

# Practice of episiotomy: maternal and neonatal related factors

*Prática da episiotomia: fatores maternos e neonatais relacionados*

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## ABSTRACT

**Objective:** to analyze the incidence of episiotomy and maternal and neonatal related factors. **Method:** cross-sectional, retrospective study in which 11,809 medical records of women who underwent vaginal delivery were analyzed. The chi-square test was performed to identify related factors ( $p < 0.05$ ). **Results:** the incidence of episiotomy was 59.4%. Among women who did not undergo episiotomy, 27.0% had intact perineum and 13.5% had spontaneous laceration. Maternal related factors were age less than 19 years, appropriate antenatal care, primiparity, presence of uterine dynamics, cervical dilation between 1 and 3 cm, ruptured amniotic sac, and prolonged labor. Neonatal factors were full-term babies, birth weight  $\geq 2,500$ g, Apgar  $\geq 7$ , cephalic presentation, complications with the baby and referral to rooming-in. **Conclusion:** the practice of episiotomy was high and should be discouraged. Respect for the physiology of birth and the individuality of women is necessary to strengthen maternal care.

**Descriptors:** Episiotomy; Epidemiologic Factors; Labor, Obstetric; Obstetric Nursing.

## RESUMO

**Objetivo:** analisar a incidência da episiotomia e os fatores maternos e neonatais relacionados. **Método:** estudo transversal, retrospectivo, que analisou 11.809 prontuários de mulheres que evoluíram ao parto vaginal. Realizou-se o teste qui-quadrado para identificar os fatores relacionados ( $p < 0,05$ ). **Resultados:** a incidência da episiotomia foi 59,4%. Entre as mulheres que não sofreram episiotomia, 27,0% permaneceram com períneo íntegro e 13,5% tiveram laceração espontânea. Fatores maternos relacionados foram idade inferior a 19 anos, acompanhamento pré-natal adequado, primiparidade, dinâmica uterina presente, dilatação cervical entre 1 e 3cm, bolsa amniótica rota e trabalho de parto prolongado. Os fatores neonatais foram bebês a termo, peso ao nascer  $\geq 2500$ g, Apgar  $\geq 7$ , apresentação cefálica, intercorrências com o bebê e encaminhamento ao alojamento conjunto. **Conclusão:** a prática da episiotomia foi elevada, a qual deve ser desencorajada, com respeito a fisiologia do nascimento e a individualidade das mulheres, para o fortalecimento dos cuidados maternos.

**Descritores:** Episiotomia; Fatores Epidemiológicos; Trabalho de Parto; Enfermagem Obstétrica.

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## INTRODUCTION

Parturition has undergone changes over the years with advances in infection control and the advent of analgesia<sup>(1)</sup>. These actions legitimized the use of new interventions in childbirth, which stopped happening in a home environment and started to be carried out in the hospital, culminating in the process of medicalization of birth<sup>(1)</sup>.

In Brazil, the current model of childbirth care is characterized by a high number of interventions such as episiotomy, use of forceps, Kristeller maneuver, among others, reflecting a greater number of cesarean sections and maternal and perinatal morbidity and mortality<sup>(2)</sup>.

In the mid-1920s, episiotomy was extensively adopted as a prophylactic measure together with the use of forceps<sup>(3-4)</sup> and, since then, it has been one of the most performed surgical procedures in some countries<sup>(5-6)</sup>. It is characterized by a surgical incision in the region of the vulva with the objective of enlarging the birth canal and facilitating the expulsion of the fetus<sup>(7)</sup>. However, this practice has been frequently questioned and there is consistent evidence that its use should be discouraged<sup>(8)</sup>, as it increases the chance of 3<sup>rd</sup> and 4<sup>th</sup> degree lacerations in future births<sup>(9)</sup>.

