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RELATIONSHIP BETWEEN PARITY AND INFANT WEIGHT WITH BIRTH CANAL TEARING IN EMPAT LAWANG REGIONAL HOSPITAL

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Abstract

Background: According to data from the World Health Organization (WHO), 2.7 million cases of perineal rupture occurred in mothers giving birth. This figure is estimated to reach 6.3 million in 2050. Ordinary perineal rupture can turn into a more severe case of perineal rupture and cause death in women giving birth if management is not carried out properly and responsively. This study aims to determine the relationship between parity and birth weight of babies with birth canal tears in mothers giving birth at Empat Lawang Regional Public Hospital, Empat Lawang Regency, Indonesia. **Method:**This study used an analytical survey with a case control design involving 72 mothers experienced a tear in the birth canal during October to November 2023, in the Obstetrics Room Empat Lawang Regional Public Hospital. Data collection analysis techniques use secondary data and analysis uses univariate and bivariate analysis, using chi-square. **Results:** The results showed that from 144 respondents, there were 72 respondents with birth canal lacerations, 66 respondents with primiparous or grandemultiparous parity, 71 respondents with birth weight <2500 gr or >4000 gr. There is a relationship between parity and birth canal tears at Empat Lawang Regional Hospital with a p-value of 0.000 <α 0.05. There is relationship between the birth weight of the baby and birth canal tears at Empat Lawang Regional Hospital with a p-value of 0.000 <α 0.05. **Conclusion:** There is a relationship between parity and baby weight with the incidence of birth canal tearing in mothers giving birth at Empat Lawang Regional Hospital.

Keyword : Parity, Baby's Weight, Birth Canal Tear.

INTRODUCTION

The main causes of maternal death in developing countries are direct obstetric factors, namely postpartum hemorrhage, infection and eclampsia. Perineal rupture is one of the causes of postpartum hemorrhage. Postpartum hemorrhage is an important problem because it concerns maternal health. (Hukubun, Budiono and Kurniawati, 2021). Based on the Ministry of Health profile data in 2019, there were 4,221 deaths with the largest number of deaths caused by postpartum hemorrhage, this figure is certainly quite high in an effort to achieve the Sustainable

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Development Goals (SDGs) target, namely reducing maternal mortality to less than 70 per 100,000 live births by 2030 (RI, 2019).

One of the causes of maternal death occurs due to complications in the postpartum process that can endanger the mother and fetus. Postpartum complications that can occur in mothers in labor include bleeding due to uterine atony, placental retention, and perineal rupture(Heddy, Marfuah and Ananda, 2024). Perineal rupture is bleeding that occurs when the placenta has been born completely and uterine contractions are good, then it can be ascertained that the bleeding that occurs comes from injury to the birth canal, labor with perineal rupture if not handled properly will cause bleeding and infection that is increasingly severe (Fatimah and Prasetya, 2019)(Darmawati, 2022).

Based on data from the World Health Organization (WHO) there are 2.7 million cases of perineal rupture in mothers giving birth. This figure is estimated to reach 6.3 million in 2050. The prevalence of mothers giving birth who experience perineal rupture in Indonesia with the incidence of suture wound infection as much as 5% and bleeding as much as 7% and death in postpartum mothers as much as 8% (Kemenkes RI, 2019).

Perineal rupture that occurs in mothers in labor is related to three important factors for perineal rupture are maternal factors, fetal factors, and delivery procedure factors. Maternal risk factors include older maternal age, ethnicity, long second stage, persistent posterior occiput position, delivery with action (Waldenstrom and Ekeus, 2017). The cause of perineal rupture is due to maternal factors consisting of age, parity, method of pushing(Safitri, Susaldi and Istiana, 2024) (Siantar *et al.*, 2022).

In 2021, the highest number of maternal deaths occurred in Lahat Regency (33 cases) and the lowest in Pagar Alam (7 cases). In Empat Lawang Regency, there were 10 recorded cases, with the causes including bleeding (3 cases), pregnancy-induced hypertension (4 cases), blood disorders (1 case), and other causes (2 cases) (Dinkes Provinsi Sumatera, 2022).

Based on research (Haniyah and Adriani, 2019), which was conducted at the dr. R. Goeteng Taroenadibrata Purbalingga Regional Hospital, the relationship between age and parity with the degree of laceration found that there was a

significant relationship between perineal rupture and maternal age with the results p-value of 0.034 (p <0.05), and there was a significant relationship between perineal rupture and parity, with p-value of 0.000 (p <0.05). This study aims to determine the Relationship between Parity and Baby Weight with Birth Canal Tears in Mothers Giving Birth at Empat Lawang Regional Hospital.

METHOD

The type of research used is observational analytical research with a case control approach. The population in this study were all mothers who gave birth normally registered in the obstetric room in 2022, 72 mothers who experienced lacerations of the birth canal. In this study, the control sample was 1:1 compared to the case sample so that the total sample in this study was 144 respondents, with the number of case samples of 72 respondents and the control sample of 72 respondents.

