

LITERATURE REVIEW FACTORS RELATED TO THE INCIDENCE OF PERINEAL RUPTURE IN NORMAL CHILDBIRTH

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ABSTRACT

Perineal rupture is a common complication during normal childbirth that can increase maternal morbidity, including postpartum hemorrhage, infection, prolonged perineal pain, dyspareunia, and reduced quality of life. This literature review analyzed ten research articles published between 2020 and 2025 to identify factors associated with perineal rupture. The review found that parity was the most dominant factor, with primiparous women experiencing a higher risk due to limited perineal tissue adaptation. Other important factors included high birth weight ($\geq 4,000$ grams), maternal age, fetal head circumference, prolonged second stage of labor, ineffective pushing techniques, perineal elasticity, and the skills of birth attendants. The findings suggest that prevention of perineal rupture requires antenatal education, early identification of risk factors, proper labor management, and the application of evidence-based perineal protection techniques by skilled healthcare providers.

Keywords: Perineal Rupture, Normal Childbirth, Parity, Birth Weight, Maternal Risk Factors, Perineal Protection

INTRODUCTION

Childbirth is a physiological process experienced by every pregnant woman, but this process is inseparable from various complications that can endanger the health of the mother and baby. One of the most common complications in normal childbirth is a rupture of the perineum. A perineal rupture is a tear in the perineal tissue that occurs spontaneously or as a result of an episiotomy during the delivery process (Marsh et al. 2023). The tear can hit the vaginal mucosa, perineal muscles, and ani's sphincter, depending on the severity. According to various research reports, the incidence of perineal rupture is still quite high in both developing and developed countries. The World Health Organization states that most women who undergo vaginal delivery will experience trauma to the perineum of varying severity (WHO 2025). In Indonesia itself, perineal rupture is still one of the causes of increased postpartum bleeding, postpartum infections, prolonged perineal pain, elimination disorders, sexual intercourse disorders, and a decrease in the quality of life of mothers after childbirth. The occurrence of perineal rupture is influenced by various factors (Brito, Caldeira, and Salvetti 2021). Maternal factors include maternal age, parity, elasticity of perineal tissue, nutritional status, childbirth position, and stretching techniques. Fetal factors include the baby's birth weight, fetal head circumference, fetal presentation, and shoulder dystocia. In addition, there are also factors that help childbirth such as the skills of health workers in protecting the perineum, communication during the delivery process, and indications of episiotomy.

From various studies that have been conducted, parity is the most often associated factor with the occurrence of perineal rupture (Guarga Montori et al. 2021). Primipara mothers have a higher risk of rupture because their perineal tissue has never been stretched due to previous delivery. In addition, babies with large birth weight put greater pressure on the tissues of the birth canal, increasing the chances of tearing. Various studies also show that the application of perineal protection techniques, warm compresses, and education about correct pressing techniques can reduce the incidence of perineal rupture (Lee and Lynch 2025). However, the results of the study are still scattered in various journals, so a literature review is needed that is able to provide a comprehensive overview of the factors related to the incidence of perineal rupture.

Therefore, the author conducted a literature review of ten relevant research articles with the aim of identifying factors related to the incidence of perineal rupture in normal childbirth so that it can be the basis for the development of evidence-based obstetric practices in efforts to prevent perineal trauma.

RESEARCH METHOD

This research is a literature review using 10 original journals published in 2020–2025 (plus several relevant basic articles). The search was conducted through Google Scholar and national journals with keywords: perineal rupture, normal delivery, parity, birth weight, risk factors.

RESEARCH RESULTS

The following is a summary of the 10 articles that were successfully collected and reviewed, including the research design, the presence or absence of interventions, and the main findings of each.