The high rates of episiotomy worldwide contradict the guidelines recommended by the World Health Organization (WHO)<sup>(9)</sup>. Although the procedure is not recommended, in Brazil, the practice of episiotomy is still observed in more than 50% of women and in almost 75% of primiparous women<sup>(8)</sup>. The justifications used for performing this procedure range from the prevention of severe perineal trauma, anal sphincter rupture, genital prolapse and even cases of fetal macrosomia, shoulder dystocia and fetal bradycardia<sup>(9)</sup>.

According to the literature, perineal injuries exert direct impact on women's quality of life<sup>(3,7,10)</sup>. The harmful effects of episiotomy are related to the higher incidence of severe perineal lacerations, hemorrhage, edema, infection, hematoma, rectovaginal fistulas, myonecrosis, neonatal intoxication with lidocaine, hypersensitivity reactions to anesthetic, endometriosis in the scar, need for surgical correction due to problems with irregular or abnormal scarring, pain after childbirth, maternal rejection of the newborn due to pain, and often compromise the sexual life of these women<sup>(11-12)</sup>.

Although in recent years episiotomy has decreased in Brazil, reaching a value of 54%, the incidence remains high compared to values found in developed countries such as the United States (24.5%), France (13.3%) and Holland (10.8%)<sup>(13)</sup>. According to another national study, the proportion of episiotomy was 27.7% in public hospitals and 39.4% in private hospitals<sup>(14)</sup>, demonstrating that regardless of the population, the rates are high in the country.

In an attempt to encourage normal delivery and reduce the number of unnecessary interventions during childbirth, since 1988, the Ministry of Health of Brazil together with

the WHO started to recommend the insertion of obstetric nursing in childbirth care. The practice of these professionals is more humanized and less interventionist and they are capable of intervening early and effectively in complications during labor<sup>(2,15)</sup>. In addition, in 2000, the Ministry of Health instituted the Program for Humanization in Antenatal Care and Childbirth, seeking to qualify antenatal care according to its access and coverage and improve care in parturition and puerperal processes<sup>(16-17)</sup>.

In the search to qualify and humanize care during childbirth and reduce unnecessary interventions, we identified the need to perform studies bringing significant data for the implementation of actions conducive of women's comfort at the moment of childbirth. Therefore, the aim of this study was to analyze the incidence of episiotomy and maternal and neonatal related factors.

## METHODS

Cross-sectional, documentary, quantitative study with retrospective data collection. Data were collected through electronic medical records and record books in a public hospital in Foz do Iguaçu-PR, southern Brazil, between 2017 and 2018. The hospital is a reference for high-risk maternal and child health in nine municipalities of the ninth Regional Health in the state of Paraná. Care to the tourist population (frequent in the city), to Brazilian women residing in Paraguay (called Brazilians) and foreigners who seek Brazilian health services is also provided.

This study included all medical records of women who underwent vaginal birth in the hospital setting between 2012 and 2016, regardless of gestational age. Medical records of women who underwent vaginal birth in which the fields related to episiotomy and/or laceration were not properly filled were excluded.

Data collection was performed by a nurse with professional experience in obstetrics and an academic from the nursing course of a public educational institution who were previously trained by a professor/nurse with expertise in the field of obstetric nursing. Since the tests performed were considered pilot tests, they were not included in the study and served as a basis for correction of any bias.

A structured instrument containing the following variables to explore the epidemiological factors related to episiotomy was used: a) maternal and obstetric data: maternal age (<19, 19-34, >34 years), pregnancies (nulliparity; one; two or more), antenatal consultations (0-3; 4-6; ≥7), cervical dilation (no dilation; 1-3 cm; 4-9 cm; expulsive), uterine dynamics (present; absent), amniotic sac (intact; ruptured), fetal presentation (cephalic; pelvic), gestational and childbirth complications (yes; no), time of labor (<1; 1-7:59; 8-24; >24 hours), b) data on the newborn: Apgar score at 1 and 5

minutes (<7; ≥7), gestational age (preterm; full-term; post-term), birth weight (≤2,500g; >2,500g), complications (yes; no), destination of the newborn (Neonatal Intensive Care Unit – NICU; Neonatal Intermediate Care Unit; rooming-in; death). The dependent variables were related to perineal conditions (spontaneous laceration, intact perineum and episiotomy).