Inclusion criteria are mothers who give birth normally, mothers who have lacerations of the birth canal, are willing to be research subjects and sign the informed consent form provided. Exclusion criteria are pregnant women with a history of cesarean section. The sampling technique in this study used the Stratified random sampling technique.

In this study, the collection was carried out by looking at data in the obstetric room's annual report on the incidence of lacerations of the birth canal, in 2022. Then the researcher looked at the research variables in the register book/annual report book consisting of parity and baby weight. The data analysis used was univariate and bivariate analysis, using chi-square

RESULT AND DISCUSSION

Table 1. Frequency Distribution of Parity in Mothers Giving Birth at Empat Lawang Regional Hospital

No	Variable	Frequency (f)	Percentage (%)
1	Parity of Laboring Mothers		
	Primipara or Grandmultipara	66	45.8
	Multipara	78	54.2
2	Birth Weight of Newborn		
	< 2500 gr or >4000 gr	71	49.3
	2500-4000 gr	73	50.7
3	Perineal Rupture in Laboring Mothers		

Yes	72	50
No	72	50

Based on Table 1 showing the frequency distribution of parity in laboring mothers, from 144 laboring mothers, it is observed that the majority had multipara parity, with 78 respondents (54.2%), while the minority had either primipara or grandmultipara parity, with 66 respondents (45.8%). According to the research by (Darmawati, 2022), it was found that based on the parity variable, among 115 respondents, the highest percentage of parity was multigravida, with 81 respondents (70.4%), while the lowest percentage was in primigravida, with 34 respondents (29.6%). Darmawati's research also showed that primigravida parity has a 3.93 times higher risk of experiencing perineal rupture compared to respondents with multigravida parity (Darmawati, 2022). The study by (Hastuti, 2019) states that the occurrence of perineal rupture was more common among multipara mothers, with 33 individuals (55.9%), while 26 individuals (44.1%) were primipara mothers (Manuntungi, Irmayanti and Ratna, 2019).

Based on Table 1 showing the frequency distribution of birth weight in laboring mothers, from 144 laboring mothers, it is observed that the majority of babies had a birth weight of 2500-4000 g, with 73 respondents (50.7%), while the minority had a birth weight of < 2500 g or > 4000 g, with 71 respondents (49.3%). The study by (Subriah, Hastuti and Nurjaya, 2022), titled "The Relationship Between Birth Weight and the Incidence of Perineal Rupture in Normal Deliveries Among Primigravida at the Happy Mother and Child Hospital in Makassar," shows that the research found that high birth weight carried a higher risk, with 47 cases, while low birth weight had a lower risk, with 20 cases (Subriah, Hastuti and Nurjaya, 2022).

Based on Table 1 showing the frequency distribution of perineal rupture in laboring mothers, from 144 laboring mothers, it is observed that 72 respondents (50.0%) experienced perineal rupture, while 72 respondents (50.0%) did not. Perineal rupture can result in pain, urinary and fecal incontinence, dyspareunia, and depression, leading to a decrease in women’s overall health. Perineal rupture during childbirth is related to risk factors for tears, which are beyond the control of midwives or doctors. Three important factors contributing to perineal rupture are

maternal factors, fetal factors, and delivery procedure factors. Maternal risk factors include older maternal age, ethnicity, prolonged second stage of labor, persistent occiput posterior position, and instrumental delivery. Important fetal factors include macrosomia (large baby), shoulder dystocia, and a large fetal head circumference (Sukarni, 2019).

Table 2. The Relationship Between Parity and Birth Canal Tears in Mothers Giving Birth at Empat Lawang Regional Hospital

Parity	Perineal Rupture						*p-value**
	Yes		No		Total		
	f	%	f	%	f	%	
Primipara or Grandmultipara	51	77.3	15	22.7	66	100	0.000
Multipara	21	26.9	57	73.1	78	100	
Total	72		72		144		

Based on Table 2, it is observed that out of 66 respondents with primipara or grandmultipara parity, 51 respondents experienced perineal rupture and 15 respondents did not. Meanwhile, out of 78 respondents with multipara parity, 21 respondents experienced perineal rupture and 57 respondents did not. The Chi-square test (with continuity correction) resulted in a χ^2 value of 34.266 with a p-value of 0.000 < 0.05, which is significant. Therefore, the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted. This indicates that there is a relationship between parity and perineal rupture at the Empat Lawang Regional Public Hospital. The Contingency Coefficient test yielded a value of C = 0.448 with a p-value of 0.000 < 0.05, which is significant. This C value is compared with the maximum C value (Cmax) = 0.707. Since the value of C = 0.448 is not far from Cmax = 0.707, it is considered a moderate relationship.

According to (Priharyanti and Zuhara, 2016), parity is considered to influence rupture when pressure is applied to the soft birth canal during delivery. The soft tissues of the birth canal and surrounding structures will suffer damage during each childbirth. This damage is more pronounced in nulliparous women because their tissue is denser and more fragile compared to multiparous women. The perineal area of some women is elastic, but a stiff perineum can also be found, especially in women who are experiencing their first pregnancy. However, it is also possible for perineal rupture to occur in multiparous women.

