The pain reported by postpartum women in rooming-in according to the mode of delivery

Dor relatada por puérperas no alojamento conjunto segundo a via de nascimento

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ABSTRACT

BACKGROUND AND OBJECTIVES: Pain is the most frequently reported symptom in the immediate puerperium. The aim of this study was to quantify pain levels and sociodemographic, obstetric, and care characteristics associated with severe pain and inadequate analgesia according to the mode of delivery.
METHODS: Observational, descriptive, cross-sectional study conducted between October and December 2020, with a sample of 229 postpartum women considered eligible (baby born alive, weighing > 500 g and/or gestational age > 22 weeks) to answer the study questionnaire.
RESULTS: The mean reported pain was 5.34 by Visual Analogue Scale (VAS) and there was a difference (p<0.001) between modes of delivery. Cesarean section was associated with severe pain (p=0.006) and pain above eight on the VAS (p=0.02). Vaginal delivery was associated with the perception of inadequate analgesia (p=0.04). Severe pain reported was associated with the admission of the baby to the ICU (p=0.01) and cases of postpartum hemorrhage (p=0.002). Among women who gave birth vaginally, there was an association between severe pain and instrumental delivery (p=0.05). Reported severe pain was associated with difficulties in self-care (p<0.001) and care of the newborn (p= 0.02), sensation of weakness (p<0.001), and fainting (p=0.002). The perception of inadequate analgesia was associated with vaginal birth (p=0.04) end non-white skin color (p=0,03).
CONCLUSION: The average reported pain was moderate. Intense pain and the perception of inadequate analgesia were associated with instrumental delivery, newborns being referred to the NICU, postpartum hemorrhage, and non-white skin color.
Keywords: Cesarean section, Cross-sectional study, Postpartum period, Vaginal delivery.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A dor é o sintoma mais frequentemente relatado no puerpério imediato. O objetivo deste estudo foi quantificar os níveis de dor e as características sociodemográficas, obstétricas e da assistência associadas à dor intensa e à percepção de analgesia inadequada segundo a via de nascimento.
MÉTODOS: Estudo observacional, descritivo, transversal, conduzido entre outubro e dezembro de 2020, com uma amostra de 229 puérperas consideradas elegíveis (nativivos com peso > 500g e/ou idade gestacional > 22 semanas) para responder ao questionário do estudo.
RESULTADOS: A média de dor relatada foi 5,3 pela Escala Analógica Visual (EAV) e houve diferença (p<0,001) entre as vias de nascimento. A cesariana apresentou associação com dor intensa referida (p=0,006) e dor acima de oito pela EAV (p=0,02). O parto vaginal obteve associação com percepção de analgesia inadequada (p=0,04). Entre as mulheres que referiram dor intensa, houve associação com recém-nascido encaminhado à unidade de terapia intensiva neonatal (UTIN) (p=0,01) e nos casos de hemorragia pós-parto (p=0,002). Entre as mulheres que tiveram parto vaginal, também houve associação entre dor intensa e o parto instrumental (p=0,05). Dor intensa referida teve associação com dificuldades para o autocuidado (p<0,001) e do recém-nascido (p=0,02), sensação de fraqueza (p<0,001) e de desmaio (p= 0,002). A percepção de analgesia inadequada esteve associada a parto vaginal (p=0,04) e cor da pele não branca (p=0,03).

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HIGHLIGHTS
- More women undergoing cesarean section reported severe postpartum pain.
- More women with vaginal deliveries perceived inadequate analgesia.
- Admission of the newborn to the NICU was associated with pain and perception of inadequate analgesia.
- Severe pain was associated with difficulty in self-care and newborn care.

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CONCLUSÃO: A média de dor relatada foi moderada. Dor intensa e percepção de analgesia inadequada estiveram associadas com parto instrumental, recém-nascido encaminhado à UTIN, hemorragia pós-parto e cor de pele não branca.
Descritores: Cesariana, Dor, Estudo transversal, Parto normal, Período pós-parto.

