



The Relationship Between Parity and the Incidence of Perineal Rupture: Literature Review

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ABSTRACT

Perineal rupture is an injury to the birth canal that occurs during the birth of a baby, either using or without tools. Perineal rupture is the second highest cause of postpartum maternal hemorrhage. Primiparous women are more likely to experience perineal rupture than multiparous women. The purpose of this literature review is to determine the relationship between parity and the incidence of perineal rupture in postpartum women. Using the literature review method with the PRISMA Flow Diagram principle. Articles or scientific journals were downloaded from PubMed, Portal Garuda, and Google Scholar with SINTA IV and V standards. The keywords in this article search were parity and perineal rupture. 197 articles were obtained in the search results. All articles were selected based on the inclusion criteria, 10 research articles were obtained to be reviewed. The results showed that there was a relationship between parity and the incidence of perineal rupture where the lower the parity, the higher the risk of perineal rupture.

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1. Introduction

Perineal rupture is a condition where the perineum is torn due to the vaginal delivery process, either spontaneously or with action. (Hukubun Y, 2021). The perineum stretches when the head passes through the lower pelvic inlet, causing strong stretching and tearing at the front edge. Injuries are usually minor but sometimes extensive and dangerous injuries occur. As a result of childbirth, especially in a primipara, wounds usually occur on the vulva around the vaginal introitus which can cause heavy bleeding (Tahir et al., 2022).

Perineal rupture caused by parity, birth spacing, baby weight, improper delivery management, forceps extraction, vacuum extraction, instrument trauma and episiotomy (Qomasari D, 2022).

World Health Organization (WHO) data shows that perineal rupture in women in labor occurs in 2.7 million cases. The estimated increase in the number of cases in 2050 is estimated to reach 6.3 million cases. This is influenced by the lack of knowledge of good midwifery care in preventing perineal rupture. The incidence of perineal rupture in America reaches 40%, while in Asia it is higher, reaching 50%. The prevalence of women in labor who experience perineal rupture accompanied by surgical wound

infection reaches 5% and bleeding reaches 7% and postpartum mortality reaches 8% (Hardiyanti et al., 2022).

Perineal rupture can have long-term impacts on the mother, namely anal incontinence (perineal injury) which can disrupt the life and well-being of women leading to discomfort, shame and withdrawal from the social environment; while the short-term impacts on the mother can result in bleeding, fistula, hematoma, infection. Postpartum bleeding due to perineal rupture is the second highest cause of maternal mortality in the world (Kartiningsih et al., 2020).

Perineal rupture is divided into 4 degrees. Grade 1 if the tear in the perineum involves the fourchette, perineal skin, and vaginal mucous membrane, without involvement of the fascia and muscles. Grade 2 if the tear in the perineum includes the skin and mucous membrane, fascia and muscles of the perineum, without involvement of the anal sphincter. Grade 3 is divided into 3 sub-sections, namely grade 3a if the tear covers <50% of the external anal sphincter, grade 3b if the tear covers >50% of the external anal sphincter, and grade 3c affects the external & internal anal sphincter. Grade 4 if the perineal tear extends to the rectal mucosa (Hardiyanti et al., 2022).

Epidemiological studies have found that perineal rupture is associated with maternal factors, fetal factors, and labor factors.³ Maternal age, white skin, primiparous parity, and obesity are maternal factors that influence perineal rupture. Large birth weight and persistent occipitoposterior position are fetal factors, while labor factors include prolonged second stage, analgesic status, episiotomy, and vaginal delivery assistance (Lenden AP et al., 2020).

Parity is one of the factors causing perineal rupture where the definition of parity is the number of children who have been born alive or dead which can be divided into three groups, namely nullipara, primipara and multipara. Nullipara is a woman who has never completed a pregnancy past 20 weeks of gestation while primipara is a woman who has only given birth to one fetus, either alive or dead, and multipara is a woman who has completed two or more pregnancies up to 20 weeks of gestation (Darmayanti et al., 2019).

In primiparas, perineal tears almost always occur and often recur in subsequent deliveries. For a primipara or someone who is giving birth for the first time when the "head out the door" event occurs, at this time a primipara usually cannot avoid this strong tension so that perineal tears often occur. These tears are usually mild but sometimes extensive and dangerous wounds also occur, as a result of childbirth, especially in a primipara, wounds usually appear on the vulva around the vaginal introitus which are usually not deep but sometimes there can be a lot of bleeding (Astuti & Winarti, 2024).