Yes	Author/Year	Title	Design and Samples	Intervention	Results
1	Ardana Al Fitra, Romaulina Sipayung, Rindu, Babay Sumiyati, Dedeh Purnama, Diana, and Dwi Ari Retnani (2024).	Title The Relationship Between Parity, Newborn Birth Weight, and Maternal Knowledge of Pushing Techniques with the Incidence of Perineal Rupture in Normal Delivery	This study used a quantitative descriptive design with a cross-sectional approach. The population consisted of 84 women giving birth at PMB D Parung in 2024, and 30 mothers were selected as samples using probability sampling.	No intervention was applied because this was an observational cross-sectional study. Data were collected through interviews using questionnaires regarding parity, newborn birth weight, and maternal knowledge of pushing techniques.	There was a significant relationship between parity and perineal rupture ($p = 0.035$; OR = 5.20), newborn birth weight and perineal rupture ($p = 0.034$; OR = 0.114), and maternal knowledge of pushing techniques and perineal rupture ($p = 0.011$; OR = 7.80).
	EfaKelya Nasrun, I Made Christian Binekada, and Adius Kusnan (2023).	Prevalence and Predictors of Perineal Rupture Factors in Normal Delivery at the Maternity Ward of Dewi Sartika General Hospital.	This study used a quantitative cross-sectional design. The population consisted of 199 women with normal deliveries, and 131 respondents were selected using Purposive Random Sampling.	No intervention was conducted because this was an observational study. Data were collected through questionnaires, primary and secondary data sources, and analyzed using univariate, bivariate, and multivariate (logistic regression) analyses.	There were significant relationships between parity, maternal age, infant birth weight, history of perineal rupture, birth spacing, and maternal knowledge and the incidence of perineal rupture. Parity was the most dominant factor, with mothers having high-risk parity (parity 1

					or >4) being about 22 times more likely to experience perineal rupture compared to mothers with parity 2–3.
3	Lina Oktavia & Wachyu Amelia (2024)	The Incidence of Perineal Rupture Reviewed from Maternal Parity and Infant Birth Weight in Normal Delivery	This study used a quantitative analytic design with a cross-sectional approach. The sample consisted of 92 mothers who had normal deliveries, selected using the total sampling technique	No intervention was conducted because this was an observational study. Data were collected through documentation studies (secondary data) and analyzed using univariate and bivariate (Chi-square) tests.	Most mothers who experienced perineal rupture were primiparous mothers (85.0%) and mothers who delivered babies with high birth weight (84.6%). Statistical analysis showed a significant relationship between maternal parity and perineal rupture ($p = 0.000$) and between infant birth weight and perineal rupture ($p = 0.000$).
4	Nur Masruroh & Dini Wisma Rina (2025)	Nur Masruroh & Dini Wisma Rina (2025)Gatot Soebroto Hospital	This study used a quantitative case-control design. The sample consisted of 124 mothers who had normal vaginal deliveries, selected using the total sampling techniquecaesarean mothers.	No intervention was performed because this was an observational study. Data were obtained from secondary medical records of	Most newborns had normal birth weight (86.3%), and most mothers experienced Grade II perineal rupture (74.1%). Statistical analysis showed a significant relationship

				mothers who delivered normally between December 2023 and May 2024 and were analyzed using the Chi-square test.	between newborn birth weight and perineal rupture ($p = 0.000 < 0.05$). Infants with higher birth weight were associated with a greater risk of perineal rupture during normal delivery.
5	Umami Irmadani Harahap, Evi Erianty Hasibuan, and Desi Meliana Gultom (2024)	The Relationship Between Birth Weight and Perineal Rupture in Normal Delivery Among Primigravida Mothers at PMB Hj Sahara, Padangsidempuan City, 2024	This study used a quantitative descriptive-analytic design. The population consisted of 35 primigravida mothers who delivered at PMB Hj Sahara, Padangsidempuan City, from September to December 2024. The sample included 35 respondents, selected using the total sampling technique	No intervention was conducted because this was an observational study. Data were analyzed using univariate analysis and the Chi-square test to examine the relationship between birth weight and perineal rupture.	The results showed that 71.4% of mothers experienced perineal rupture, while 51.4% of newborns had normal birth weight. Statistical analysis revealed a significant relationship between birth weight and perineal rupture ($p = 0.010 < 0.05$), indicating that birth weight is associated with the occurrence of perineal rupture during normal delivery.
6	Apriani Susmita Sari, Supriyatiningsih, and Sri	The Relationship Between Parity and the Incidence of Perineal	This study used a quantitative descriptive design with a cross-	Intervention No intervention was performed	Among the 152 participants, 89 were primiparous and