INTRODUCTION

Pain is the most frequently reported symptom in the immediate puerperium. The puerperium is defined as the period following childbirth, characterized by local and systemic changes in the woman's body. This period is didactically divided into immediate (1st to 10th day), late (11th to 45th day) and remote (after the 45th day)[1,2]. Pain is a personal sensation influenced by biological, psychological, and social factors, learned from previous experience, and can have adverse effects on social and psychological function and well-being[3]. Pain at this stage is due to the changes that the mother's body must undergo to return to its pre-pregnancy state, in addition to the tissue damage caused by childbirth or cesarean section and the demands of caring for the newborn (NB) and breastfeeding. Regardless of the mode of delivery, the most frequent site of pain is in the abdomen, because of uterine contractions to prevent bleeding from the placental area and enable the organ to return to its pre-pregnancy size and volume[2,4,5].

Pain in the perineum can occur even in the absence of visible lacerations in the region[6]. However, there is an association of perineal pain with perineal lacerations and, above all, with the performance of an episiotomy[7,8].

The main complaint of women undergoing cesarean section is pain in the surgical wound[4]. This mode of delivery is often chosen by women who are afraid of tears in the perineum and the pain related to vaginal delivery[9]. However, in addition to the risks inherent in the surgical procedure, women undergoing cesarean section report more pain complaints during the puerperium compared to those undergoing vaginal delivery[4,9].

During breastfeeding, in addition to the possibility of breast pain and discomfort (especially when establishing the correct latch and latching on), colic pain is more intense due to the release of oxytocin, which causes uterine contractions and the ejection of milk[1,2,5].

The COVID-19 pandemic imposed various restrictions on childbirth and puerperium care. The presence of a companion of the woman's choice was guaranteed during active labor, labor and birth, and the first hour after placental dehydration. After that, puerperal women were no longer allowed to be accompanied, due to difficulties in the hospital structure to guarantee the necessary distance and isolation[10].

The study of pain and the experience of the puerperium tends to be less valued and researched than pregnancy and childbirth. There are few studies on the puerperium and its care in 2020, but it is known that maternal isolation and loneliness have been exacerbated by the pandemic[11,12]. In the same vein, both the lack of a companion and the uncertainties and fears of the pandemic can influence the experience of puerperal women[13].

There are several described consequences of pain in the immediate puerperium, which reinforce the importance of its proper measurement and management. Basic needs such as urination, evacuation and sleep are impaired[6,9,14]. In addition, irritability, and a decreased ability to concentrate are noted. The exercise of motherhood and bonding can be impaired, as breastfeeding and caring for the NB become more difficult. Postpartum pain is a risk factor for interruption of exclusive breastfeeding, perception of a negative birth experience and postpartum depression[6,9,15,16]. Any level of pain can cause discomfort and difficulties, but severe pain has greater repercussions on women's health, the bond with the NB and breastfeeding[15,16].

There is no single completely effective method for managing pain in the puerperium[4,6]. Concerns about the possible toxicity of drugs excreted by milk have limited many studies to non-nutritious puerperae, which is a confounding factor[6]. The use of simple anesthetics and non-steroidal anti-inflammatory drugs is widespread after cesarean section and after vaginal delivery with episiotomy or lacerations requiring suturing[2]. For perineal pain, the recommendation is to combine pharmacological and non-pharmacological therapies[2,4,6]. The individual's perception of pain should always be valued[3], as well as the factors that relieve or worsen it. The feeling of having one's complaints undervalued and inadequate pain management is more prevalent among racial minorities and its consequences are little studied, but it can interfere with satisfaction with the obstetric care received[14,17].

Despite its importance, pain in the puerperium is poorly measured and studied. In order to offer individualized care, with appropriate management of pain complaints and to provide a satisfactory birth experience, it is essential to know the prevalence of severe pain, the opinion of puerperal women about pain management and whether there are factors associated with these complaints. The aim of this study was therefore to quantify the levels of pain and the sociodemographic, obstetric and care characteristics associated with severe pain and the perception of inadequate analgesia according to mode of delivery.

