



Factors related to perineal outcome after vaginal delivery in primiparas: a cross-sectional study

Fatores relacionados ao desfecho perineal após parto vaginal em primíparas: estudo transversal

Factores relacionados con el resultado perineal tras parto vaginal en primíparas: estudio transversal

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ABSTRACT

Objective: Identify the associations between perineal outcome in primiparas and interventions during labor and delivery, newborn weight and APGAR score. **Method:** Document-based, correlational, retrospective, quantitative study conducted in a tertiary maternity hospital in the state of Ceará, between July 2017 and January 2018. The independent variables were labor induction, amniotomy, non-pharmaceutical methods for relieving pain, forceps, episiotomy, Kristeller maneuver, position in the expulsion stage, shoulder dystocia, and newborn weight and APGAR score, and the dependent variable was perineal outcome. Pearson's chi-square test and Fisher's exact test were used. **Results:** A total of 226 normal-risk primiparas who had a vaginal delivery. An association was found between horizontal position in the expulsion stage and episiotomy, and between not performing an episiotomy and perineal tearing. The other variables (labor, delivery and neonatal) did not have any effect on perineal tearing. **Conclusion:** Interventions, with the exception of episiotomies, did not have an influence on the occurrence of perineal trauma, but they do need to be carefully assessed. Deliveries in a horizontal position were associated with a higher likelihood of performing an episiotomy.

DESCRIPTORS

Natural Childbirth; Lacerations; Perineum; Episiotomy; Obstetric Nursing.

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INTRODUCTION

Perineal tears are common in women who have vaginal deliveries and their occurrence may be related to various factors, such as maternal gynecological and obstetric characteristics, obstetric interventions during labor and delivery, and fetus-related aspects. Such injuries cause increased blood loss, the need for sutures and postpartum pain, and are characterized by trauma in the mucosa and/or muscle of the perineum during detachment of the cephalic pole, as a result of an episiotomy or spontaneous tear⁽¹⁾.

A perineal tear is classified as first degree when it involves the frenulum of labia minora, skin of the perineum and vaginal mucosa. This classification includes periurethral tears, which bleed profusely. Second-degree tears also affect the fascia and muscles of the perineal body, but not the anal sphincter. Third-degree tears extend to the external anal sphincter. Fourth-degree tears cross through the entire rectal mucosa with light exposure, implying rupture of the external and internal anal sphincters⁽²⁾.

An episiotomy is a surgical incision in the perineal region performed during detachment of the fetal head, to prevent extensive vaginal tears, and involves incision of muscles of the perineal body, mucosa and skin. However, it can result in deep injuries with a higher degree of severity compared to spontaneous tears⁽¹⁾. It is considered a controversial procedure, since it involves aspects that extend beyond the field of obstetrics, raising the issue of women's right of choice regarding their bodies. In a literature review, it was found that its indication is associated with obstetric and neonatal characteristics, such as primiparous women, large for gestational age, prolonged second-stage labor, forceps delivery and shoulder dystocia⁽³⁾. The World Health Organization (WHO) recommends values between 10% and 30%⁽⁴⁾.

The World Health Organization has also indicated that maternal and perinatal outcomes have been constantly improving in the last 30 years, but morbidity and mortality are still high. In clinical practice, various techniques considered harmful to childbirth by the Ministry of Health are still being used regularly, combined with high C-section rates in Brazil and the world⁽⁴⁾. Obstetric nurses are important agents for replacing these techniques with care practices that do not interfere with the physiological development of labor and birth and give pregnant women and those accompanying them a central role in this process⁽⁵⁾.

Perineal trauma can cause problems in the short term, such as blood loss, need for sutures and perineal pain, as well as long-term consequences, such as sexual, urinary and intestinal dysfunction, often caused by unnecessary obstetric interventions or obstetric malpractice. For this reason, it is necessary to study the associations between the various causes of perineal tearing and maternal and fetal factors and interventions performed during labor and delivery.

Since it was noted that there was a greater tendency for interventions during labor and delivery among women giving birth for the first time, an interest arose to study what factors are related to perineal outcomes in this group, i.e., the presence or not of tears. The study is relevant for clinical

practice, since knowing these factors is a means for providing safe, evidence-based care and, consequently, developing strategies to ensure positive perineal outcomes for women.

The objective of the study is to identify the associations between perineal outcome in primiparas and interventions that occurred during labor and delivery, newborn weight and APGAR score.

METHOD

STUDY DESIGN

This is a cross-sectional document-based, correlational, retrospective study, with a quantitative approach.

LOCATION

The study was carried out at the Assis Chateaubriand Maternity Teaching Hospital of the Universidade Federal do Ceará (UFC), a highly respected, public, tertiary care institution in the state of Ceará, located in Fortaleza (CE), which provides medium- and high-complexity outpatient and inpatient care for women and newborns.