For data analysis, the chi-square test was used, with the p value <0.05 considered as statistically significant. Data analysis was performed using the SPSS 23.0. Since all medical records of vaginal delivery in the period considered were included in the analysis, sensitivity calculation between losses and final sample was not performed because there was a sample calculation.

The project was developed after approval by the Research Ethics Committee of the Universidade Estadual do Oeste do Paraná under opinion number 2.009.310, CAAE 39317914.6.0000.0107, meeting the standards of Resolution

466 of December 12, 2012, that involves research with human beings.

## RESULTS

In the period between 2012 and 2016, there were 20,265 births. However, 11,809 births were analyzed to meet the inclusion criteria adopted for the study. Of these, 55.9% were vaginal deliveries, of which 13.6% had spontaneous laceration, 27.0% had intact perineum and episiotomy was performed in 59.4% of women.

According to the maternal variables, the practice of episiotomy was statistically significant for women under the age of 19 years (72.8%), number of prenatal consultations greater than seven (62.8%), first pregnancy (73.7%) and absence of pregnancy complications (60.0%), as shown in Table 1.

**Table 1.** Maternal variables distributed according to perineal conditions. Foz do Iguaçu, PR, Brazil, 2017-2018.

Variables	Spontaneous laceration (n=1598)	Intact perineum (n=3192)	Episiotomy (n=7019)	P-value*
	n (%)	n (%)	n (%)	
<b>Maternal age</b>				
< 19 years	231 (8.1)	548 (19.1)	2086 (72.8)	0.001
19 to 34 years	1153 (14.6)	2201 (27.9)	4525 (57.4)	
> 34 years	209 (20.0)	439 (41.9)	399 (38.1)	
No information	5 (27.8)	4 (22.2)	9 (50.0)	
<b>Antenatal consultations</b>				
0 to 3	192 (13.6)	532 (37.8)	683 (48.5)	0.001
4 to 6	482 (14.3)	946 (28.1)	1942 (57.6)	
≥7	891 (13.3)	1607 (23.9)	4221 (62.8)	
No information	33 (10.5)	107 (34.2)	173 (55.3)	
<b>Pregnancies</b>				
Nulliparity	440 (7.5)	1096 (18.8)	4305 (73.7)	0.001
One	529 (17.7)	726 (24.3)	1727 (57.9)	
Two or more	628 (21.1)	1362 (45.9)	980 (33.0)	
No information	1 (6.3)	8 (50.0)	7 (43.8)	
<b>Complications</b>				
Yes	55 (14.2)	161 (41.7)	170 (44.0)	0.001
No	1543 (13.5)	3031 (26.5)	6849 (60.0)	

Source: research data.

Legend: \* Chi-Square association test.

For women older than 34 years (41.9%) and multiparous (45.9%), vaginal deliveries evolved with an intact perineum.

Regarding data observed at admission (Table 2), episiotomy was more prevalent in women admitted with

cervical dilation between 1 and 3 cm (65.5%), presence of uterine dynamics (60.7%), ruptured amniotic sac (60.7%), prolonged labor (from eight to 24 hours) (66.1%), results

with statistical significance ( $p < 0.001$ ). On the other hand, most women admitted at the expulsion stage evolved with intact perineum (41.3%).

**Table 2.** Obstetric variables distributed according to perineal conditions at admission. Foz do Iguaçu, PR, Brazil, 2017-2018.