METHODS

This is a cross-sectional observational study. The STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) tool was used to produce this article. The project "Obstetric and puerperal complications during the COVID-19 epidemic" (opinion number 35543120.7.0000.0121) was submitted to and approved by the Human Research Ethics Committee of the Federal University of Santa Catarina (UFSC) and follows the ethical principles of Resolution 466 of the National Health Council[18]. Eligible patients were informed about the subject and signed the Free and Informed Consent Term (FICT).

The study was conducted in a university hospital in southern Brazil from October to December 2020. The research hospital follows the philosophy of humanized care, deliveries are preferably attended in upright positions, the presence of a companion of the woman's choice is encouraged, there are several methods of non-pharmacological pain relief available in the prepartum, delivery and puerperium rooms. After childbirth or cesarean section, whenever possible, mother and NB are sent to rooming-in and, although the presence of a companion is also encouraged, this was not possible during the pandemic (at the time of data collection). At the time of the survey, the care routine included prescribing simple analgesics and non-hormonal anti-inflammatory drugs at pre-set times after cesarean sec-

tion and deliveries with 2nd degree lacerations or more, and simple analgesics as required by the puerperal woman after vaginal delivery without complications. The use of cold perineal compresses was also made available to puerperae on request.

Data was collected using a questionnaire filled in by the puerperal woman and data from hospital records. The questionnaire was specially designed for the research and was answered in the rooming-in ward on the day the woman was likely to be discharged from hospital (due to the epidemiological situation, discharge during this period was as early as possible, ranging from one to three days for vaginal delivery and two to four days for cesarean section). In the rooming-in ward, it is necessary to guarantee rest and the formation of a bond between mother and NB, as well as various consultations and interventions with a multi-professional team (breastfeeding advice, nutritional guidance, psychological care, visits and guidance from obstetrics and pediatrics, for example). The questionnaire was administered on the day of hospital discharge to assess possible puerperal complications and because we considered that other earlier periods could be more uncomfortable for the puerperal woman because they would hinder maternal rest and recovery, generating more refusals to participate.

After the interview, the researcher in charge collected data from the medical records using a form with the variables of interest, also designed for the study. The instruments were previously tested on a sample similar to the research population (a pre-test was carried out on the same ward, with puerperal women and before the study began). The pre-test was assessed by whether the interviewee's answers matched the data in the medical records and by the respondents' perception of whether it was difficult to understand or fill in the questionnaire. After the pre-test, adjustments were made, mainly in terms of formatting (font size, space to fill in variables with open-ended answers) until the final format was reached.

The sample size needed to assess the prevalence of pain considered the prevalence of severe pain in a Brazilian population of puerperal women (reported by 37.1% of women)[9] and the number of deliveries attended at HU/UFSC/EBERSH (approximately 220 deliveries per month, so 500 deliveries during the research period). The number of participants required was calculated at 209 people, with a 95% confidence level and a beta error of 5%. As this study is part of the research project "Obstetric and puerperal complications during the COVID-19 pandemic", all records that met the inclusion criteria were considered.

A total of 351 puerperal women whose NB was born alive weighing >500g and/or gestational age >22 weeks were considered eligible for the study. The study excluded 31 women who did not fill in the variables of interest (puerperal pain), who had a serious mental disorder, who gave birth at home or on the way to hospital. A total of 91 women refused: 53 did not wish to take part in the questionnaire and 38 agreed but did not fill in the questionnaire for various reasons (involvement with NB care, multidisciplinary consultations or lack of time). The final sample consisted of 229 participants (Figure 1).