POPULATION

The following inclusion criteria were applied: primiparous women who had vaginal deliveries, a normal-risk gestation and who gave birth to a single full-term live fetus between 37 weeks and 42 weeks, with cephalic presentation. Medical records with incomplete information were excluded from the study.

The probability sample was representative, determined based on the calculation of finite populations, adopting a confidence coefficient of 95%, prevalence of 36% for cases of vaginal delivery in primiparas and maximum permissible sampling error of 5%, resulting in a sample size of 226 primiparas.

DATA COLLECTION

The independent variables were categorized as: socio-demographic data (maternal age, marital status, occupation, city of origin and education); labor data (induction, type of induction, amniotomy, dilation of the cervix in the amniotomy and use of non-pharmaceutical methods for relieving pain); care characteristics in the expulsion stage (operative vaginal delivery, episiotomy, Kristeller maneuver and position adopted during the expulsion stage); and newborn data (weight and APGAR). The dependent variable was perineal outcome (presence or not of perineal tearing).

The information was collected from the labor and delivery indicators of the *Cegonha* Network of the Ministry of Health, located in the files of the Obstetric Center of the maternity hospital in question. These indicators are always completed by obstetric nurses, regardless of the professional responsible for the delivery. The data was collected by the researcher between July 2017 and January 2018.

The data collection took place in two stages: the first stage included identification, in the Obstetric Center files, of the labor and delivery indicators of primiparas who met the

inclusion criteria, followed by observation and completion of the data collection instrument, in order to obtain data in relation to labor, expulsion stage, perineal outcome and newborn conditions; in the second stage, the medical records of the eligible primiparas were requested from the Medical Record and Statistics Service (SAME – *Serviço de Arquivo Médico e Estatística*), for the purpose of gathering sociodemographic data, since the previously examined indicators did not contain this information.

DATA ANALYSIS AND TREATMENT

The data was analyzed using the computational program Statistical Package for the Social Sciences (SPSS), Version 22.0. Statistical analysis was performed on the data, subsequently presented in a descriptive format or in tables. Absolute number, mean, percentage and standard deviation (SD) were calculated and also discussed according to the pertinent literature. Pearson's chi-square test and Fisher's exact test were used.

ETHICAL ASPECTS

The study was approved by the Research Ethics Committee of the Assis Chateaubriand Teaching Maternity Hospital/UFC, under Opinion No. 2.310.885/17. The signing of the Research Authorization ensured the confidentiality of all the identification data of the women, in accordance with the rules of Resolution No. 466/2012, of the National Health Council of Brazil⁽⁶⁾. Free and informed consent forms were not signed since this was a documentary study, whose data collection only involved an analysis of medical records, with no interviews conducted with the primiparas.

RESULTS

A total of 226 normal-risk primiparas who had had vaginal deliveries participated in the study. The mean age of the primiparas was 21.49 years old (SD = 5.33 years), with minimum and maximum ages of 13 years and 39 years, respectively. There was a predominance in the age group of 20 to 29 years old, corresponding to 108 primiparas (47.8%). The high frequency of women in adolescence, from 10 to 19 years old, totaling 97 adolescents (42.9%), is worth noting.

In regard to occupation, most did not have a paid job, corresponding to 158 primiparas (69.9%), with a higher frequency of homemakers and students. As for marital status, 105 women (46.5%) reported being in a conjugal relationship, whereas 83 (36.7%) were single. Most were from Fortaleza (85.4%). A large percentage of the women had completed high school (41.6%).

In the labor variable analysis, 205 primiparas (90.7%) did not have induced labor, only 14 (6.2%) used misoprostol and 49 women (21.7%) used oxytocin during dilation and/or expulsion. As for amniotomies, 55 primiparas (24.3%) underwent this procedure, which was more frequent in cervix dilations of 9 cm and 10 cm (6.2% for both). Non-pharmaceutical methods for relieving pain throughout labor were used on 208 women (92%). The ones used the most were taking a shower and 'other', which included methods

such as conscious breathing, ambulation, pelvic exercises and semi-darkness.

In relation to perineal tears, in the 159 primiparas (70.4%) who suffered perineal trauma, the most frequent were first- and second-degree tears (32.7% for both degrees); 11 women had third-degree tears (4.9%); and there were no fourth-degree tears. Of the 23 women who received an episiotomy, 1 (4.3%) had a first-degree tear, 2 (8.7%) primiparas had second-degree tears, and in the remaining 20 (87%) women, no tears beyond the surgical incision of this procedure were noted.

No association was found between the labor variables and vaginal tearing (Table 1), demonstrating that labor induction, performing an amniotomy and the use of non-pharmaceutical methods for relieving pain did not influence perineal outcome.

