

Obstetric and neonatal outcomes associated with neuraxial analgesia during labor

Desfechos obstétricos e neonatais associados à analgesia neuroaxial no trabalho de parto

Resultados obstétricos y neonatales asociados con la analgesia neuroaxial durante el trabajo de parto

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ABSTRACT

Objective: to assess obstetric and neonatal outcomes associated with the administration of neuraxial analgesia during labor.

Method: a descriptive, documentary study with a quantitative approach, conducted between March and August 2022, following approval by the Research Ethics Committee. Data were analyzed using descriptive and inferential statistics. **Results:** among 240 laboring women, the epidural technique was the most frequently employed (87%). Vaginal delivery occurred in 70% of cases, 44.2% underwent amniotomy, 35% received oxytocin, and 10.2% experienced reduced mobility. In relation to newborns, 36.2% required medical interventions, 99% airway suctioning, 10.3% positive pressure ventilation, and 9.1% venous catheterization. Additionally, 3.3% were admitted to a neonatal intensive care unit. **Conclusion:** neuraxial analgesia proved to be a safe method for pain management during labor and may contribute to reducing elective cesarean deliveries. Its use did not negatively impact maternal or neonatal outcomes; however, it was associated with a higher likelihood of obstetric interventions when compared to women who did not receive it.

Descriptors: Obstetric Nursing; Labor, Obstetric; Labor Pain; Analgesia, Obstetrical; Infanti, Newborn.

RESUMO

Objetivo: analisar os desfechos obstétricos e neonatais associados ao uso de analgesia neuroaxial durante o trabalho de parto.

Método: estudo descritivo, documental, com abordagem quantitativa, realizado entre os meses de março e agosto de 2022, após aprovação no Comitê de Ética em Pesquisa. Dados analisados descritiva e inferencialmente. **Resultados:** entre 240 parturientes, a técnica peridural foi a mais utilizada (87%), 70% das parturientes evoluíram com parto vaginal, 44,2% realizaram amniotomia, 35% utilizaram ocitocina e 10,2% apresentaram perda da mobilidade. Sobre os recém-nascidos, 36,2% necessitaram de intervenções, com 99% de aspiração de vias aéreas, 10,3% ventilação por pressão positiva e 9,1% cateterismo venoso; 3,3% foi encaminhado para unidade intensiva neonatal. **Conclusão:** o uso da analgesia neuroaxial mostrou-se seguro, podendo ser ofertada para controle da dor de parturientes, a fim de reduzir cesáreas eletivas, não tendo influência negativa para o desfecho materno e neonatal, porém esteve relacionada com maior tendência a intervenções obstétricas, quando comparada com gestantes que não a utilizaram.

Descritores: Enfermagem Obstétrica; Trabalho de Parto; Dor do Parto; Analgesia Obstétrica; Recém-Nascido.

RESUMEN

Objetivo: analizar resultados obstétricos y neonatales asociados al uso de analgesia neuroaxial durante el trabajo de parto.

Método: estudio descriptivo, documental con enfoque cuantitativo, realizado entre marzo y agosto de 2022, con análisis descriptivo e inferencial de datos y aprobación Comité de Ética en Investigación. **Resultados:** en 240 parturientas, la técnica más utilizada fue epidural (87%), 70% de las parturientas evolucionó a parto vaginal, 44,2% fue sometida a amniotomía, 35% utilizó oxitocina y 10,2% presentó pérdida de movilidad. En cuanto a los recién nacidos, 36,2% requirió intervenciones, en 99% fue aspiración de las vías respiratorias, 10,3% ventilación con presión positiva y 9,1% cateterismo venoso; 3,3% fue remitido a la unidad de cuidados intensivos neonatales. **Conclusión:** el uso de analgesia neuroaxial demostró ser seguro y se puede utilizar para controlar dolor en parturientas, a reducir las cesáreas electivas, no influyó negativamente en los resultados maternos y neonatales, pero se relacionó con mayor tendencia a intervenciones obstétricas, en comparación con las embarazadas que no la utilizaron.