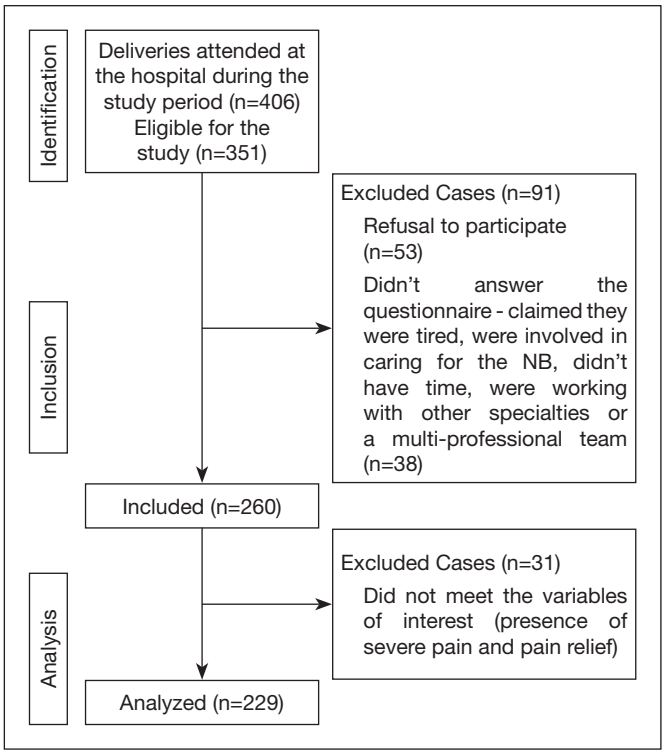

Figure 1. Flowchart of the study participants.

Variables and measuring

The questionnaire and the instructions for completing it specified that the answers should take into account the entire postpartum period, from the birth to the time of completing the questionnaire.

Variables studied

Severe pain reported: dichotomous variable, answer to the question: "Considering the period after childbirth, did you experience severe pain?".

Level of pain by VAS: discrete quantitative variable, with a graphic scale where zero is no pain at all and 10 is the worst pain ever experienced, referring to the moment of greatest pain in the puerperium (from placental delivery to discharge).

Perception of inadequate analgesia: dichotomous variable, answer to the question: "Considering the period after childbirth, do you feel that you were adequately medicated for pain"?

Difficulty in self-care and difficulty in caring for the NB: dichotomous variable, answer to the questions: "Considering the period after giving birth, did you find it difficult to care for yourself"? and "Did you find it difficult to care for the NB"?

Sensations of weakness and fainting: dichotomous variable, answer to the questions: "At any time since giving birth did you feel weak"? "At any time did you feel like you were going to faint, or did you faint"?

In addition to those described, the following variables were answered by the woman in the self-administered questionnaire: age (in complete years), skin color (self-reported), marital status (if cohabiting with a partner), schooling, parity (in number of previous deliveries and/or cesarean sections), paid work, presence of a companion at the time of delivery.

To classify socioeconomic class, the puerperal women answered a series of questions to enable classification according to the *Critério de Classificação Econômica Brasil* (Brazilian Economic Classification Criterion) developed by the *Associação Brasileira de Empresas de Pesquisa* (Brazilian Association of Research Companies - ABEP). This data allows the study participants to be classified into six social clas-

ses: A: average income of R$ 22,716.99 / B1: average income of 10,427.74 / B2: average income of 5,449.60 / C1: average income of 3,042.47 / C2: average income of 1,805.91 / D/E: average income of 813.56. For comparative analysis, the variable was transformed into a dichotomous one, with classes A and B in one group and C, D and E in another.

Skin color was self-reported and presented as a nominal qualitative variable (white, yellow, brown, black, indigenous). Due to the small number of participants in each subgroup and considering the inequalities in care described in relation to skin color, this variable was analyzed as a dichotomous variable: one group of black, brown and indigenous women and the other of white and yellow self-reported skin color.

The variables described below were consulted in the patient's medical records and prenatal card: adequate prenatal care (using Kressner's quantitative criteria[19]), gestational age at the time of delivery, mode of delivery, presence of postpartum hemorrhage, hospitalization of the NB in the NICU, presence and degree of perineal laceration, suturing of perineal laceration.

Statistical analysis

The data was analyzed using the SPSS 28.0 statistical program. A statistical significance level of 0.05 was considered. The statistical tests applied were Chi-square or Fisher's exact test. The independent t-test was used to compare means. For the variables self-reported severe pain, pain above eight on the VAS and perception of inadequate analgesia, the Odds Ratio and its respective 95% confidence interval were calculated in the investigation with the mode of delivery variable.