Table 1 – Distribution of the labor variables in primiparas and association with vaginal tearing – Fortaleza, CE, Brazil, 2017/2018.

| Variable | n (%) | p-value |
|--|------------|---------|
| Labor induction | | 0.37* |
| No | 205 (90.7) | |
| Yes | 21 (9.3) | |
| Induction/stimulation | | 0.47+ |
| Misoprostol | 14 (6.2) | |
| Oxytocin | 49 (21.7) | |
| Misoprostol and oxytocin | 1 (0.4) | |
| Without induction | 162 (71.7) | |
| Amniotomy | | 0.91* |
| No | 171 (75.7) | |
| Yes | 55 (24.3) | |
| Non-pharmaceutical methods for relieving pain | | 0.2* |
| No | 18 (8) | |
| Yes | 208 (92) | |

* Pearson's chi-square test. + Fisher's Exact Test.

Among the delivery variables, forceps were used with only 6 primiparas (2.7%); episiotomy was noted in 23 women (10.2%); the Kristeller maneuver was performed on 4 (1.8%); and shoulder dystocia occurred with 3 (1.3%). No association was found between vaginal tearing and the labor variables, except for episiotomy ($p = 0.00$) (Table 2). Therefore, not performing an episiotomy increases the probability of vaginal tearing.

Semi-sitting (72.6%) was the most frequently adopted position in the expulsion stage, followed by squatting (13.7%). A delivery was considered horizontal when the pregnant woman used the following positions: semi-sitting, lying down (4.4%) and left lateral decubitus (3.1%). In turn, a delivery was defined as vertical when the positions assumed were squats (Gaskin) (0.4%); use of a stool (3.1%) and other (2.7%), which may include standing or kneeling positions. Horizontal births were the most frequent in this study (80.1%). There was no association between horizontal and vertical positions in second-stage labor and vaginal tearing, showing that regardless of the position chosen by women for childbirth, there is no greater likelihood of perineal tearing.

Table 2 – Distribution of the delivery variables in primiparas and association with vaginal tearing – Fortaleza, CE, Brazil, 2017/2018.

| Variable | n (%) | p-value |
|--|------------|---------|
| Forceps | | 1.0* |
| No | 220 (97.3) | |
| Yes | 6 (2.7) | |
| Episiotomy | | 0.00+ |
| No | 203 (89.8) | |
| Yes | 23 (10.2) | |
| Kristeller maneuver | | 0.07* |
| No | 222 (98.2) | |
| Yes | 4 (1.8) | |
| Position adopted in the expulsion stage | | 0.81+ |
| Horizontal | 181 (80.1) | |
| Vertical | 45 (19.9) | |
| Shoulder dystocia | | 0.21* |
| No | 223 (98.7) | |
| Yes | 3 (1.3) | |
| Tearing | | - |
| No | 67 (29.6) | |
| Yes | 159 (70.4) | |
| Degree of tearing | | - |
| First-degree | 74 (32.7) | |
| Second-degree | 74 (32.7) | |
| Third-degree | 11 (4.9) | |

* Fisher's Exact Test. + Pearson's chi-square test.

In the semi-sitting position, there were more first-degree (36.6%) and second-degree (30.5%) tears, but it is important to point out that 72.7% of the third-degree tears were in this position. In the squat position, most of the primiparas had second-degree tears (41.9%), as well as deliveries in the left lateral decubitus position and using a stool (71.4%). In 50% of the women who gave birth lying down, there was no tearing and in 40% first-degree tears occurred. Only one primipara had a Gaskin-style delivery and first-degree tearing. In other positions, such as standing or kneeling, 50% did not experience perineal trauma and in 33.3% the trauma was third-degree. An association ($p = 0.012$) was noted between the position in the expulsion stage and performing an episiotomy. All the women who underwent an episiotomy were in the horizontal position: 17.4% in a lying down position and 82.6% in a semi-sitting position. The women who gave birth in the horizontal position were more likely to receive an episiotomy. (Table 3)

In relation to the newborn variables, the weight most observed was in the range of 3,001 g to 3,500 g (46.5%), followed by the range of 2,501 g to 3,000 g (27.9%). In the APGAR score analysis, the first minute from 7-10 was reported in 214 newborns (94.7%) and at the fifth minute from 7-10 the percentage rose to 99.1%. There was no association between the variables of newborn weight and APGAR and vaginal tearing (Table 4).

Table 3 – Characterization of the position assumed in the expulsion stage with degree of tearing and performing of an episiotomy – Fortaleza, CE, Brazil, 2017/2018.

| Variable | Degree of tearing | | | | p-value |
|------------------------------------|-------------------|------------------------------------|---------------------|--------------|---------|
| | Absent n (%) | 1st n (%) | 2nd n (%) | 3rd n (%) | |
| Position in expulsion stage | | | | | - |
| Semi-sitting | 46 (28) | 60 (36.6) | 50 (30.5) | 8 (4.9) | |
| Lying down | 5 (50) | 4 (40) | 1 (10) | - | |
| Left lateral decubitus | 2 (28.6) | - | 5 (71.4) | - | |
| Squat | 10 (32.3) | 8 (25.8) | 13 (41.9) | - | |
| Stool | 1 (14.3) | - | 5 (71.4) | 1 (14.3) | |
| Gaskin | - | 1 (100) | - | - | |
| Other | 3 (50) | 1 (16.7) | - | 2 (33.3) | |
| | | Performing of an episiotomy | | | 0.012* |
| | | Yes n (%) | No n (%) | | |
| Horizontal position | | 23 (100) | 158 (77.8) | | |
| Vertical position | | - | 45 (22.2) | | |

* Pearson's chi-square test.