Based on the description above, the aim of this literature review is to determine the relationship between maternal parity and the incidence of perineal rupture.

2. Methods

This study uses a literature review method. Literature was obtained by reviewing scientific articles or journals downloaded from PubMed, Portal Garuda and Google Scholar with SINTA IV and V standards listed in Figure 1. Articles were screened based on provisions including articles published in 2015-2024, articles published can be downloaded in full text and have open access, and discuss parity and perineal rupture. Keywords in the article search include parity and perineal rupture.

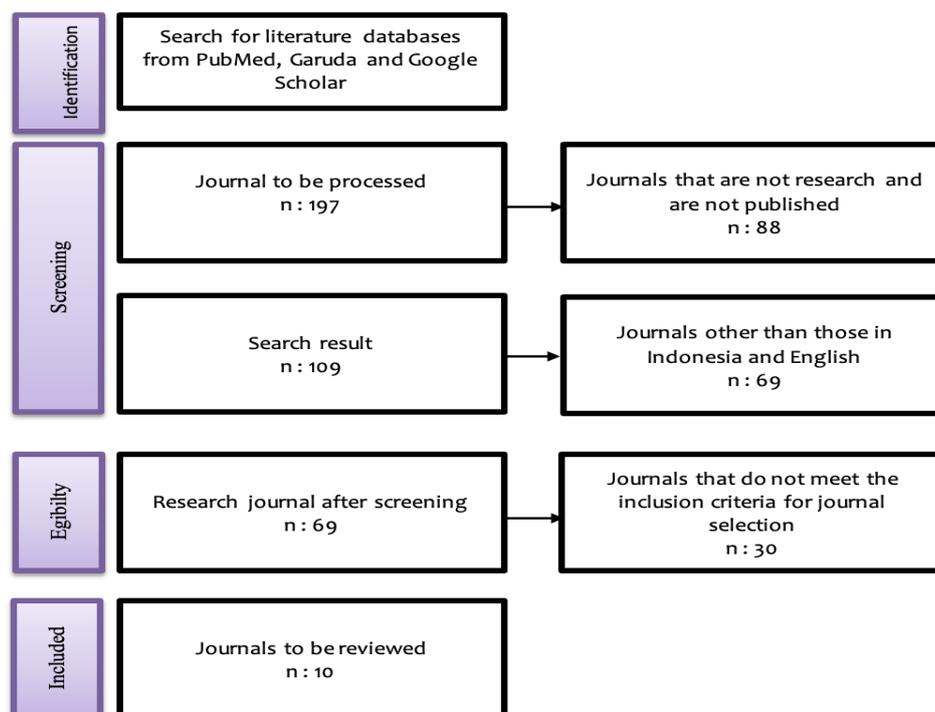


Figure 1. PRISMA Flow of Research Articles on the Relationship between Parity and the Incidence of Perineal Rupture

3. Results and Discussion

197 articles were found in the search results. All articles were included in the search and filtering then filtered based on Indonesian and English, methods, indexed syntax IV and V and published in journals. The 10 research articles to be reviewed consisted of 2 PubMed articles and 8 articles from Google Scholar used in this study.

Table 1.
Results of article review

No.	Author Name	Article Title	Research Design	Results
1.	(Amelia et al., 2021)	Relationship of Age and Parity with The Incidence of Perineal Rupture in Borneo Citra Medika Pelaihari Hospital	Analytical observation with cross sectional design	Perineal rupture was found in 70 (50.35%) primigravida samples and 69 (49.65%) multigravida samples. The results of statistical test data analysis with chi square parity and perineal rupture at Borneo Citra Medika Hospital obtained a p-value of 0.000 ($p > 0.05$), then H_0 was rejected, meaning there was a relationship between the number of maternal parities and the incidence of perineal rupture. The lower the parity number, the higher the risk of perineal rupture.
2.	(Jayanti K et al., 2023)	Number of Parities and Its Relationship to the Incidence of Perineal Rupture During Physiological Childbirth	Analytical through cross sectional approach.	The results of this study indicate that most perineal ruptures occur in primiparous mothers. Based on the results of the analysis, the statistical test results obtained p value = 0.005 (< 0.05), this indicates that H_0 is rejected, meaning there is a relationship between parity and the incidence of perineal rupture in physiological labor.