Descriptorios: Enfermería Obstétrica; Trabajo de Parto; Dolor de Parto; Analgesia Obstétrica; Recién Nacido.

INTRODUCTION

Childbirth represents a natural event in a woman's life and within her family context, often accompanied by expectations, anxiety, and fear, particularly regarding labor pain. Pain is a subjective experience influenced by external factors such as trauma or negative experiences from previous deliveries, as well as the cultural and social environment surrounding the woman and her family. Given these factors, labor pain has increasingly become a

topic of concern, as it may lead to anxiety among parturients and fear of vaginal birth, ultimately resulting in unnecessary elective cesarean deliveries. Therefore, pain management has emerged as a central goal in labor care¹.

Several strategies are available to reduce pain and prevent adverse outcomes associated with it, such as uterine hypoactivity and impaired uteroplacental blood flow². Pain relief during labor can be achieved through both non-pharmacological and pharmacological approaches. Non-pharmacological methods aim to enhance comfort and provide effective relief, including water immersion or showering, use of a birthing ball, and controlled breathing techniques. Pharmacological strategies target the elimination or reduction of physical pain perception and may involve systemic routes (inhalation, intravenous, or intramuscular administration) or regional techniques (epidural, spinal analgesia, or pudendal nerve block)³.

Neuraxial techniques currently represent the gold standard for labor analgesia due to strong maternal-fetal safety, potent analgesic effect, and preservation of maternal mobility⁴. These techniques include epidural analgesia, combined spinal-epidural analgesia, continuous spinal anesthesia, and dural puncture epidural. The choice of technique depends on the anesthesiologist's expertise, the parturient's clinical condition, and the medications available⁵.

In Europe, labor analgesia is more broadly accessible compared to Brazil. Approximately 60% of European parturients receive pharmacological pain relief during labor, whereas in Brazil access remains limited⁶. However, a notable increase in labor analgesia has been recorded in Brazil's public healthcare system, particularly in the North and Northeast regions, where usage rose from 2% to 10%. In other regions, the growth was more modest, though it reached a higher number of women, approximately 20%^{7,8}.

Within this context, neuraxial analgesia emerges as a supportive measure for promoting vaginal birth, especially considering the persistently high cesarean rates in Brazil. In 2022, the country reported 2,469,325 births, of which only 1,031,991 (42.3%) were vaginal deliveries, while 1,437,334 (57.7%) were cesarean sections, placing Brazil second only to the Dominican Republic in global cesarean rates⁹. In the state of Ceará, only one public maternity hospital offers labor analgesia through the Unified Health System (*Sistema Único de Saúde*, SUS), with usage increasing from 7.9% in 2021 to over 20% in 2023¹⁰. In the private sector, analgesia is more widely available, although usage statistics remain undisclosed.

It is important to highlight the existing controversies surrounding neuraxial analgesia and its potential impact on labor progression and outcomes. Some studies associate it with adverse obstetric consequences, such as maternal hypotension, prolonged second-stage labor, increased use of oxytocin, and higher incidence of instrumental vaginal delivery or cesarean section. Nevertheless, literature presents divergent findings, reporting increased, reduced, or even unchanged labor duration following analgesia^{4,8,11}.

There is also no clear consensus regarding the impact of neuraxial analgesia on neonatal adaptation in the extrauterine environment, particularly as assessed by Apgar scores at one and five minutes after birth^{12,13}.

Since pain is an inherently subjective and deeply personal human experience, it must be addressed through individualized and humanized care, respecting each parturient's unique context. Providing such care ensures physical and emotional comfort, promotes a safe and supportive birth experience, and incorporates techniques capable of alleviating pain, offering women autonomy over their birthing process. These practices are considered fundamental rights under Brazilian health policy, as advocated by the Ministry of Health through the Rede Alyne¹⁴.