Table 4 – Distribution of the data of newborn characteristics and association with vaginal tearing – Fortaleza, CE, Brazil, 2017/2018.

| Variable | n (%) | p-value |
|-------------------------|------------|---------|
| Weight | | 0.27* |
| 2,000 g - 2,500 g | 11 (4.9) | |
| 2,501 g - 3,000 g | 63 (27.9) | |
| 3,001 g - 3,500 g | 105 (46.5) | |
| 3,501 g - 4,000 g | 45 (19.9) | |
| > 4,000 g | 2 (0.9) | |
| APGAR 1st minute | | 0.11+ |
| < 6 | 12 (5.3) | |
| 7-10 | 214 (94.7) | |
| APGAR 5th minute | | 0.5* |
| < 6 | 2 (0.9) | |
| 7-10 | 224 (99.1) | |

* Fisher's exact test. + Pearson's chi-square test.

DISCUSSION

When investigating maternal age in a study conducted in two natural birth centers (NBC) in São Paulo (SP) with 317 primiparas, it was noted that the mean age was 21.5 years old (SD = 4.4 years), with a minimum and maximum age of 15 and 37 years, respectively⁽⁷⁾, corroborating the findings of the present study. In another study, 30.87% were adolescents, less than 20 years of age⁽⁵⁾, similar to this study, indicating a greater need for prenatal care and the presence of an accompanying person throughout the pregnancy-puerperal cycle.

In a study conducted with primiparas in Itapeverica da Serra (SP), most of them had completed high school (75%), lived with their partner (78.1%) and did not have a paid job (61.5%)⁽⁸⁾, which is similar to the findings of the present study and to those of another one in Belo Horizonte (MG)⁽⁹⁾.

In a national hospital-based study entitled Giving Birth in Brazil, it was noted that all the best practices were more frequent among primiparas, except for the use of partograms. However, there was a higher frequency of interventions during labor in primiparas, except for amniotomies⁽¹⁰⁾. It is known, according to evidence, that an amniotomy is a recommended practice when labor is at a standstill. It is not encouraged as an indiscriminate practice and only for the purpose of speeding up labor⁽¹¹⁾. In a study that encompassed 11 maternity wards in Belo Horizonte, the rate of amniotomies among pregnant women was 67.1%⁽⁹⁾. In a study conducted in NBCs in São Paulo, corresponding to 1,079 births, the rate was 53.4%⁽¹²⁾. In a maternity hospital in Rio de Janeiro (RJ), the rate of this procedure was 27.38%⁽⁵⁾, similar to the findings of the present study. In a study with 3,034 pregnant women who had full-term pregnancies, in Ribeirão Preto (SP), there was an unusual finding: the rupture of membranes 12 to 18 hours before the birth reduced the risk of perineal tears by almost 50%⁽¹³⁾. This association was not manifested in the data in the present study.

The use of oxytocin in this study is related to the induction and/or stimulation of labor and birth, since it is not clear in the indicators of the institution's obstetric center to which purpose the oxytocin was intended. In studies that examined childbirth practices, the infusion rates of oxytocin were 41.7% and 49.66%^(5,9). In a study conducted in São Paulo, the infusion rates were 31% in the dilation stage and 25.8% in the expulsion stage⁽¹²⁾. In Ribeirão Preto, it was found that the use of oxytocin in the active labor phase was not a risk factor for first- and second-degree tears⁽¹³⁾. The use of this medication in this study indicates rational use in accordance with the institution's protocol, recommended for achieving the ideal uterine dynamics for each pregnant woman, without any negative repercussions on perineal outcome.

In relation to the Kristeller maneuver, its frequency in the Giving Birth in Brazil study was high (37.3%)⁽¹⁰⁾ and in Belo Horizonte the rate was low (9.3%)⁽⁹⁾, although they were both higher than the rate in the present study. This maneuver tends to be used in situations of fetal distress, lack of progress in the delivery and maternal exhaustion, resulting

in potential risks that require attention⁽¹⁴⁾. Constant efforts have been made to eliminate this practice, but it continues to prevail in some institutions. Therefore, it is necessary to train these professionals to reformulate and improve the obstetric care provided, since there is no scientific evidence that demonstrates its benefits.

Operative vaginal delivery is recommended for patients when there is a prolonged expulsion stage and acute fetal distress, with full dilation. It is more common in nulliparous women with little elasticity in the perineum and when the fetus is in the occipitoposterior position⁽¹⁵⁾.