Variables	Spontaneous laceration (n=1598)	Intact perineum (n=3192)	Episiotomy (n=7019)	P-value*
	n (%)	n (%)	n (%)	
<b>Cervical dilation</b>				
no dilation	198 (12.7)	568 (36.4)	795 (50.9)	0.001
1-3 cm	526 (12.1)	970 (22.4)	2835 (65.5)	
4-9 cm	826 (14.6)	1538 (27.1)	3302 (58.3)	
Expulsive	35 (23.3)	62 (41.3)	53 (35.3)	
<b>No information</b>	<b>13 (8.7)</b>	54 (36.0)	34 (22.7)	
<b>Uterine dynamics</b>				
Present	1397 (13.6)	2647 (25.7)	6244 (60.7)	0.001
Absent	180 (13.1)	480 (34.9)	717 (52.1)	
No information	21 (14.6)	65 (45.1)	58 (40.3)	
<b>Amniotic sac</b>				
Intact	1341 (13.8)	2622 (26.9)	5774 (59.3)	0.001
Ruptured	250 (12.4)	542 (26.9)	1225 (60.7)	
No information	7 (12.7)	28 (50.9)	20 (36.4)	
<b>Labor time</b>				
< 1 hour	140 (14.9)	343 (36.6)	454 (48.5)	0.001
1-7:59 hours	1004 (14.5)	1929 (27.9)	3991 (57.6)	
8-24 hours	403 (11.1)	825 (22.8)	2392 (66.1)	
> 24 hours	35 (13.9)	66 (26.2)	151 (59.9)	
No information	16 (21.1)	29 (38.2)	31 (40.8)	

Source: research data.

Legend: \* Chi-Square association test.

As for neonatal variables, the practice of episiotomy was greater in full-term births (60.8%), birth weight above 2,500g (60.6%) and newborns with Apgar scores above seven at 1 minute (59.9%) and 5 minutes (60.2%), as described in Table 3 ( $p < 0.001$ ). However, perineal integrity was observed in women with preterm newborns (46.6%), weighing less than or equal to 2,500g (46.6%) and Apgar scores of less than seven at 5 minutes (71.1%).

With regard to fetal presentation (Table 4), there was a higher incidence of episiotomy in deliveries with babies in cephalic presentation (59.6%), while an intact perineum predominated (46.1%) in deliveries of breech babies.

Statistically significant results were observed in cases of episiotomy in deliveries with complications with the baby (85.8%) and in deliveries in which the newborn's destination

was rooming-in (60.4%) and the Neonatal Intermediate Care Unit (51.1%). Most mothers of newborns referred to the NICU (46.1%) and of newborns who died (75.4%), had intact perineum.

## DISCUSSION

High rates of episiotomy were identified in the present study, higher than the national incidence of 54%<sup>(13)</sup>, with a higher prevalence in women under 19 years of age and with more than seven antenatal consultations. Regarding maternal age, the data presented converged with studies in which the incidence of this practice was lower in women over 35 years of age<sup>(1,11)</sup>. As for the positive association between the number of antenatal consultations and the episiotomy index, no

**Table 3.** Neonatal variables distributed according to perineal conditions. Foz do Iguaçu, PR, Brazil, 2017-2018.

Variables	Spontaneous laceration (n=1598)	Intact perineum (n=3192)	Episiotomy (n=7019)	P-value*
	n (%)	n (%)	n (%)	
<b>Gestational age</b>				
Premature	82 (10.5)	364 (46.6)	335 (42.9)	0.001
Full-term	1482 (13.7)	2770 (25.6)	6587 (60.8)	
Post-term	6 (20.0)	7 (23.3)	17 (56.7)	
No information	28 (17.6)	51 (32.1)	80 (50.3)	
<b>Birth weight</b>				
≤2,500g	78 (10.2)	357 (46.7)	330 (43.1)	0.001
>2,500g	1518 (13.8)	2830 (25.6)	6686 (60.6)	
No information	2 (20.0)	5 (50.0)	3 (30.0)	
<b>Apgar at 1 minute</b>				
<7	46 (7.1)	245 (37.9)	356 (55.0)	0.001
≥7	1539 (13.9)	2885 (26.1)	6617 (59.9)	
no information	13 (10.7)	62 (51.2)	46 (38.0)	
<b>Apgar at 5 minutes</b>				
<7	12 (6.4)	133 (71.1)	42 (22.5)	0.001
≥7	1579 (13.7)	3016 (26.1)	6955 (60.2)	
No information	7 (9.7)	43 (59.7)	22 (30.6)	

Source: research data.