Considering the above, this study seeks to answer the following research question: What are the obstetric and neonatal outcomes associated with the use of neuraxial analgesia during labor?

Given the significance of understanding these outcomes for improving professional care and counseling of pregnant and laboring women, this study aimed to analyze obstetric and neonatal outcomes related to neuraxial analgesia during labor, with the broader objective of promoting safer childbirth practices and contributing to the reduction of maternal and neonatal mortality.

METHOD

This study adopts a descriptive, cross-sectional, documentary, and retrospective design with a quantitative approach. The study population comprised 240 pregnant women who received neuraxial analgesia between January 2019 and December 2021 at a public maternity hospital in Fortaleza, Ceará, Brazil, an institution recognized as a collaborative center for Good Practices in Childbirth and Birth recommended by the Brazilian Ministry of Health (*Ministério da Saúde*, MS).

Eligible participants included women who underwent neuraxial analgesia and carried single, non-malformed fetuses. Exclusion criteria involved unavailable medical records or records with incomplete data.

Sample size estimation followed the finite population formula, ensuring statistical validity and representativeness of the findings¹⁵.

Data related to women who chose pharmacological analgesia were retrieved from a database located in the obstetric center through a document review and the Master® medical record system, which contains information regarding the analgesia, date of procedure, and record number.

Subsequently, parturients' data were entered into an Excel® for Windows® version 365 spreadsheet. A randomized selection was performed using Sorteador®, an online randomization tool, to define the final sample of 240 women. Data collection occurred from March to August 2022, using a semi-structured form organized into five sections: (1) maternal identification, (2) obstetric history, (3) analgesia characteristics, (4) labor and delivery variables, and (5) neonatal outcomes.

Section 1 included variables such as maternal age, marital status, ethnicity, education level, place of residence, and occupation. Section 2 covered parity, gestational age, obstetric history, comorbidities, and prenatal visits. Section 3 comprised analgesia-specific data, technique applied, duration, clinical phase of initiation, cervical dilation, and fetal station at administration. Section 4 assessed labor conditions under neuraxial analgesia, including combined use of non-pharmacological methods, oxytocin administration, amniotomy, duration of the second stage, bladder catheterization, mode of delivery, maternal position during delivery, episiotomy, perineal trauma, and attending provider. Section 5 addressed neonatal parameters, Apgar scores, birth weight, skin-to-skin contact, timely umbilical cord clamping, breastfeeding within the first hour, required interventions, and resuscitation measures.

Descriptive and inferential statistical analyses were conducted. Data were exported from Research Electronic Data Capture (RedCap®) to Statistical Package for the Social Sciences (SPSS®) for Windows® version 22. To assess statistical differences between clinical profiles of women receiving analgesia and obstetric outcomes, the following comparisons were performed: analgesia technique versus lower-limb motor reflex reduction, birth position versus perineal trauma occurrence, and fetal weight versus trauma severity. For neonatal outcomes, Apgar scores at one and five minutes were analyzed according to mode of delivery, immediate skin-to-skin contact, and timing of cord clamping.

Absolute (n) and relative (%) frequencies, mean values, and standard deviations (SD) were calculated for all variables. A 95% confidence interval (CI) and a significance threshold of 5% were adopted. Data are presented as means \pm standard deviation. Fisher's exact test was used for proportions exceeding 20%, with p-values below 0.05 considered statistically significant. Results are presented in tables with corresponding percentages and absolute frequencies.

The research protocol received approval from the institution's Research Ethics Committee and was conducted in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

RESULTS

The study included a total of 240 women who received neuraxial analgesia. Table 1 presents the sample's demographic and clinical characteristics.