RESULTS

The sociodemographic, obstetric and care characterization showed that most of the sample was made up of young, white women who lived with a partner, and belonged to social classes A and B, were gainfully employed and had a high level of education. There was no difference between multiparous women (50.8%) and primiparous women (49.2%) (Table 1).

Prenatal care was considered inadequate by the Kessner index for more than half of the population. Gestational age at delivery averaged 38.6±2.2 weeks. The cesarean section rate was 38.5% (data not tabulated). Among those who delivered vaginally (n=144), most participants had first- or second-degree perineal lacerations, four episiotomies were performed and there was only one third degree laceration (Table 1). All lacerations of 2nd degree or more were sutured. Among the 62 1st degree lacerations, 34 (54.8%) were sutured. Therefore, among the women with vaginal delivery, 95 received perineal sutures (66.4%) (data not included in the table).

In the entire sample interviewed, 22 puerperal women (8.5%) developed postpartum hemorrhage and 20 women (7.7%) had their NB referred to the NICU (Table 1). There were 24 premature births (under 37 weeks) in the sample (10.5%) (data not included in the table).

Of those interviewed, 216 completed the question related to the VAS. The average pain reported in the immediate puerperium was 5.3±3.2, and there was a significant difference (p<0.001) between women who had a vaginal delivery (average 4.8±3.4) and those

Table 1. Distribution of participants according to sociodemographic, obstetric and care characteristics. HU/UFSC/EBSERH. 2020.

Variables	Average	SD
Age (n=229)	28.7	6.3
Gestational age at time of birth (n=229)	38.6	2.2
	n	%
Self-declared skin color (n=229)		
White or yellow	146	63.8
Brown	53	23.1
Black	27	11.8
Indigenous	3	1.3
Schooling (n=229)		
Incomplete elementary school	22	9.6
Incomplete high school	28	12.2
Complete high school	119	52.0
Higher education	60	26.2
Socioeconomic class ABEP (n=229)		
A2, B1, B2	122	56.5
C1, C2	87	40.3
D, E	7	3.2
Living with a partner (n=226)		
No	36	15.9
Yes	190	84.1
Parity (n=229)		
Primiparous	114	49.8
Multiparous	115	50.2
Do you have a paid job? (n=207)		
No	76	36.7
Yes	131	63.3
Proper prenatal care (n=219)		
No	123	56.2
Yes	96	43.8
Had a companion at the time of delivery (n=229)		
No	28	12.2
Yes	201	87.8
Mode of delivery (n=229)		
Vaginal *	144	62.9
Cesarean section	85	37.1
Perineum (n=143)		
Intact	20	14.0
1st degree laceration	62	43.4
2nd degree laceration	56	39.2
3rd degree laceration	1	0.7
Episiotomy	4	2.8
Postpartum hemorrhage (n=229)		
No	208	90.8
Yes	21	9.2
NB referred to NICU (n=229)		
No	212	92.6
Yes	17	7.4
Perineal suture (n=144†)		
No	49	34.0
Yes	95	66.0

*13 instrumental deliveries (9.0% of vaginal deliveries); † no woman undergoing cesarean section had a perineal suture; SD = standard deviation

who had a cesarean section (average 6.3±2.8). Twenty-three women (10.6%) reported that they felt no pain, of whom 17 had vaginal deliveries. Thirty-three women (15.3%) reported having pain at level 10 (worst pain imaginable), of whom 21 had a vaginal birth (data not included).

The aim was to measure both pain and the woman's feeling of having received adequate analgesia. Among the 82 women who had severe pain, only 10 (12.2%) reported that they were not adequately medicated for pain in the puerperium. Twenty-two women reported inadequate analgesia, so 12 women who reported inadequate analgesia did not report severe pain (data not included).

Cesarean section showed a significant association with reported severe pain (p = 0.006) (OR= 2.16 95%CI 1.23-3.77) and VAS pain (p=0.004). Vaginal delivery, on the other hand, showed a significant association with perception of inadequate analgesia for pain (p = 0.04) (OR= 3.13 95%CI 1.02-9.62) (Table 2).