In a secondary hospital in São Paulo, the risk of perineal trauma was 4.5 times higher in operative vaginal deliveries⁽¹³⁾. In a cohort of 1,035,253 primiparas from the British National Health Service, between 2000 and 2012, there was a greater risk of third- and fourth-degree perineal tears associated with a maternal age of over 25 years, forceps delivery, especially without an episiotomy, Asian ethnicity, higher socio-economic conditions, higher birth weight and shoulder dystocia⁽¹⁶⁾. This association was not found in the present study.

The use of non-invasive care technologies is an important strategy in the humanization process of deliveries and births, generating autonomy, relief from pain and increased satisfaction with the experience. Among these techniques, showers were used the most in NBCs in São Paulo (84%)⁽¹²⁾. Another study pointed out that the use of these methods during labor was 74.2%, which enhances efforts by professionals to provide comfort and support to pregnant women coping with pain. The satisfaction of women with the birthing process is not only related to absence of pain, but the way in which such pain is handled⁽⁹⁾. In high-complexity institutions in Ceará, only 11.3% used these practices⁽¹⁷⁾. Not all non-pharmaceutical strategies are effective, but they can reduce the use of analgesics and administering oxytocin to women in labor, which can potentially have adverse effects for both the mother and fetus⁽¹⁸⁾. In the present study, most of the pregnant women benefited from the use of these technologies, which highlights the importance of promoting their adoption and implementation by care professionals, in order to increase the satisfaction of mothers with the birthing process.

Excessive use of interventions in childbirth is not endorsed in international studies. According to the results of the study Giving Birth in Brazil, episiotomies were performed on over 50% of the women and in almost 75% of primiparas⁽¹⁰⁾. In a university hospital in Spain, this procedure occurred in 70.3% of primiparas in 2012; the tendency was to perform it on primiparas and not multiparas⁽¹⁹⁾. Episiotomies seek to reduce the trauma caused by spontaneous perineal tearing and decrease the possibility of injuries to the urogenecologic tract and its adjacent structures and may be used for resolving shoulder dystocia. This procedure, however, is not based on consistent scientific evidence regarding the benefits and ill-effects of its use⁽¹⁰⁾. At NBCs in São Paulo, the procedure was performed on 25.8% of primiparas⁽¹²⁾; in Rio de Janeiro, on 5.24%⁽²⁰⁾; and in Belo Horizonte on 8.4%⁽⁹⁾. In Fortaleza, of the 421 primiparas and multiparas,

the rate of episiotomies was 14.6%⁽²¹⁾. In the findings of the present study, there was a lower prevalence in this regard, which coincides with the recommendations of the WHO, resulting in deliveries with a lower degree of intervention.

There is currently no consensus as to whether episiotomies are a risk or protection factor in relation to anal sphincter tearing. A study conducted in Spain demonstrated that episiotomies are associated with a high risk of anal sphincter trauma in patients with eutocic and operative vaginal deliveries⁽¹⁵⁾.

As for the degree of tearing, in a Rio de Janeiro hospital, 87.25% were first-degree, 12.46% were second-degree and only 0.29% were third-degree⁽⁵⁾. In another study, it was observed that 95.8% corresponded to first- and second-degree tears and 4.2% to third- and fourth-degree tears. Mediolateral episiotomies had a protective effect in relation to slight and severe degrees of perineal trauma. This procedure may be used as a perineal protection maneuver during the expulsion stage of the delivery⁽¹³⁾, but routine use is not recommended during spontaneous vaginal birth⁽⁴⁾.

In the present study, the women who did not receive an episiotomy had more spontaneous vaginal tears, mostly first- and second-degree, characterized as slight perineal trauma, without negative repercussions on the mother. The surgical incision of the procedure is considered a second-degree perineal tear only if there is an extension of this tear. The classification of perineal trauma in cases where an episiotomy occurred may, therefore, be considered a bias of the study.

In a study carried out with 568 nulliparas in a tertiary hospital in Zaragoza, Spain, in the group that did not have an episiotomy, there was a significant increase of first-degree tears compared to second-degree tears (55.6% and 15.7%, respectively), without causing any risk to fetal well-being⁽²²⁾. The results were similar in the present study, in terms of slight perineal tears which, if necessary, may be sutured by an obstetric nurse, with a perineal outcome without clinical complications.

It has been pointed out that the adoption of vertical positions is an important factor for reducing episiotomies^(10,19). A study carried out in a university hospital in Spain concluded that the relative risk of an episiotomy in the lithotomy position is 6.4% compared to other positions⁽¹⁹⁾, indicating a tendency to adopt this position. In a case-control study conducted in Recife (PE), which included pregnant women who received an episiotomy (case group) and others in whom the procedure was not performed, no association was observed between episiotomies and deliveries in the supine position ($p = 0.05$) or fetal macrosomia ($p = 0.52$)⁽²³⁾. However, it was found in the present study that women who gave birth in the horizontal position were more prone to having an episiotomy.