No.	Author Name	Article Title	Research Design	Results
3.	(Darmayanti et al., 2019)	The Relationship Between Parity and the Incidence of Perineal Rupture in Vaginal Delivery at Dr. Ramelan Hospital in the Period January 2019 - July 2022	Analytical through cross sectional approach.	The results of this study using Kendall's tau-b correlation test, obtained a significance of $p = 0.609$, the value obtained is more than the α value ($\alpha = 0.05$) meaning that there is no significant relationship between parity and the incidence of perineal rupture, while in the relationship between episiotomy and perineal rupture, a significance of $p = 0.992$ was obtained, the value obtained is more than the α value ($\alpha = 0.05$) meaning that there is no significant relationship between episiotomy and the incidence of perineal rupture.
4.	(Qomasari D, 2022)	Relationship Between Parity, Duration of Labor and Birth Weight of Babies with Perineal Rupture Incidents in PMB K in 2022	Descriptive correlation with cross sectional approach.	The results of this study showed that respondents experienced perineal rupture 23 respondents (60.5%), primiparous parity 13 respondents (34.2%), labor duration >3 hours 25 respondents (65.8%) and birth weight >3500 grams 22 respondents (57.9%). There was no relationship between parity and the incidence of perineal rupture (0.290) but there was a relationship between labor duration (0.004) and birth weight (0.013) with the incidence of perineal rupture.
5.	(Tahir et al., 2022)	The Effect of Age and Parity on the Incidence of Perineal Rupture Spontaneous Natural Birth in Mothers	Analytical with a cross sectional study approach.	The results of the study showed that out of 59 mothers giving birth, there were 33 (55.93%) people with high-risk parity, who experienced spontaneous perineal rupture as many as 27 (81.82%) people and did not experience spontaneous perineal rupture as many as 6 (18.18%) people. The results of statistical analysis with the chi-square test obtained a p -value of 0.021 smaller than α 0.05. Therefore, the value of $p < \alpha$, then H_0 is accepted H_0 is rejected. This means that there is a significant influence between parity and the incidence of spontaneous perineal rupture in mothers giving birth normally at the Kassi-Kassi Health Center, Makassar.
6.	(Sari SA et al., 2015)	Relationship Between Parity and Events Perineal Rupture During Normal Delivery In Clinic Home Asri Medical Center Yogyakarta And RSUD The Worship of the Senopati of Bantul	Analytical with a cross sectional study approach.	The results of the analysis of the relationship between independent variables and dependent variables using the Fisher test showed significant results ($p = 0.002$) between parity and the incidence of perineal rupture in normal delivery with a research sample of 152 people at the Main Clinic of Asri Medical Center Yogyakarta and Panembahan Senopati Bantul Hospital. This shows that there is a significant relationship between parity and the incidence of perineal rupture.
7.	(Hukubun et al., 2021)	Relationship Between Age, Parity, and Infant Weight and Degree of Perineal	Descriptive-analytic cross-sectional study	Bivariate test between parity and degree of perineal rupture shows that the greater the degree of perineal rupture, the less the number of parities the mother has. Spearman rho correlation test, namely p value < 0.05 and

No.	Author Name	Article Title	Research Design	Results
		Rupture at Jayapura Regional Hospital		negative, which indicates that there is a relationship between parity and degree of perineal rupture.
8.	(Ari Hastuti et al., 2016)	Age, Parity, Physical Activity, Birth Weight, and the Risk of Perineum Rupture at PKU Hospital in Delanggu, Klaten, Central Java	This type of research is purposive sampling with a cross-sectional approach.	The results of the study found that primiparous mothers are at higher risk of perineal rupture compared to multiparous mothers. The results of the analysis using the chi square test showed that there was a negative relationship between parity and the incidence of perineal rupture in mothers giving birth at RSU PKU Muhammadiyah Delanggu which was statistically significant. The age of multiparous mothers was 0.07 times lower than the age of primiparous mothers for perineal rupture.
9.	(Astuti & Winarti, 2024)	Characteristics of Perineal Rupture Incidents in Mothers Giving Birth at Dewi Sartika General Hospital, Kendari City	Analytical with a cross sectional study approach.	The results of the study showed that mothers who experienced perineal rupture at Dewi Sartika Hospital, Kendari City, reviewed based on parity, occurred slightly in Parity> IV, namely 5 people (1.58%), and many occurred in Parity I, namely 198 people (62.66%) then in Parity II as many as 78 people (24.69%) while Parity III as many as 35 people (11.07%). The researcher concluded that maternal parity is one of the causes of Perineal Rupture labor in mothers, this is because multiparas who have scar tissue from stitches in previous deliveries can hinder or inhibit the progress of labor.
10.	(Lenden AP et al., 2020)	Parity and Birth Spacing as a Profile of Patients with Perineal Rupture in Normal Delivery at Sanglah Hospital Denpasar 2018	Descriptive observational with cross-sectional design	The incidence of perineal rupture based on parity characteristics was highest in primiparous parity, namely 59 people (62.5%).