In the evaluation of women who reported severe pain, there was significantly greater difficulty in self-care, difficulty in caring for the NB, sensations of weakness and fainting. When assessing the same complaints and symptoms separately according to mode of delivery, women with severe pain who had a cesarean section also had greater difficulty with self-care, caring for the NB and feeling weak. Those who had a vaginal delivery and reported severe pain did not have significantly more difficulty in caring for themselves or their NB, but they did have more frequent feelings of weakness and fainting (Table 3).

There was no difference in mean age between women who experienced severe pain and those who did not (p=0.7), even when analyzed separately by mode of delivery. There was also no significant difference in the mean age between women who reported not having been adequately medicated for pain (p= 0.22) (data not included in the table).

When considering sociodemographic, obstetric and care characteristics, in the assessment of women who reported severe pain, there was a significant association between having the NB referred to the NICU and having developed postpartum hemorrhage for all women. When evaluating the mode of delivery, for women who had a vaginal delivery, there was a significant association with the variables "instrumental delivery" and "postpartum hemorrhage". In women who had a cesarean section, there was a significant association only between severe pain and referral of the NB to the NICU (Table 4).

Among women who reported inadequate analgesia, non-white skin color showed a statistical difference for all women. Among those who gave birth vaginally, both black, brown, and indigenous women and puerperal women whose NBs were referred to the NICU were associated with inadequate analgesia in the puerperium (Table 5). It is worth noting that there were 27 self-declared black women in the sample and of these, 11 (40.7%) reported severe pain. Among those who had a cesarean section, the two women who reported inadequate analgesia were black (data not included in the table).

There was no significant difference in terms of reporting severe pain in the puerperium or feeling that they were not adequately medicated for pain in the variables "companion during childbirth" and "inadequate prenatal care". Few women underwent episiotomy and there was only one serious perineal laceration among the women interviewed. Two of the four women who underwent episiotomy and the one who had a severe perineal tear reported severe pain, but none reported receiving insufficient analgesia in the puerperium (data not included).

Table 2. Characterization of pain and management in the puerperium according to mode of delivery. HU/UFSC/EBSERH. 2020.

	All	Vaginal	Cesarean section	p-value
	n (%)	n (%)	n (%)	
Severe pain referred (n=229)	82 (35.8)	42 (29.2)	40 (47.1)	0.006*
Pain by VAS (n=216)				0.004*
From zero to three	86 (39.8)	66 (48.2)	20 (25.3)	
Three to eight	58 (26.9)	33 (24.1)	25 (31.6)	
Higher than eight	72 (33.3)	38 (27.7)	34 (43.0)	
Felt not adequately treated for pain (n=200)	22 (11.0)	18 (14.6)	4 (5.2)	0.04†

* = Chi-squared test; † = Fisher's Exact test; VAS = Visual Analogue Scale.

Table 3. Distribution of participants who reported severe pain in the puerperium in terms of perception of self-care and symptoms according to mode of delivery. HU/UFSC/EBSERH. 2020 (n= 82).

	Severe pain referred								
	All			Vaginal			Cesarean section		
	No	Yes	p-value	No	Yes	p-value	No	Yes	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
Difficulty with self-care	11 (7.5)	28 (34.1)	<0.001*	7 (6.9)	7 (16.7)	0.17†	4 (8.9)	21 (52.5)	<0.001*
Difficulty caring for the NB	17 (11,6)	23 (28.0)	0.002*	11 (10.8)	6 (14.3)	0.57†	6 (13.3)	17 (42.5)	0.003*
Feeling weak	35 (23.8)	54 (65.9)	<0.001*	27 (26.5)	31 (73.8)	<0.001*	8 (17.8)	23 (57.5)	<0.001*
Feeling faint	4 (2.7)	11 (13.4)	0.002*	3 (2.9)	6 (14.3)	0.02†	1 (2.2)	5 (12.5)	0.09†

* Chi-squared test; † = Fisher's Exact test

Table 4. Distribution of participants who reported severe pain in the puerperium according to sociodemographic, obstetric and care characteristics by mode of delivery. HU/UFSC/EBSERH. 2020 (n= 82).