The participants had a mean age of 23 years, ranging from 17 to 29. Most were either married or in a stable union (61%) and self-identified as mixed-race (95.4%). In relation to educational level, the majority had completed secondary school (60.5%), corresponding to 10 to 12 years of education, while 24.5% had attended until primary school (zero to nine years of study). A smaller portion (15%) had pursued or completed higher education.

Table 1: Distribution of sociodemographic and obstetric data of parturients from January 2019 to December 2021 (n=240). Fortaleza, CE, Brazil, 2021.

Variables	n (%)
Marital status	
Stable union or married	147 (61.0)
Single	93 (39.0)
Self-declared race	
Brown	229 (95.4)
White	6 (2.5)
Black	5 (2.1)
Years of education	
0- 9	59 (24.6)
10-12	145 (60.0)
+12	36 (15.0)
Number of pregnancies	
Primigravida	172 (72.0)
Secundigravida	42 (18.0)
Multigravida	26 (10.0)
Number of births	
Nulliparous	186 (77.5)
Primiparous	43 (18.0)
Multiparous	11 (4.5)
Prenatal care	
Yes	33 (97.0)
No	7 (3.0)
Number of prenatal consultations	
≥7	164 (70.0)
5-6	52 (22.7)
≤4	17 (7.3)

Concerning prenatal care, 97% of the participants attended at least one consultation, whereas 3% had no follow-up. Among the 233 women who received prenatal care, 70% met the Brazilian Ministry of Health's recommendations, completing at least seven consultations¹⁴.

Tables 2 and 3 outlines data related to labor, analgesia, and obstetric outcomes.

Table 2: Distribution of data on childbirth, neuroaxial analgesia and obstetric outcomes of parturients (n=240). Fortaleza, CE, Brazil, 2021.

Variables	n (%)
Oxytocin use	
No	157 (65.0)
Yes	83 (35.0)
Amniotomy performed (n=236)	
No	130 (54.1)
Yes	106 (44.2)
Amniotomy performed (n=106)	
After analgesia	62 (74.0)
Before analgesia	22 (26.0)
Episiotomy	
No	159 (94.6)
Yes	9 (5.4)
Expulsive phase duration	
Up to 1 hour	53 (22.1)
2-3 hours	46 (19.2)
>3 hours	9 (3.7)
Inconclusive	69 (28.8)
Didn't go into the expulsion	63 (26.2)
Mode of delivery	
Vaginal delivery	168 (70.0)
Cesarean section	72 (30.0)
Cesarean indication (n=72)	
Progression arrest	46 (63.8)
Fetal distress	16 (22.2)
Woman's request	3 (4.1)
Other reasons	9 (12.5)
Position during delivery (n=157)	
Non-upright positions	111 (70.7)
Upright positions	40 (25.5)
Not recorded	06 (3.8)
Perineal laceration (n=168)	
Yes	134 (79.8)
No	34 (20.2)
Laceration degree (n=134)	
I	50 (37.0)
II	71 (53.0)
III	12 (9.3)
IV	1 (0.7)

Table 3: Distribution of data on childbirth, neuroaxial analgesia and obstetric outcomes of parturients (n=240). Fortaleza, CE, Brazil, 2021.

Variables	n (%)
Type of analgesia	
Epidural / Peridural	210 (87.5)
Spinal anesthesia	30 (12.5)
Labor phase when analgesia was initiated	
Latent (1 - 5 cm)	51 (21.3)
Active (6 - 9 cm)	178 (74.2)
Expulsive (10cm)	11 (4.6)
Loss of mobility after analgesia (n=175)	
No	157 (89.7)
Yes	18 (10.2)
Loss of physiological reflexes	
No	194 (89.6)
Yes	25 (10.4)

The epidural technique was the most frequently used (87.5%), followed by spinal anesthesia (12.5%), primarily administered during the expulsive stage. Analgesia was most often initiated during the active phase of labor (74.2%). In relation of mobility, 89.7% of the participants remained mobile following analgesia, while 10.2% experienced mobility loss. This variable was available for only a subset of the sample (n = 175) due to incomplete records.