This finding demonstrates that persistent use of practices not recommended by scientific evidence, such as being confined to bed throughout the birthing process and the lithotomy position for delivery, may lead to a higher number of unnecessary interventions and negatively affect maternal outcomes.

In a study conducted in a hospital and maternity hospital in Pernambuco and Bahia, the rates of perineal trauma after vaginal delivery were 50.3%, considered high, and the frequency of episiotomies was 23.1%⁽¹⁾. In a study carried out in the United Kingdom, it was estimated that 70% of women would suffer some kind of perineal tearing after a vaginal delivery⁽²⁴⁾. In two NBCs in São Paulo, it was found that 73.2% of the pregnant woman had first-degree tears, 24.9% had second-degree tears and 1.9%, third-degree. It was concluded that there is no statistically significant difference between the location of perineal tearing and childbirth position⁽⁷⁾, as was also the case in the present study.

The semi-sitting position was the one used the most by primiparas, a finding corroborated by other studies^(8,12). It is important to explain the various childbirth positions to mothers, so that they can choose the one best suited to them. In relation to the degree of tearing in the semi-sitting position, a study showed that most of the women had first-degree tears (30.6%), followed by second-degree tears and intact perineum (15.3% for both)⁽⁸⁾. In NBCs in São Paulo, more than 70% of the women had an intact perineum or first-degree tearing⁽¹²⁾. Despite an educational intervention with an illustrative video on perineal sutures, a study conducted in Macapá (AP) concluded that there was no improvement in the rate of deliveries in the lithotomy position, which is associated with the fact that this position makes it easier for professionals to view the birth canal and pull out the newborn in the expulsion stage⁽²⁵⁾.

It is important to point out that, in the present study, most of the third-degree tears occurred in the semi-sitting position and are considered serious perineal trauma, which requires correction of path by the obstetrician and greater postpartum follow-up. The relationship between perineal tearing and childbirth position is still controversial and well-designed studies are needed to shed further light on this association.

It can be seen that primiparas do not know their rights and are passive during the birthing process, despite institutional and governmental efforts to change the delivery and birth care model.

In relation to the weight of newborns of primiparas, a study conducted in two NBCs in São Paulo found that 49.2% of the newborns had a birth weight between 3,000 g and 3,500 g, with no association between the location of perineal tears and newborn weight ($p = 0.11$)⁽⁷⁾, a finding compatible with the present study. In terms of vitality, 94.6% of the newborns at the first minute of life had an APGAR score ≥ 7 , which rose to 97.8% at the fifth minute of life, resulting in good vitality in most of the newborns⁽⁷⁾. At the fifth minute of life, approximately 97.5% of the newborns had an APGAR score > 7 in maternity hospitals in Rio de Janeiro^(5,20). In a study that assessed perineal trauma after vaginal delivery, APGAR scores at the first and fifth minutes of life < 7 did not have a significant impact on degree of tearing⁽¹³⁾, which coincides with the finding of the present study.

The main limitations of the study were incomplete information on medical records on the use of oxytocin for labor induction and/or stimulation, as well as reliable data on perineal outcomes after episiotomies. In this study, the semi-sitting

position was considered horizontal, since the medical records did not provide the inclination or degree of elevation of the headboard, which could produce a bias in the study.

It should be noted that this study made contributions to obstetric and nursing knowledge, since it reinforces that decisions by nurses to use non-horizontal childbirth positions are conducive to positive perineal outcomes, since they are associated with lower episiotomy rates. It should also be emphasized that not performing episiotomies is related to less perineal damage, contrary to the assertions in some obstetric literature, which justify the procedure to avoid serious perineal trauma.

Given the results and practical implications of the study, to reduce the rate of episiotomies, it is necessary to inform women about non-horizontal positions during childbirth so that they can choose the position they want, based on scientific evidence and not according to the will of the professional performing the delivery.

RESUMO

Objetivo: Identificar as associações entre o desfecho perineal em primíparas e as intervenções ocorridas durante o trabalho de parto, parto, peso e APGAR do recém-nascido. **Método:** Estudo documental, correlacional, retrospectivo, quantitativo, realizado em uma maternidade terciária no estado do Ceará, entre julho de 2017 e janeiro de 2018. As variáveis independentes foram indução do parto, amniotomia, métodos não farmacológicos de alívio da dor, fórceps, episiotomia, manobra de Kristeller, posição no período expulsivo, distocia de ombro, peso e APGAR do recém-nascido, e a variável dependente foi o desfecho perineal. Foram utilizados o teste de Qui-quadrado de Pearson e o teste exato de Fisher. **Resultados:** Participaram 226 primíparas de risco habitual que pariram por via vaginal. Verificou-se associação entre posição horizontal no período expulsivo do parto e episiotomia, e entre a não realização de episiotomia e laceração perineal. As outras variáveis de trabalho de parto, parto e neonatal não interferiram na ocorrência de laceração perineal. **Conclusão:** Ações intervencionistas, com exceção da episiotomia, não influenciaram a ocorrência de trauma perineal, porém requerem avaliação criteriosa. O parto na posição horizontal relacionou-se a maior probabilidade de realização de episiotomia.

