak [5].

Based on the preliminary study at the Department of Essential Neonatal Obstetric Services, Community Health Center of Surakarta,9 of the 10 primigravidas who did not perform the Kegel gymnastics experienced the perineal rupture during childbirth. Kegel gymnastics offer so many benefits for pregnant women and thus the researcher is interested in conducting research that aims to determine the effect of Kegel gymnastics on the incidence of perineal ruptures among primigravidas.

METHOD

This study employed the quasi-experimental research method with the control group design. It was conducted at the Department of Essential Neonatal Obstetric Services, Community Health Center of Surakarta from December 2013 to July 2014. The samples of the research were determined through the quota sampling technique. They consisted of 40 mothers with trimester pregnancy. They were grouped into two, namely: 20 in the experimental group and the rest in the control group. The data of research were primary and secondary ones, namely: pantographs, which were taken from the Maternal Register Book.

Respondents in the experimental group were obtained from the data on ANC visits at public health centres, then house calls to their respective houses were administered and the intervention on how to do the Kegel gymnastics correctly was given. Follows-up on how to do the gymnastics were given every day in the course of its administration with the provision that they had to do it 3 times a day for at least 3 weeks. For the control group or the group to be compared with which did not receive any intervention, the respondents were obtained from the maternity register data of the public health centres.

Descriptions of the ruptures were given to health workers at public health centre offering the *Basic Emergency Obstetric* and *Neonatal Care* so that in the event of a mother giving birth, they would have the same perception of the incidence of ruptures in the event of childbirth. Pregnant mothers who were about to give birth were asked to contact the researcher in order that the researcher could directly observe her in the course of the childbirth. It was done as a control for the experimental group to reduce bias in the research.

Instruments used to measure research data were Kegel gymnastics observation sheets filled in every day and partograph sheets. Univariate and bivariate analyses were employed to analyze the data.

RESULTS

Characteristics of Respondents

Table 1. Characteristics of Respondents at the Department of Essential Neonatal Obstetric Services, Community Health Center of Surakarta

Parameter		Frequency (N)	Percentage (%)
Age interval (years)			
	< 20	3	7.5
	20-35	37	92.5
	Total	**40**	**100**
Education			
	Below Secondary School	18	45
	Secondary School	19	47.5
	Higher education	3	7.5
	Total	**40**	**100**
Occupation			
	Unemployed	19	47.5
	Private	15	37.5
	Laborers	6	15
	Total	**40**	**100**
Kegel exercises			
	Yes	20	50
	No	20	50
	Total	**40**	**100**
Duration of Kegel Exercises			
	3 Weeks	4	20
	4 Weeks	6	30
	5 Weeks	5	25
	6 Weeks	5	25
	Total	**20**	**100**
Incidence of Perineal Rupture			
	Rupture	26	65
	No Rupture	14	35
	Total	**40**	**100**

Table 1 shows the characteristics of respondents including information of age, education, occupation, Kegel exercise status and duration and incidence of perineal rupture. It also shows that 37 respondents (92.5%) were in the age group of 20-35 years old. The primigravidas had a higher risk to experience the perineal rupture than the multigravidas as their birth canal had not been passed by an infant's head, and the perineal muscles had not been stretched [6]. At the age group of 20-35 years, it is possible to train the strength of the pelvic floor muscles, which is very essential when there is a stretch by the head of the infant during the labor. This is in line with a notion which claims that a healthy reproductive age ranges from 20 to 35 years old [4].

Most of the respondents, namely: 19 mothers (47.5%) held the latest education background of Senior Secondary School. Notoatmodjo [7] claims that knowledge is influenced by one's formal education. Education is a process of empowerment so as to build a better life [8].

Sufficient knowledge of primigravidas facilitated the learning process of Kegel exercises conducted by the researchers.

Most respondents, i.e. 19 primigravidas were unemployed (47.5%). Corwin [9] claims that if not used, muscle mass and strength can generally decrease. Jobs can affect one's activity patterns. Monotonous daily routines allow the muscles to be frequently used for domestic activities. This can maintain the strength of the muscles in primigravidas.