Among the 240 women, 10.4% experienced loss of physiological reflexes, requiring bladder catheterization. Of the 210 women who received epidural analgesia, 19 (9%) experienced reflex suppression. In contrast, among those receiving spinal anesthesia (n = 30), six (20%) presented with this outcome, indicating a higher proportional prevalence among the latter group.

Oxytocin was administered to 35% of the participants for uterine contraction regulation. Amniotomy was performed in 44.2% of cases, with 74% of these procedures occurring after analgesia administration.

Vaginal birth occurred in 70% of cases. Among these, 70.7% gave birth in non-upright positions such as semi-sitting or lateral decubitus, while 25.5% used upright positions including squatting, birthing stool, Gaskin, or standing. Perineal lacerations were present in 79.8% of vaginal deliveries, with second-degree tears most common (53%). Among cesarean births (30%), the primary indication was labor arrest (63.8%), followed by fetal distress (22.2%).

No statistically significant association was observed between birthing position and perineal tears ($p = 0.710$). However, fetal weight showed a significant correlation with laceration severity ($p = 0.012$).

Tables 4 and 5 show neonatal outcomes among infants delivered following pharmacological analgesia during labor.

Table 4: Distribution of neonatal intervention data of parturients who underwent pharmacological analgesia during labor from January 2019 to December 2021 (n=240). Fortaleza, CE, Brazil, 2021.

Variables	n (%)
Newborn data	
Live births	240 (100.0)
Apgar at 1st minute of life	
Greater than or equal to 7	226 (94.2)
6-4	14 (5.8)
Apgar at 5th minute of life	
Greater than or equal to 7	240 (100.0)
Procedures in the Obstetric Center (n=87)	
Airway aspiration	86 (99.0)
Positive pressure ventilation	9 (10.3)
Venous catheterization	8 (9.1)
Other neonatal resuscitation maneuvers	9 (10.3)
Omphalotomy	
Delayed cord clamping	196 (82.0)
Immediate cord clamping	42 (18.0)
Skin-to-skin contact	
Yes	164 (69.0)
No	79 (31.0)
Ventilatory support	
Oxi-Hood	23 (9.6)
CPAP	10 (4.2)
≥4 days	4 (14.8)

Note: CPAP - Continuous Positive Airway Pressure.

Table 5: Distribution of neonatal transfer data of parturients who underwent pharmacological analgesia during labor from January 2019 to December 2021 (n=240). Fortaleza, CE, Brazil, 2021.

Variables	n (%)
Transferred to Rooming-in	
Yes	198 (82.0)
No	42 (18.0)
Admission to the NICU	
Yes	8 (3.3)
No	231 (96.7)
Length of NICU stay (n=8)	
<4 days	6 (75.0)
≥4 days	2 (25.0)
Admission to the UCINCO	
Yes	27 (11.0)
No	213 (89.0)
Length of UCINCO stay	
<4 days	23 (85.2)
≥4 days	4 (14.8)

Notes: AC – Rooming-in; NICU - Neonatal Intensive Care Unit; UCINCO - Conventional Neonatal Intermediate Care Unit.

Among the 87 newborns requiring intervention at birth, procedures included airway suctioning (99%), positive pressure ventilation (10.3%), venous catheterization (9.1%), and other resuscitation techniques (10.3%). After stabilization, ventilatory support was needed in some cases using oxy-hood (9.6%) or Continuous Positive Airway Pressure (CPAP) (4.2%).

Among the total sample, only 3.3% were admitted to the Neonatal Intensive Care Unit (NICU), and 11% were transferred to the Conventional Neonatal Intermediate Care Unit (UCINCO), where the length of stay was predominantly less than four days (85.2%).

