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ANALYSIS OF DOMINANT FACTORS CAUSING PERINEAL RUPTURE IN SPONTANEOUS LABOR

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ABSTRACT

Perineal rupture is a labor problem the biggest cause of maternal death. This study purpose to analyze the dominant factors causing perineal rupture in spontaneous labor, including variables related to age, birth spacing, parity and newborn weight. This study uses a quantitative method with a cross-sectional approach. The study population was 671 maternity mother at RSU Dr. H. Koesnadi Bondowoso who was recorded in January-August 2019. The next, number of samples was determined as many as 251 respondents through the Simple Random Sampling technique. Data were collected using an observation sheet (Checklist) and analyzed by the Chi Square method. The results showed that there was a relationship between the incidence of perineal rupture with the predictors of age, birth spacing, parity and newborn weight, respectively <0.001 and 0.132. It can be concluded that age, birth spacing, parity and weight of newborns are factors that cause perineal rupture in spontaneous labor at dr. H. Koesnadi Bondowoso General Hospital.

Keywords: breast milk, length of umbilical cord release

INTRODUCTION

Perineal rupture is a tear that occurs at the time of delivery, either spontaneously or with tools or procedures. Spontaneous perineal tears are caused by a stiff perineum, the fetal head passes too quickly through the pelvic floor, large babies, perineal width and parity (Wiknjosastro, 2014). A perineal tear can occur due to spontaneous rupture or an episiotomy with indications such as a large baby, rigid perineum, delivery with an abnormal position, delivery using either forceps or vacuum. Episiotomy if performed not based on indications will cause an increase in the incidence and damage to the perineal area which is more severe. Perineal tears generally occur in all deliveries and usually occur in the midline and become widespread when the fetal head is born too quickly (Bahiyatun, 2009).

Perineal rupture can be stated as the biggest cause of maternal death after delivery. Data from the World Health Organization (WHO, 2016) shows a figure of 2.7 million cases

of perineal rupture in maternity, where this figure is estimated to reach 6.3 million by 2050. Perineal rupture is quite a problem, 50% of the incidence of rupture perineum in the world occurs in Asia, especially Indonesia (Black, 2009). According to (Bondowoso District Health Office, 2017), the maternal mortality rate is 149, the largest contributor to death is postpartum mothers caused by bleeding. One of the causes of bleeding is a perineal tear. At the Koesnadi Bondowoso Hospital in 2017, out of 2478 mothers who gave birth, 205 mothers experienced perineal rupture (Champions, 2009).

Perineal rupture occurs when the lower perineal muscles are not strong enough to withstand the stretch and do not have time to adjust to the fetal head, causing the blood vessels to open ((JNPKR, 2014). The presence of open blood vessels due to perineal rupture causes bleeding. Perineal rupture can cause bleeding according to the laceration that occurs, in grades I and II lacerations bleeding is rare, but in third and fourth lacerations it often causes postpartum hemorrhage (Varney et al., 2008). Perineal rupture is the second most common cause of postpartum hemorrhage. In addition, the presence of a rupture in the perineum can also cause infection (Sofian, 2012).

Prevention of perineal rupture can be done during pregnancy, during delivery and the post partum period for recovery and preparation for the next pregnancy. Health workers can recognize the signs of a rigid perineum, so they can assess and take appropriate action to avoid perineal rupture. Measurement of uterine fundal height is to determine the interpretation of fetal weight, if the fetal weight is large, the mother is recommended not to consume excessive calories. The actions taken in the health setting in the event of a perineal rupture are sewing layer by layer with the aim of strengthening the tissue to avoid bleeding and infection. In addition to prevention, an important effort that can be done by officers to prevent perineal rupture is to apply delivery management that is in accordance with normal delivery care standards (60 steps of Normal Delivery Care /APN) to control the birth of the head, shoulders, arms and legs. In addition, according to research conducted (Anggraini and Martini, 2015) doing perineal massage in pregnant women can reduce the risk of perineal tears.

Based on a preliminary study conducted at General Hospital dr.H.Koesnadi Bondowoso in 2018 which was conducted on 1052 mothers who gave birth, 180 of them experienced perineal rupture. Therefore, it is necessary to conduct further studies on the dominant factors causing perineal rupture. This study purpose to analysis of the dominant factors of perineal pupture in spontaneous labor in General Hospitals dr. H. Koesnadi Bondowoso.

METHOD

This research is a type of quantitative research with a cross-sectional approach. In cross-sectional research, the dynamics between risk factors and effects are studied by means of approaches, observations or data collection all at once (Notoatmodjo, 2010). This study examines the relationship between the independent variables including age, parity, birth spacing and newborn weight with the dependent variable the incidence of perineal rupture.

The population in this study was data on all women who gave birth vaginally at General Hospitakl Dr. H. Koesnadi, Bondowoso Regency in January-August 2019 as many as 671. Furthermore, a sample of 251 was determined using the Slovin formula. Sampling was carried out using a simple random sampling technique, which is a sampling technique in which each member of the population has the same opportunity to be sampled (Notoatmodjo, 2010).