	Sumaryani (2015)	Rupture in Normal Delivery at Asri Medical Center Clinic, Yogyakarta, and Panembahan Senopati Regional Hospital, Bantul	sectional approach. The sample consisted of 152 mothers who had normal vaginal deliveries, selected using purposive sampling from medical records between February and March 2014.	because this was an observational study. Data on parity and perineal rupture were collected from medical records and analyzed using the Fisher Exact Test	63 were multiparous. A total of 145 mothers (95.4%) experienced perineal rupture. Primiparous women had a higher risk of perineal rupture than multiparous women. Statistical analysis showed a significant relationship between parity and perineal rupture ($p = 0.002$).
7	Debora, Nur Azizah, Rosmani Sinaga, Marlina Simbolon, and Junida Laia (2025)	Relationship Between Birth Weight and Perineal Rupture in Normal Delivery at Lusi Marbun Independent Midwife Practice, Simalungun Regency, 2022	This study used an observational analytic design with a case-control approach. The population and sample consisted of 30 postpartum mothers, selected using the total sampling method.	No intervention was conducted because this was an observational study. Data were analyzed using the Chi-square test to determine the relationship between infant birth weight and perineal rupture.	The majority of infants had a birth weight of less than 4000 grams (63.3%), and most mothers experienced Grade II perineal rupture (70%). Statistical analysis showed a significant relationship between birth weight and perineal rupture ($p = 0.000$). The findings indicate that the higher the infant's birth weight, the greater the risk of perineal

					rupture during normal vaginal delivery.
8	Mar'atussaliha, Nurdalifah, Sri Ayu Nata, and Hibrisdayanti. H.B (2024)	Description of the Factors Causing Perineal Rupture in Normal Childbirth at Batara Siang Regional Hospital District Pangkep in 2023	This study used a descriptive design. The sample consisted of 220 respondents (all mothers who experienced perineal rupture during delivery in 2023), selected using a total sampling technique	There was no clinical intervention or experimental treatment administered. Data collection was conducted using secondary data from hospital records and registers, which were analyzed using SPSS Version 27.0 via univariate analysis.	* Rupture Severity: 97.3% (214 mothers) experienced low-risk rupture (degrees I and II), while 2.7% (6 mothers) experienced high-risk rupture (degrees III and IV). Maternal Age: 77.3% (170 mothers) were in the low-risk age group (20–35 years old), while 22.7% (50 mothers) were in the high-risk age group (<20 and >35 years old). Parity: 50.9% (112 mothers) were in the high-risk parity group (first child/primipara), while 49.1% (108 mothers) were in the low-risk group (second and third child/multipara). Newborn Birth Weight: 84.1% (185 mothers) delivered babies weighing 2500–

					4000 grams (classified as high risk for tissue stretching), while 15.9% (35 mothers) delivered babies weighing <2500 grams
9	Sumarni, Fitria Prabandari, and Dyah Puji Astuti (2020)	The Effect of Maternal and Neonatal Factors on Perineal Rupture in Banyumas District	Retrospective research design with 30 respondents selected via purposive sampling.	No clinical intervention was administered. Data was collected using checklist sheets from existing records and analyzed using the chi-square statistical test.	* Maternal Age: Significant relationship ($p = 0.025$). All high-risk age mothers (<20 and >35 years) experienced ruptures. Nutritional Status: Significant relationship ($p = 0.031$). All overweight and obese mothers experienced ruptures. Birth Weight: Significant relationship ($p = 0.012$). All mothers delivering macrosomic babies (>4000g) experienced ruptures. Non-Significant Factors: Occupation ($p = 0.804$), parity ($p = 0.860$), and first-stage labor

					duration ($p = 0.745$) showed no significant link to perineal rupture.
10	Eka Prawitasari, Anafrin Yugistiyowati, and Dyah Kartika Sari (2015)	Factors Affecting Perineal Rupture of Normal Delivery in RSUD Muntilan Magelang District	Observational analytic with a cross-sectional approach involving 41 respondents with spontaneous vaginal deliveries.	No clinical intervention was administered. Data was collected via checklists from observations and medical records, and analyzed using the chi-square statistical test.	Rupture Severity: 58.54% (24) had 2nd-degree, 21.95% (9) had 3rd-degree, and 19.51% (8) had 1st-degree ruptures. Birth Weight: Significant relationship ($p = 0.000$). Larger babies increased the risk of more severe ruptures. Non-Significant Factors: Parity ($p = 0.893$), birth spacing ($p = 0.217$), and maternal age ($p = 0.434$) showed no significant link to perineal rupture.