Among infants born vaginally, 93% had Apgar scores ≥ 7 at one minute; 7% scored between 4 and 6. No cases scored ≤ 3 . For cesarean deliveries, 96% of infants scored ≥ 7 , and 4.2% between 4 and 6; again, no Apgar scores ≤ 3 were recorded. All newborns delivered through instrumental vaginal birth (n = 11) scored ≥ 7 .

No significant association emerged between delivery type and Apgar score at one minute ($p = 0.775$), nor between delivery mode and umbilical cord clamping ($p = 0.092$). A statistically significant association, however, was found between delivery mode and immediate skin-to-skin contact ($p < 0.001$).

DISCUSSION

The sociodemographic data obtained in the present study are consistent with findings from the National Household Sample Survey, which indicates that the majority of the Brazilian population identifies as mixed-race (parda), followed by white and black individuals¹⁶. Similarly, these findings align with the results of a quantitative study conducted at a maternity hospital in the interior of Ceará, based on medical records of 1,137 parturients, which identified a predominance of women with up to secondary education and in stable unions¹⁷. These characteristics are relevant for healthcare professionals regarding the guidance provided to pregnant women on pregnancy, childbirth, and delivery, since low socioeconomic status, limited education, and single marital status are social determinants associated with increased risk of complications during labor and delivery.

The findings related to antenatal consultations were satisfactory, as 70% of pregnant women received adequate prenatal care with at least seven visits, as recommended by the Ministry of Health¹⁴. This result is similar to that of a study involving 2,340 postpartum women attended at a hospital-based birthing center in Brazil's Central-West region, which demonstrated a high valuation of prenatal care, given that participants completed more than six consultations¹⁸.

Concerning analgesia, a study assessing the effects of epidural analgesia during labor noted that maternal outcomes associated with its use are still not well-defined and are dose-dependent¹¹. Furthermore, studies evaluating labor analgesia and its maternal and neonatal effects have shown reduced maternal mobility, possible reflex loss, and increased labor and/or delivery duration following analgesia administration^{4,11-13}. These outcomes are consistent with those of the present study, where 10.2% of parturients experienced a loss of mobility, and 10.4% lost physiological reflexes.

In addition, other studies have shown that parturients undergoing pharmacological analgesia are more likely to experience interventions compared to those not subjected to amniotomy, oxytocin administration, or forceps delivery^{19,20}. These findings resemble those of this study, where 236 of the 240 women who received analgesia underwent amniotomy, and 83 received oxytocin.

Among the 108 partographs available for analysis, 22.1% recorded an expulsive phase lasting one hour, 19.2% indicated two to three hours, and 3.7% extended beyond three hours. These results fall within the time limits established by the National Guidelines for Normal Birth Care, which recommend an expulsive phase of one to three hours for nulliparous women and up to two hours for multiparous women with epidural analgesia²¹.

Concerning the 30% cesarean rate among the 240 women who received analgesia, this result is lower than the institutional rates recorded in 2021 (62.4%) and 2023 (63%)¹⁰. Other institutional studies did not show a difference in cesarean rates and did not identify a relationship between pharmacological obstetric analgesia and increased cesarean indications due to fetal distress or labor arrest. These findings suggest that neuraxial analgesia does not contribute to rising cesarean rates^{19,20}.

Given this, neuraxial analgesia may help reduce elective cesarean sections requested by women, often motivated by fear of labor and delivery pain. Therefore, while neuraxial analgesia is an important pharmacological method for pain relief, women must be informed about its potential consequences.

Of the cesareans performed, 63.8% were indicated due to labor arrest, a complication potentially related to epidural analgesia, as it may cause pelvic floor and abdominal wall muscle relaxation, reducing uterine activity². Nonetheless, findings from this study showed that 65.4% of women who received neuraxial analgesia delivered vaginally without instrumental assistance.

In contrast, a prospective cohort study conducted in Ireland across three maternity hospitals, involving 1,221 women with vaginal deliveries, found that epidural analgesia increased the risk of instrumental vaginal birth threefold. However, the use of such instruments did not affect neonatal vitality in infants whose mothers received this type of analgesia¹¹.