The results of this study are consistent with the theory that primiparas have a higher risk of rupture, as they have no prior experience with childbirth, compared to multiparas or grandmultiparas. Perineal tears occur in almost all first deliveries (primipara) and are not uncommon in subsequent deliveries. Mothers with a parity of one, or primiparas, have a higher risk of perineal rupture compared to mothers with more than one parity. This is because the birth canal has been traversed by the baby's head, so the perineal muscles have not yet stretched (Kau, Harismayanti and Retni, 2023).

The results of this study are consistent with the research by (Kau, Harismayanti and Retni, 2023), which shows a significant relationship between maternal parity and the incidence of perineal rupture. The findings also align with the study by (Muliati, 2018), which indicates a relationship between parity and the occurrence of perineal rupture in normal deliveries at Tegalrejo Health Center (Muliati, 2018).

Table 3. Relationship between Birth Weight and Birth Canal Tears in Mothers Giving Birth at Empat Lawang Regional Hospital

Birth Weight	Perineal Rupture						*p-value**
	Yes		No		Total		
	f	%	f	%	f	%	
<2500g or >4000g	60	84.5	11	15.5	71	100	0,000
2500-4000 gr	12	16.4	61	83.6	73	100	
Total	72		72		144		

Based on Table 3, it is observed that out of 71 respondents with a birth weight of < 2500 g or > 4000 g, 60 respondents experienced perineal rupture and 11 respondents did not. Meanwhile, out of 73 respondents with a birth weight between 2500-4000 g, 12 respondents experienced perineal rupture and 61 respondents did not. The Chi-square test (with continuity correction) resulted in a χ^2 value of 64.012 with a p-value of 0.000 < 0.05, which is significant. Therefore, the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted. This indicates that there is a relationship between birth weight and perineal rupture at the Empat Lawang Regional Public Hospital. The Contingency Coefficient test yielded a value of C = 0.448 with a p-value of 0.000 < 0.05, which is significant. This C value is compared with the maximum C value (Cmax) = 0.707. Since the value of C = 0.563 is close to the Cmax = 0.707, it indicates a strong relationship.

The results of this study are consistent with the research by (Wijayanti, 2019), which stated that there is a significant relationship between newborn birth weight and the occurrence of perineal rupture in normal deliveries among primigravida mothers at Gemuh 01 Health Center, Gemuh District, Kendal Regency (Wijayanti, 2019). Perineal rupture occurs due to several factors, one of which is the fetal factor, specifically the birth weight of the baby. The larger the baby, the higher the risk of rupture, as the perineum is not strong enough to withstand the stretching caused by the baby's head with a large birth weight. Therefore, during the delivery of a baby with a large birth weight, perineal rupture is more likely to occur. This also impacts the risk of birth trauma through the vagina, such as shoulder dystocia and soft tissue damage to the mother (Utami, Rajab and Munsir, 2023).

(Saifuddin, 2019) stated that the larger the baby's birth weight, the greater the risk of perineal rupture because the perineum is not strong enough to resist the stretching from the baby’s head with a large birth weight. Consequently, perineal rupture is more common during the delivery of a baby with a large birth weight. Excessive birth weight can be caused by several factors, including maternal diabetes mellitus, a history of delivering large babies, genetic factors, and nutritional status. A normal birth weight for a baby is around 2500 to 4000 grams.

Parity refers to the number of times a woman has given birth to a baby who reached a viable gestational age. It plays a significant role in the risk of experiencing a perineal rupture during vaginal delivery. Women who are giving birth for the first time, known as primiparous women, are more likely to experience perineal rupture. This is because the perineal tissues in first-time mothers have not previously been stretched during childbirth, making them less flexible and more prone to tearing as the baby passes through the birth canal.

Women who have given birth before, known as multiparous women, generally have lower risk of perineal rupture. Their perineal tissues have adapted to the stretching involved in previous deliveries, making them more elastic and better able to accommodate the baby's passage (Dendini *et al.*, 2024). In women with very high parity, the risk of perineal rupture may increase again. This can happen due to weakened or over-stretched perineal and pelvic muscles from multiple past

deliveries, or because of large babies or fast labors that place sudden pressure on the perineum(Addis *et al.*, 2024).

Therefore, parity affects perineal rupture in a way that first-time births carry the highest risk, moderate parity may offer some protection due to tissue adaptation, and very high parity might increase the risk again due to weakened support structures.

CONCLUSION AND SUGGESTION

There is a relationship between parity and perineal rupture at Empat Lawang Regional Public. There is a relationship between birth weight and perineal rupture at Empat Lawang Regional Public Hospital. Understanding this relationship helps healthcare providers take appropriate preventive steps during delivery to minimize trauma to the mother.

DECLARATION

Conflict of Interest

There is no conflict of interest in this research.

Authors' Contribution

The lead researcher is responsible for the entire research, from planning, implementation, data analysis and dissemination of results. Research member 1 is responsible for data analysis and discussion. Research member 2 is responsible for respondent selection, data collection and discussion.

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