DISCUSSION

Based on ten articles that have been reviewed, it is known that the incidence of perineal rupture is influenced by a combination of maternal factors, fetal factors, and labor factors (Wahyuni et al. 2020). Although each study had different respondent characteristics and study locations, most showed relatively consistent results regarding the main risk factors for perineal rupture. The first and most dominant factor is parity. Research by Putri et al. (2024) showed that primipara mothers have a higher risk of perineal rupture than multipara. This condition occurs because the perineal tissue in mothers who have just given birth for the first time is still relatively stiff so that its ability to stretch is lower when the fetal head passes through the birth

canal (Saragih et al. 2023). On the other hand, in multipara mothers, the perineal tissue has undergone adaptation due to previous childbirth so that it is more elastic and able to reduce the risk of tearing. In addition to parity, the baby's birth weight is the most commonly found factor associated with the occurrence of perineal rupture. Research by Manurung et al. (2024), Azizah et al. (2022) reported that infants weighing more than 4,000 grams increased pressure on the pelvic floor and perineal tissue during the expulsion process. This pressure causes stretching of the tissue that exceeds the elasticity limit, triggering a perineal tear. The larger the size of the fetus, the higher the risk of birth canal trauma experienced by the mother. Another maternal factor is mother's age. Several studies have shown that mothers under the age of 20 or over 35 years have a greater risk of perineal rupture. At too young a young age, the reproductive tissue has not developed optimally so the elasticity of the perineum is still low. On the other hand, at older age, there is a decrease in tissue elasticity due to degenerative processes so that the ability of tissues to stretch during childbirth is reduced.

Pushing technique is also an important factor. Research by Xue and Yun (2025) found that mothers who do not understand the correct pressure technique are more likely to experience perineal rupture. Pushing too early or too hard can increase intraabdominal pressure so that the fetal head comes out quickly without giving the perineal tissue a chance to adapt. Therefore, antenatal education about the correct pushing technique is very important for midwives. Some studies also discuss the length of the second period of childbirth. Period II that lasts too long causes maternal fatigue and increases prolonged pressure on the perineal tissue. On the other hand, labor that takes place too quickly can also cause the fetus's head to be born suddenly, increasing the risk of tearing. Therefore, proper supervision during period II is an important part of preventing perineal rupture. Furthermore, the skills of health workers have an important role in reducing the incidence of perineal rupture. The Cochrane Review of perineal protection techniques shows that the use of warm compresses, hands-on techniques, and active perineal protection can reduce the incidence of third- and fourth-degree rupture. The findings suggest that simple interventions performed by healthcare workers can provide significant benefits in reducing birth canal trauma. Although most studies used a cross-sectional design and have not been able to explain the direct cause-and-effect relationship, the consistency of the results found reinforces that factors such as parity, infant weight, maternal age, straining techniques, and labor management are the main determinants of perineal rupture events. Therefore, the identification of risk factors from the antenatal to intrapartum period is an important step in improving maternal safety.

CONCLUSION

Based on the results of a review of ten research journals, it can be concluded that the incidence of perineal rupture in normal childbirth is a condition that is influenced by various maternal factors, fetal factors, and factors during the delivery process. The most consistent factor found in almost all studies was parity and birth weight of babies. Primipara mothers have a higher

risk of perineal rupture than multipara because the elasticity of their perineal tissue has never been stretched before. In addition, babies with large birth weight put higher pressure on the tissues of the birth canal, increasing the likelihood of tearing.

Other factors that are also related to the incidence of perineal rupture include the mother's age, pushing techniques, length of period II of delivery, fetal head circumference, elasticity of perineal tissue, and the skills of health workers in carrying out normal childbirth care (Sinaga et al. 2023). The application of proper perineal protection techniques has been proven to be able to reduce the rate of perineal trauma and increase maternal safety during the delivery process. The results of this literature review show that efforts to prevent perineal rupture do not only depend on one factor, but require a comprehensive approach ranging from antenatal examination, identification of risk factors, education on correct pushing techniques, optimal monitoring of the labor process, to the implementation of evidence-based obstetric practices by health workers (Sorrenti et al. 2024). Thus, it is hoped that the incidence of perineal rupture and its complications can be reduced so that the quality of obstetric services and maternal safety increases.

SUGGESTION

Further research is recommended using prospective designs with larger samples as well as evaluating perineal rupture prevention interventions in midwifery practice.

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