It is noteworthy that 70.7% of women who had vaginal births with pharmacological analgesia delivered in non-upright positions, especially semi-sitting. This may reflect previous birth experiences in non-vertical positions, leading to resistance to alternative positions, or a lack of encouragement from healthcare providers.

Concerning perineal lacerations, a case-control study at a maternity hospital in Ceará concluded that there was no significant difference in the incidence of spontaneous lacerations, including extensive ones, between women who received analgesia and those who did not²⁰. Although no significant association was found between birth position (upright vs. non-upright) and laceration occurrence ($p=0.710$), other studies suggest a lower risk of severe lacerations when upright positions are used¹⁸⁻²⁰.

The statistically significant association between fetal weight and perineal laceration ($p=0.012$) in this study diverges from previous findings in the literature, which did not confirm a direct relationship, indicating a need for more robust investigations on this topic^{22,23}.

To evaluate comprehensive neonatal care, protective interventions were assessed, such as skin-to-skin contact during the first hour of life, which supports neonatal thermoregulation and mother-infant bonding. Despite its benefits, this study found that 71 (31%) of newborns did not receive skin-to-skin contact during the first hour after birth ($p<0.001$).

In this context, a cross-sectional study conducted at a university hospital in southern Brazil involving a total of 963 women assessed the implementation of *Rede Cegonha* recommendations four years post-implementation. It found that skin-to-skin contact significantly increased from 14.9% to 60.1%, even with a rise in the use of pharmacological analgesia from 20.3% to 45.9%. Thus, practices such as skin-to-skin contact should be encouraged regardless of the use of pharmacological methods or mode of birth^{24,25}.

Study Limitations

The topic is highly relevant; however, as this is a retrospective documentary study, some information was not found in the medical records, which hindered data collection. The completeness and accuracy of the records depended solely on the professionals involved in patient care. Another limiting factor is that the study was conducted in only one maternity hospital in northeastern Brazil, which may have characteristics distinct from those of other regions.

Furthermore, inferential tests do not establish causal relationships. It is recommended that prospective cohort studies be conducted to investigate the loss of mobility and physiological reflexes related to the type of analgesia used, using robust samples, so that this relationship can be better understood.

CONCLUSION

The use of neuroaxial analgesia proved to be safe, though it was associated with a higher tendency for obstetric interventions, highlighting the need for women to be adequately informed about the effects and potential consequences of this procedure.

This study explored significant evidence and fostered new reflections on the topic, emphasizing the importance of healthcare professionals, including nurses, possessing extensive knowledge to properly offer and manage care for parturients undergoing neuroaxial analgesia. This method is crucial for pain control, minimizing labor pain-related fears, and serving as an effective strategy for reducing the high rates of elective cesarean sections currently recorded in Brazil.

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Conceptualization, G.F.A.N., M.M.L.F. and L.S.O.; methodology, G.F.A.N., M.M.L.F. and L.S.O.; data collection, M.M.L.F. and L.S.O.; formal analysis, C.M.G.C.E.S., J.O.B., L.P.T.M., T.S.C. and A.K.C.D.; data curation, M.M.L.F. and L.S.O.; manuscript writing, G.F.A.N.; review and editing, C.M.G.C.E.S., J.O.B., L.P.T.M., T.S.C. and A.K.C.D.; visualization, C.M.G.C.E.S., J.O.B., L.P.T.M., T.S.C. and A.K.C.D.; project administration, C.M.G.C.E.S., J.O.B., L.P.T.M., T.S.C. and A.K.C.D. All authors read and agreed with the published version of the manuscript.

Use of artificial intelligence tools

Authors declare that no artificial intelligence tools were used in the composition of the manuscript "*Obstetric and neonatal outcomes associated with neuraxial analgesia during labor*".