DESCRITORES

Parto Normal; Lacerações; Períneo; Episiotomia; Enfermagem Obstétrica.

RESUMEN

Objetivo: Identificar las asociaciones entre el resultado perineal en primíparas y las intervenciones ocurridas durante el trabajo de parto, parto, peso y APGAR del recién nacido. **Método:** Estudio documental, correlacional, retrospectivo, cuantitativo, llevado a cabo en una maternidad terciaria en el estado de Ceará, entre julio de 2017 y enero de 2018. Las variables independientes fueron inducción del parto, amniotomía, métodos no farmacológicos de alivio del dolor, fórceps, episiotomía, maniobra de Kristeller, posición en el período expulsivo, distocia de hombro, peso y APGAR del recién nacido, y la variable dependiente fue el resultado perineal. Se emplearon las pruebas de Chi cuadrado de Pearson y la exacta de Fisher. **Resultados:** Participaron 226 primíparas de riesgo habitual que parieron por vía vaginal. Se verificó asociación entre la posición horizontal en el período expulsivo del parto y episiotomía, y entre la no realización de episiotomía y laceración perineal. La otras variables de trabajo de parto, parto y neonatal no interfirieron en la ocurrencia de laceración perineal. **Conclusión:** Acciones intervencionistas, salvo la episiotomía, no influenciaron la ocurrencia de trauma perineal, sin embargo requieren evaluación juiciosa. El parto en la posición horizontal se relacionó con la mayor posibilidad de realización de episiotomía.

DESCRIPTORES

Parto Normal; Laceraciones; Perineo; Episiotomía; Enfermería Obstétrica.

REFERENCES

1. Mathias AE, Pitanguí AC, Vasconcelos AM, Silva SS, Rodrigues PS, Dias TG. Perineal pain measurement in the immediate vaginal postpartum period. *Rev Dor* [Internet]. 2015 [cited 2018 Aug 20];16(4):267-71. Available from: <http://www.scielo.br/pdf/rdor/v16n4/1806-0013-rdor-16-04-0267.pdf>
2. Cunningham FG. *Obstetrícia de Williams*. 24ª ed. Porto Alegre: AMGH; 2016.
3. Corrêa Junior MD, Passini Júnior R. Selective episiotomy: indications, technique, and association with severe perineal lacerations. *Rev Bras Ginecol Obstet* [Internet]. 2016 June [cited 2018 Sep 15]; 38(6):301-7. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0100-72032016000600301&lng=en
4. Carvalho VF, Kerber NPC, Busanello J, Gonçalves BG, Rodrigues EF, Azambuja EP. How the workers of a birthing center justify using harmful practices in natural childbirth. *Rev Esc Enferm USP* [Internet]. 2012 [cited 2019 Apr 13];46(1):30-7. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342012000100004&lng=pt&nrm=iso&lng=en
5. Reis CSC, Souza DOM, Nogueira MF, Progiante JM, Vargens OMC. Análise de partos acompanhados por enfermeiras obstétricas na perspectiva da humanização do parto e nascimento. *Rev Online Pesq Cuid Fundam* [Internet]. 2016 [citado 2018 ago. 20];8(4):4972-9. Disponível em: <http://www.redalyc.org/pdf/5057/505754107007.pdf>
6. Brasil. Ministério da Saúde; Conselho Nacional de Saúde. Resolução n. 466, de 12 de dezembro de 2012. Dispõe sobre diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos [Internet]. Brasília; 2012 [citado 2018 ago. 22]. Disponível em: http://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html