Primary data were collected using a research instrument in the form of a checklist. Furthermore, the data were analyzed using the Chi-square method with a significance level of 0.05 in the SPSS 21 program (Sugiono, 2014). This research has passed the ethical test by the Poltekkes Ethics Commission of the Ministry of Health of Malang (No:510/KEPK-POLKESMA/2019) (Ministry of Health of the Republic of Indonesia, 2012).

RESULTS

Table 1. Distribution of History of Perineal Rupture and Gestasional Age

Variable	f (%)
History of Perineal Rupture	
Yes	62 (24,7)
No	189 (75,3)
Gestasional Age	
Aterm	230 (91,6)
Preterm	21 (8,4)

Based on table 1, it shows that most of the respondents have no history of perineal rupture, which is 75,3%. In addition, it can be seen that most of the mothers who give birth are at aterm gestational age (91.6%).

Table 2. Distribution of Perineal Rupture's Factors and Incident Perineal Rupture

Variable	f (%)
Age	
At risk	64 (25,5)
No risk	187 (74,5)
Pregnancy Interval	
< 2 year	20 (8,0)
> 2 year	92 (36,7)
No distance	139 (55,4)
Parity	
Primipara	139 (55,4)
Multipara	107 (42,6)
Grandemultipara	5 (2,0)
Weight Born	
MBW	9 (3,6)
NBW	242 (96,4)
Incident Perineal Rupture	
Yes	202 (80,5)
No	49 (19,5)

Based on table 2. it can be seen that most of the respondents are not at the age at risk of rupture (74.5%), do not have birth spacing (55.4%), are included in primiparous parity (55.4%), give birth to babies weighing born normal (96.4%), but had perineal rupture (80.5%).

Table 3. Factors of Perineal Rupture

Variable	Perineal Rupture		p-value	CC
	Yes f (%)	No f (%)		
Maternal Age			0,001	0,214
At risk	61 (30,2)	3 (6,1)		
No risk	141 (69,8)	46 (93,9)		
Pregnancy Distance			<0,001	0,364
< 2 year	14 (6,9)	6 (12,3)		
> 2 year	57 (28,2)	35 (71,4)		
No distance	131 (64,9)	8 (16,3)		
Parity			<0,001	0,361
Primipara	131 (64,9)	8 (16,3)		
Multipara	68 (33,6)	39 (79,6)		
Grandemultipara	3 (1,5)	2 (4,1)		
Weight Born			0,132	0,095
MBW	9 (4,5)	0 (0)		
NBW	193 (95,5)	49 (100)		

Based on table 3, the results of the analysis show that pregnant women who are at an risk age of experiencing perineal rupture (30,2%), which is supported by Chi-square statistical results showing a significance value 0,001, so it can be stated that maternal age has significant association with the incidence of perineal rupture. The correlation coefficient (coefficient contingency) 0.214 indicates that the relationship between variables is in the low category.

The results of the analysis show that pregnant women who give birth with no pregnancy interval have a high tendency to experience perineal rupture (64,9%). Chi-square statistical results showing a significance value <0,001, so it can be stated that gestational distance has significant association with the incidence of perineal rupture. The correlation coefficient 0,364 indicates that the relationship between variables is in the low category.

The results of the analysis show that pregnant women in the primiparous category will tend to experience perineal rupture (64,9%). Chi-square statistical results showing a significance value <0,001, so it can be stated that gestational distance has significant association with the incidence of perineal rupture. The correlation coefficient 0,361 indicates that the relationship between variables is in the low category.

The results of the analysis show that pregnant women who give birth to babies with birth weight have a strong tendency to experience perineal rupture (95,5%). Chi-square statistical results showing a significance value 0,132, so it can be stated that the weight of the newborn does not have a significant relationship with the incidence of perineal rupture.

DISCUSSION

The incidence of perineal rupture in women giving birth at Dr. General Hospital. H. Koesnadi Bondowoso studied the relationship with several variables that have the potential to have a strong relationship, among others: Age, birth spacing, parity and weight of newborns. Based on research (Tarelluan et al, 2013), the incidence of perineal rupture is more in the risk age group <20 years compared to the non-risk age group (20-35 years). This is because at the age of <20 years, the perineum is still intact, the vulva is closed, the hymen perforates and the vagina is still narrow and the presence of rugae in primigravida will experience pressure on the soft birth canal, by the fetal head, with an intact perineum in primigravida will easy to rupture. At the age of 35 years the function of the muscles in the perineum decreases (Varney et al., 2008)

The results of this study indicate that mothers whose obstetric history was pregnant for the first time (primiparas) caused more spontaneous perineal rupture, then mothers with birth spacing > 2 years were 93 (37.1) more perineal ruptures than mothers with birth spacing < 2

years. . This shows a discrepancy with the theory which states that mothers who give birth at a distance Birth < 2 years more often occurs perineum rupture. Based on existing theories, the birth distance is 2-3 years. It's a safer birth distance for mother and fetus. Likewise with the condition of the birth canal which may have experienced a third or fourth degree perineal tear, so that the recovery process has not been perfect and a perineal tear can occur (Kementerian Kesehatan RI, 2011)