Twenty respondents (50%) performed Kegel exercises during their third trimester of pregnancy, and twenty respondents (50%) did not perform Kegel exercises during pregnancy as a control group. Thus, there were twenty respondents in the group treated with Kegel exercises during the third trimester of gestation, and there were 20 respondents as the control group who did not perform the Kegel exercises during their third trimester of pregnancy.

Table 2. The Effect of Kegel Gymnastics on the Incidence of Perineal Rupture

		Rupture		
		Rupture	No rupture	**Total**
kegel	Kegel exercises	8	12	20
		20.0%	30.0%	50.0%
	No kegel exercises	18	2	20
		45.0%	5.0%	50.0%
Total		26	14	40
		65.0%	35.0%	100.0%

Based on Table 2, the highest number of ruptures was found in the group that did not do the Kegel gymnastics, i.e. 18 respondents, followed by the group that did the Kegel gymnastics and did not undergo ruptures, i.e. 12 respondents. Furthermore,the group that did the Kegel gymnastics but underwent ruptures consisted of 8 respondents while the group that did not do the Kegel gymnastics and did not undergo ruptures consisted of 2 respondents.

Tabel 3. Chi- Square Test of Kegel Exercises with the Incidence of Rupture

	Value	**Df**	***Asymp. Sig. (2-sided)***
Pearson's *Chi Square* Test	10.989[a]	1	.001
Number of Valid Samples	40		

The result of the Chi-Square test shows that the p-value was 0.001 which was less than 0.05. This indicates that the Kegel exercises have a significant correlation with the perineal rupture. The Kegel exercises have effects on the pelvic floor muscles. They make the pelvic floor muscles more elastic, which later help the delivery process and reduce the incidence of perineal rupture especially in a primipara. According to Prawirohardjo [10], the laceration of the birth canal may occur as a result of episiotomy, spontaneous perineal rupture, trauma or forceps or vacuum extraction for removal version. There are many factors influencing the incidence of perineal rupture, including parity, pregnancy-spacing, infant's weight, and history of childbirth.

DISCUSSION

Kegel exercises are exercises to strengthen the pelvic floor muscles (pubococcygeus muscles) or PC muscles that serve to support the vital organs, such as uterus, bladder, and rectum to function properly [2]. Kegel exercises when performed during pregnancy may make the pelvic floor muscles supple or elastic, and can boost the blood circulation in the area around the vagina, which may help during pregnancy and childbirth [11].

At the time of delivery where the membranes have ruptured, changes take place in the pelvic floor entirely caused by the pressure of the presenting part. In the natural labor, when the presenting part is the head, the vagina and vulva take the largest diameter in opening (crowning), which causes the perineum and anus to simultaneously become very stretched and prominent. As a result, this can lead to spontaneous rupture. The untimely deflection of the infant's head can cause perineal rupture [12].

The perineal rupture can give such great effects as physical, emotional, and sexual ones for a woman for the rest of her life [13]. It can also cause postpartum hemorrhage, which can lead to mortality. Therefore, the perineal rupture, which is a physical trauma of labor should be prevented during the maternal birth process, so as to make the birth process last excitingly and so as to provide enjoyable experiences for the mothers. Labor without any physical injury, especially the perineal rupture will make the mothers feel more comfortable when having the next delivery compared with those who previously experienced the perineal rupture. They feel scary to experience the bad ones in their next delivery.

CONCLUSION AND RECOMMENDATION

The results of this study make clear that in the third trimester pregnancy, 12 primigravidas (60% than 20 sampel) of the group treated with Kegel exercises had no perineal rupture. The statistical test with the Chi-Square shows that the p-value = 0.001, meaning that the Kegel exercises affect the incidence of perineal rupture.

Thus, pregnant mothers are expected to perform the Kegel exercises regularly for at least three weeks, and should realize the importance of the Kegel exercises for labor. In addition, the shortfall of this study can be remedied by further studies, and other variables such as maternal, fetal, and auxiliary factors, which contribute to the problems discussed need to be investigated.

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