7. Caroci AS, Riesco MLG, Leite JS, Araújo NM, Scarabotto LB, Oliveira SMJV. Locus of perineal lacerations in vaginal birth among primiparous women. *Rev Enferm UERJ* [Internet]. 2014 [cited 2018 Aug 20];22(3):402-8. Available from: <https://www.e-publicacoes.uerj.br/index.php/enfermagemuerj/article/view/5415/10510>
8. Mendes EPB, Oliveira SMJV, Caroci AS, Francisco AA, Oliveira SG, Silva RL. Pelvic floor muscle strength in primiparous women according to the delivery type: cross-sectional study. *Rev Latino Am Enfermagem* [Internet]. 2016 [cited 2018 Aug 20];24:e2758. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692016000100381
9. Sousa AMM, Souza KV, Rezende EM, Martins EF, Campos D, Lansky S. Practices in childbirth care in maternity with inclusion of obstetric nurses in Belo Horizonte, Minas Gerais. *Esc Anna Nery* [Internet]. 2016 [cited 2018 Aug 20];20(2):324-31. Available from: http://www.scielo.br/pdf/ean/v20n2/en_1414-8145-ean-20-02-0324.pdf
10. Leal MC, Pereira APE, Domingues RMSM, Filha MMT, Dias MAB, Nakamura-Pereira M, et al. Obstetric interventions during labor and childbirth in Brazilian low-risk women. *Cad Saúde Pública* [Internet]. 2014 [cited 2018 Aug 22];30 Suppl 1:S17-S32. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-311X2014001300005&lng=en
11. Côrtes CT, Oliveira SMJV, Santos RCS, Francisco AA, Riesco MLG, Shimoda GT. Implementation of evidence-based practices in normal delivery care. *Rev Latino Am Enfermagem* [Internet]. 2018 [cited 2018 Aug 22]; 26:e2988. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S010411692018000100304&lng=en
12. Silva FMB, Paixão TCR, Oliveira SMJV, Leite JS, Riesco MLG, Osava RH. Care in a birth center according to the recommendations of the World Health Organization. *Rev Esc Enferm USP* [Internet]. 2013 [cited 2018 Aug 22]; 47(5):1031-8. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342013000501031&lng=en&lng=en
13. Oliveira LS, Brito LGO, Quintana SM, Duarte G, Marcolin AC. Perineal trauma after vaginal delivery in healthy pregnant women. *Sao Paulo Med J* [Internet]. 2014 [cited 2018 Sep 15]; 132(4):231-8. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1516-31802014000400231&lng=en
14. Verheijen EC, Raven JH, Hofmeyr GJ. Fundal pressure during the second stage of labour. *Cochrane Database Syst Rev*. 2009;(4):CD006067
15. Pato-Mosquera M, García-Lavandera S, Liñayo-Chouza J. El desgarro intraparto del esfínter anal ¿ Puede prevenirse? *Ginecol Obstet Mex*. 2017;85(1):13-20.
16. Gurol-Urganci I, Cromwell DA, Edozien LC, Mahmood TA, Adams EJ, Richmond DH, et al. Third- and fourth-degree perineal tears among primiparous women in England between 2000 and 2012: time trends and risk factors. *BJOG*. 2013;120(12):1516-25. DOI: <http://dx.doi.org/10.1111/1471-0528.12363>
17. Melo BM, Gomes LFS, Henriques ACPT, Lima SKM, Damasceno AKC. Implementation of good practice in assistance to labor at a reference maternity. *Rev Rene*. 2017;18(3):376-82. DOI: 10.15253/2175-6783.2017000300013
18. Dodou HD, Rodrigues DP, Guerreiro EM, Guedes MVC, Lago PN, Mesquita NS. The contribution of the companion to the humanization of delivery and birth: perceptions of puerperal women. *Esc Anna Nery* [Internet]. 2014 [cited 2018 Sep 15]; 18(2):262-9. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-81452014000200262&lng=en
19. Ballesteros-Meseguer C, Carrillo-García C, Meseguer-de-Pedro M, Canteras-Jordana M, Martínez-Roche ME. Episiotomy and its relationship to various clinical variables that influence its performance. *Rev Latino Am Enfermagem* [Internet]. 2016 [cited 2018 Aug 22];24:e2793. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692016000100327&lng=en
20. Vargens OMC, Silva ACV, Progianti JM. The contribution of nurse midwives to consolidating humanized childbirth in maternity hospitals in Rio de Janeiro-Brazil. *Esc Anna Nery* [Internet]. 2017 [cited 2018 Aug 22];21(1):e20170015. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-81452017000100215&lng=en
21. Medeiros MQ, Feitosa FEL, Pinheiro AKB, Neto RHC, Firmiano MLV, Mesquita DB, et al. Characterization of obstetric assistance at labor and childbirth in low-risk women on a maternity of reference to maternal and child health. *Int Arch Med*. 2017;10(124). DOI: 10.3823/2394
22. Hernández Pérez J, Azón López E, Mir Ramos E, Peinado Berzosa R, Val Lechuz B, Mérida Donoso A. Factores que influyen en la realización de una episiotomía selectiva en mujeres nulíparas. *Enferm Glob* [Internet]. 2014 [citado 2018 Oct 05];13(35):398-411. Disponible en: http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1695-61412014000300022&lng=es
23. Braga GC, Clementino STP, Luz PFN, Scavuzzi A, Neto CN, Amorim MMR. Risk factors for episiotomy: a case-control study. *Rev Assoc Med Bras* [Internet]. 2014 Oct [cited 2018 Sep 15]; 60(5):465-72. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-42302014000500465&lng=en
24. Bick DE Kettle C, Macdonald S, Thomas PW, Hills RK, Ismail KM. Perineal Assessment and Repair Longitudinal Study (PEARLS): a matched-pair cluster randomized trial. *BMC Med*. [Internet]. 2013 [cited 2018 Sep 15];11:209. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3849411/>
25. Santos RCS, Riesco MLG. Implementation of care practices and repair perineal trauma in childbirth. *Rev Gaúcha Enferm* [Internet]. 2016 [cited 2018 Sep 15]; 37(spe):e68304. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1983-14472016000500410&lng=en