General description

The relationship between parity and the incidence of perineal rupture

Perineal rupture is one of the complications that often occurs in vaginal delivery and causes discomfort and pain after delivery. In cases of perineal rupture, trauma is often found in several parts such as the cervix, vagina, and vulva including the labial, periclitoral, and periurethral areas and most often in the perineum (Darmayanti et al., 2019).

Parity is the number of fetuses weighing more than 500 grams that have been born, alive or dead, if the weight is not yet known then the gestational age of more than 24 weeks is used. Primipara is a woman who has given birth once. Multipara is a woman who has given birth twice or more. Grandemultipara is a woman who has given birth five times or more (Prihartini et al., 2021; Qomasari D, 2022).

Parity has an influence on the incidence of perineal rupture, in primiparous mothers have a greater risk of experiencing perineal tears than mothers with more than one parity. This happens because the birth canal has never been passed by the baby's head so that the perineal muscles stretch. Perineal tears occur in almost all first deliveries (primiparous) and it is possible that they will also occur in subsequent deliveries (multiparous) (Jayanti K et al., 2023).

Perineal rupture is often found in primipara deliveries. Parity can affect perineal rupture

because the structure of the tissue in the perineum of primipara and multipara has different elasticity. In primiparas who give birth for the first time, a stiff perineum is often found so that it is easier and more susceptible to perineal rupture, while in multiparas who have given birth to viable babies more than once, the perineal area is elastic because the perineum in multiparas has often passed through babies (Sari SA et al., 2015).

In primigravida, examination found signs of an intact perineum, closed vulva, pervoratus hymen, narrow vagina with rugae. During labor, there will be pressure on the soft birth canal by the fetal head. With the perineum still intact in primi, perineal rupture will easily occur. Almost all primiparas have an episiotomy because most primiparas have a stiff perineum (Tahir et al., 2022).

The dangers and complications of perineal rupture are bleeding that can be severe, especially in second and third degree ruptures or if the rupture extends to the side or up to the vulva affecting the clitoris. Injuries to the perineum if not treated properly will cause infection during the postpartum period which is inflammation around the genitals, especially in the area of the former tear. Injuries that occur during childbirth, especially injuries (ruptures) in the perineum, are a place for germs to enter the body and can cause infection. These perineal lacerations can easily be contaminated with feces because they are close to the anus. Infection can also be the cause of wounds not healing immediately, resulting in scar tissue (Tahir et al., 2022).

Research conducted by Sari AS 2015 examined the characteristics of perineal rupture patients and found that respondents based on maternal parity status in this study were mostly primipara, namely 89 respondents (58.6%) and the least were multipara, namely 63 respondents (41.4%), so it can be concluded that most of the respondents' parity status was primipara, namely a woman who gave birth to a live baby for the first time. Parity has an influence on the incidence of perineal rupture. Mothers with primiparous parity have a greater risk of experiencing perineal tears than mothers with more than one parity (multipara). This is because the birth canal has never been passed through by the baby's head so that the perineal muscles have not stretched (Sari SA et al., 2015)

Research conducted by Jayanti 2023 showed that most perineal ruptures occurred in primiparous mothers. Based on the results of the analysis, the statistical test results obtained p value = 0.005 (<0.05), this indicates that Ho is rejected, meaning that there is a relationship between parity and the incidence of perineal rupture in physiological labor (Jayanti K et al., 2023).

The high incidence of perineal rupture in primiparas is due to the mother's unpreparedness for the birthing process which causes the mother to become anxious so that during labor the mother becomes afraid and makes mistakes in pushing (Alia Andriany, 2023).

Age at birth < 20 years or > 35 years is also a risk factor for perineal rupture. This is because at the age of 35 years, a woman's reproductive function decreases compared to normal reproductive function, so the possibility of postpartum complications, especially rupture, is greater (Astria, 2023).

4. Conclusion

It can be concluded that there is a relationship between parity and the incidence of perineal rupture because the structure of the tissue in the perineum in primipara and multipara has different elasticity. With the perineum still intact in primipara, perineal rupture will easily occur. Almost all primiparas have an episiotomy because most primiparas have a stiff perineum.

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