Legend: \* Chi-Square association test.

studies that justify this relationship were identified. However, it is noteworthy that the information received during these consultations and in pregnant women's groups is essential for their empowerment and autonomy during labor<sup>(15)</sup>.

In 2018, the WHO took a stand against routine episiotomy through a guideline and recognized the lack of scientific evidence supporting any indication in modern obstetrics, but if indeed necessary, effective local anesthesia and informed consent from women are essential premises for its practice<sup>(9)</sup>. Still in this scenario, in a randomized clinical study, the use of a protocol contrary to episiotomy has proven effective and culminated in the occurrence of episiotomy far below the average<sup>(4)</sup>.

Regarding obstetric variables, as observed in the present study and corroborated by other authors, primiparity was a predictive factor for episiotomy<sup>(18-21)</sup>. However, according to a review study<sup>(1)</sup>, primiparity should not be considered a risk factor, since it is more associated with intact perineum or 1<sup>st</sup> and 2<sup>nd</sup> degree lacerations, while episiotomy can cause deeper perineal lacerations and compromise anal and urethral sphincter integrity<sup>(20)</sup>.

Regarding obstetric aspects at the time of admission, in women admitted to hospital with small dilations, episiotomy was more frequently performed. When parturient women

are hospitalized early, for example with cervical dilation less than 2 cm, labor may take longer. However, this cannot be a justification for interventions, as shown in the study conducted in Recife, Brazil; if mother and the baby are stable, it is possible to wait for the time necessary for the progress of labor without a negative outcome<sup>(4)</sup>.

As for the presence of uterine dynamics and rupture of the amniotic sac, both were associated with a higher incidence of episiotomy<sup>(21)</sup>, corroborating a study in which 83.1% of women who had uterine contractions on admission underwent episiotomy at the time of vaginal delivery, as well as 25.4% of those admitted with a ruptured amniotic sac<sup>(22)</sup>. In addition, most women who underwent this intervention had no gestational complications, similar to the study conducted in 2019 at the maternity of the Hospital Regional de São José, SC<sup>(11)</sup>.

Regarding neonatal factors, no plausible justifications were found for the choice of episiotomy, considering that many cases were of gestational age greater than 37 weeks, birth weight greater than 2,500g, Apgar scores greater than seven, cephalic presentation and referral of the baby to rooming-in and the Neonatal Intermediate Care Unit<sup>(21)</sup>.

The indiscriminate use of episiotomy should be discouraged. In addition to interfering with the quality of life

**Table 4.** Obstetric variables distributed according to perineal conditions. Foz do Iguaçu, PR, Brazil, 2017-2018.

Variables	Spontaneous laceration (n=1598)	Intact perineum (n=3192)	Episiotomy (n=7019)	P-value*
	n (%)	n (%)	n (%)	
<b>Presentation</b>				
Cephalic	1578 (13.6)	3113 <sup>(-)</sup> (26.8)	6925 <sup>(+)</sup> (59.6)	0,001
Pelvic	11 (10.8)	48 <sup>(+)</sup> (46.1)	44 <sup>(-)</sup> (43.1)	
No information	9 (10.0)	31 (34.4)	50 (55.6)	
<b>Complications</b>				
No	1558 <sup>(+)</sup> (14.0)	3134 <sup>(+)</sup> (28.2)	6429 <sup>(-)</sup> (57.8)	0,001
Yes	40 <sup>(-)</sup> (5.8)	58 <sup>(-)</sup> (8.4)	590 <sup>(+)</sup> (85.8)	
<b>Destination</b>				
Rooming-in	1556 <sup>(+)</sup> (13.8)	2916 <sup>(-)</sup> (25.8)	6818 <sup>(+)</sup> (60.4)	0,001
Neonatal ICU	27 (8.8)	142 <sup>(+)</sup> (46.1)	139 <sup>(-)</sup> (45.1)	
Neonatal Intermediate Care Unit	1 (2.1)	22 (46.8)	24 (51.1)	
Death	10 (7.2)	104 <sup>(+)</sup> (75.4)	24 (17.4)	
No information	4 (15.4)	8 (30.8)	14 (53.8)	

Source: research data.