The ideal distance between children to maintain the health of mother and child is 2-5 years. The ideal distance will provide opportunities for children to grow and develop in an optimal environment and nutrition. The ideal pregnancy spacing will also have an impact on the health of the mother. The mother's reproductive health will experience optimal recovery if the pregnancy distance is not too close. Factors that influence a family in determining the decision to regulate the distance between pregnancies include socioeconomic factors, couples psychology, the age of the couple and buday factors (Laili, 2012). Unregulated pregnancy distance will also pose potential dangers of pregnancy and childbirth (Prihandini *et al*., 2016). However, if the distance is too far or too long, it is also not good for the health of the mother. This can be seen from the results of research (Hamed and Mohamed, 2016) that mothers with children > 5 years apart have more perineal ruptures. This happens because the perineum is already stiff and the muscles are not as elastic as in the second or third pregnancy.

Based on the existing theory, perineal rupture is a tear that occurs when the baby is born either spontaneously or by using a tool or action. Tear occurs in almost all primiparas (Wiknjosastro, 2014). Perineal rupture is a tear that occurs in the perineum during labor that can result in

Complications of childbirth and nifas that can harm the mother *(Prawitasari et al*., 2016). In addition, research (Dahlen et al. 2013) shows that mothers with primiparous parity are more at risk of perineal rupture. This is because primiparous parity mothers have a birth canal that has never been passed by the baby's head so that the perineal muscles are still stiff and have not stretched. From the results of the study obtained from medical record data, it was found that mothers with primiparous parity caused more spontaneous perineal rupture than parity multipara and grandemultipara. This shows agreement with the theory which states that tearing occurs in almost all primiparas.

With each delivery, the soft tissues and structures around the perineum undergo kerusakan. The damage usually occurs more noticeable in primigravid women in the sense that women who have never given birth to a viable baby (primipara) than in multigravid women in the sense of women who have given birth to a viable baby more than once or are

called multiparas (Bobak et al., 2012). This is in line with research conducted by Hutomo (2017) showing that parity causes spontaneous perineal rupture.

Based on the existing theory, perineal tears occur in births with a large birth weight, namely the baby's weight > 4000 grams. This happens because the larger the baby is born, the greater the risk of perineal rupture due to the large birth weight associated with the size of the fetus which can result in the perineum not being strong enough to withstand the stretch of the baby's head with a large birth weight so that in the process of giving birth to a baby with a low birth weight. Large births often occur perineal rupture (Rini, 2010). Normal delivery can result in cases of perineal rupture in primiparous and multiparous mothers. The perineal mucosa and skin in a primiparous mother is prone to rupture which can cause vaginal bleeding (Wiknjosastro, 2014). Factors that affect perineal rupture include the weight of the newborn, the position of the mother in labor, the way of pushing and the delivery leader (Waspodo, 2011).

In general, it can be seen that birth spacing is the dominant factor causing perineal rupture in women giving birth at RSU Dr. H Koesnadi Bondowoso in 2019. This is shown by the value of the largest correlation coefficient, which is 0.364. Birth spacing is the dominant factor causing perineal rupture in Dr. RSU. H Koesnadi Bondowoso In 2019, this is in accordance with research conducted by (Sri Rintani, 2008) that the ideal distance between children to maintain maternal and child health is 2-5 years. The ideal distance will provide opportunities for children to grow and develop in an optimal environment and nutrition. The ideal pregnancy spacing will also have an impact on maternal health. The mother's reproductive health will experience optimal recovery if the pregnancy distance is not too close. However, if the distance is too far or too long, it is also not good for the health of the mother.

CONCLUSION

Overall, it can be concluded that age, parity and birth spacing have a significant relationship with the incidence of perineal rupture in pregnant women ($p < 0.05$), while the weight of newborns did not have a significant relationship with the incidence of perineal rupture in childbirth mothers ($p > 0.05$). Thus, age, parity and gestational spacing can be stated as factors causing perineal rupture in women giving birth at dr.H. Koesnadi Bondowoso. Of the three factors, the most dominant variable in causing perineal rupture is birth distance (Coefficient Contingency 0.364). Health care providers are advised to continue to improve health promotion related to prevention and early detection of risk factors for

perineal rupture. In addition, further research is recommended to deepen research by examining maternal and fetal factors more thoroughly.

ABBREVIATIONS

BKKBN : Badan Kependudukan dan Keluarga Berencana Nasional

WHO : World Health Organization

COMPETING INTEREST

Authors declare that we have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

AUTHORS' CONTRIBUTION

Corresponding author conceptualized, designed, prepared the initial draft and framework also interpreted the data under advice supervisor from Midwifery Departement Politeknik Kesehatan Kemenkes Malang

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