Legend: Intensive Care Unit (ICU).

Note: Chi-Square association test; Residual analysis; (+) Positive significant association; (-) Negative significant association.

of puerperal women, complications caused by the perineal suture can also directly impact the care relationship with the newborn child<sup>(11)</sup>, since pain and hypersensitivity can lead to maternal rejection of the newborn, thereby affecting the quality of care and the bond established between mother and baby<sup>(7,11)</sup>.

A large number of episiotomies were observed in the group of women whose babies had complications during labor, and at this time, professionals sought measures to accelerate the birth process. Although it has been proven that episiotomy does not exert a protective effect on the fetal condition, the literature shows that in cases of non-reassuring fetal condition, fetal macrosomia, shoulder dystocia, pelvic presentation and some later varieties of fetal presentation, it can be indicated with the objective of facilitating the expulsion period<sup>(23)</sup>. However, according to another study, there is no evidence that episiotomy prevents shoulder dystocia and/or fetal distress<sup>(4)</sup>.

Furthermore, the indiscriminate practice of episiotomy can cause profound damage to women's quality of life and health, such as pain, greater need for analgesics, severe perineal lacerations and dyspareunia<sup>(8,24)</sup>. For this reason, measures to humanize and qualify childbirth care should be implemented, with caution in the practice of obstetric procedures that harm women's health, considering that childbirth care must be understood as a process in which the birth physiology and individuality of women are respected, placing them as

protagonists and adapting care according to their culture, beliefs and values<sup>(17)</sup>.

In this sense, health professionals must understand that humanized childbirth is much more than a concept, but a matter of respect and appreciation of women.

Therefore, the practice of obstetric nursing is highlighted by recognition of the individuality and protagonist role of women in childbirth, respecting their wishes, based on dialogue, listening and clear and timely information about risks and benefits<sup>(17,25)</sup> that will allow a dignified and pleasurable human experience of waiting for the child's arrival<sup>(25)</sup>. Midwifery nursing can implement less interventionist care by transforming the current paradigm related to labor and birth, medicalization and interventionism<sup>(9,17)</sup>.

With regard to limitations of the study, data collected in medical records may have been incomplete, considering that this is a retrospective research. In any case, this study may promote changes in the obstetric scenario as it discourages the practice of episiotomy and encourages the improvement of health practices at the time of birth.

## CONCLUSION

The study showed a high incidence of episiotomy, with a significant association with young women, aged under 19 years, appropriate number of antenatal consultations, primiparity, cervical dilation between 1 and 3 cm, presence



of uterine dynamics on admission, ruptured amniotic sac and prolonged labor. Neonatal factors associated with episiotomy were: full-term babies, birth weight greater than 2,500g, Apgar scores greater than seven at 1 and 5 minutes, cephalic presentation, complications with the baby and referral to rooming-in.

The factors associated with the high rate of episiotomy in this study do not correspond to the current WHO recommendations. It is important to highlight that routine episiotomy constitutes obstetric violence, especially if performed without the parturient woman's consent. Although scientific evidence scarcely recommends its use, this practice is still common in Brazil.

This study can contribute to the planning and implementation of measures to readjust the obstetric model, with training and awareness of professionals so that they can promote effective and humanized care based on respect for the rights and autonomy of parturient women.

Health education and the encouragement of further research can consolidate care for women and newborns. In this sense, obstetric nurses are important agents in the transformation of these practices as by encouraging less interventionist measures, they can ensure a healthier development of childbirth and allow parturient women to exercise their protagonist role.

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