	Severe pain referred								
	All			Vaginal			Cesarean section		
	Yes	No	p-value	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
Non-white skin color	30 (36.6)	53 (36.1)	0.94*	17 (40.5)	37 (36.3)	0.63*	13 (32.5)	16 (35.6)	0.76*
Socioeconomic class ABEP C/D/E	32 (40.5)	62 (45.3)	0.5*	18 (43.9)	41 (43.6)	0.97*	14 (36.8)	21 (48.8)	0.28*
Primiparous	39 (47.6)	75 (51.0)	0.61*	19 (45.2%)	58 (56.9)	0.20*	20 (50.0)	17 (37.8)	0.25*
Instrumental delivery	7 (8.5)	6 (4.1)	0.23†	7 (16.7)	6 (5.9)	0.05†	-	-	-
2nd-degree laceration	18 (22.0)	43 (29.3)	0.91*	18 (42.9)	43 (43.9)	0.91*	-	-	-
NB referred to NICU	11 (13.4)	6 (4.1)	0.01*	1 (2.4)	3 (2.9)	1†	10 (25.0)	3 (6.7)	0.02*
Postpartum hemorrhage	14 (17.1)	7 (4.8)	0.002*	7 (16.7)	4 (3.9)	0.01†	7 (17.5)	3 (6.7)	0.18†

* Chi-squared test; † = Fisher's Exact test

Table 5. Distribution of women who reported inadequate analgesia in the puerperium according to sociodemographic, obstetric and care characteristics by mode of delivery. HU/UFSC/EBSERH. 2020

	Inadequate analgesia								
	All			Vaginal			Cesarean section		
	Yes	No	p-value	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
Non-white skin color	13 (59.1)	62 (34.8)	0,03*	11 (61.1)	36 (34.3)	0.03*	2 (50.0)	26 (35.6)	0.62†
Socioeconomic class ABEP C/D	12 (54.5)	71 (41.8)	0,25*	10 (55.6)	41 (41.4)	0.26*	2 (50.0)	30 (42.3)	1†
Primiparous	11 (50.0)	90 (50.6)	0,96*	10 (55.6)	57 (54.9)	0.92*	1 (25.0)	31 (42.5)	0.64†
Instrumental delivery	0 (0)	10 (5.6)	0,61†	0 (0)	10 (9.5)	0.35†	-	-	-
2nd degree laceration or episiotomy	6 (33.3)	49 (45.8)	0,32*	6 (33.3)	49 (45.8)	0.32*	-	-	-
NB referred to NICU	3 (13.6)	13 (7.3)	0,39†	3 (16.7)	0 (0)	0.003†	0 (0)	13 (17.8)	0.47†
Postpartum hemorrhage	0 (0)	19 (10.7)	0,13†	0 (0)	10 (9.5)	0.35†	0 (0)	9 (12.3)	1†

* Chi-squared test; † = Fisher's Exact test

DISCUSSION

The average pain reported by the VAS was 5.3, similar to that found by other authors, with the intensity of pain in the puerperium ranging from 5.2 to 5.6[1,9,20], a moderate intensity and capable of interfering with well-being and activities of daily living[9,20]. Cesarean section was the mode of delivery that was significantly associated with severe pain and VAS above eight. This finding is corroborated by the author[21], who showed that women undergoing cesarean section report 2.4 times more pain compared to those who deliver vaginally. By simply comparing the results with data from before the pandemic, the level of pain reported by puerperal women does not seem to have increased[22].

Pain complaints are common in the puerperium, but the complaint of intense or excruciating pain is not expected in the normal evolution after childbirth or cesarean section[1,9,14,23]. In this study, we chose to analyze severe pain as an outcome variable because it is more associated with negative outcomes, mainly psychological and related to the bond with the NB[9,15,16]. Intense pain was associated with difficulties in self-care and caring for the NB, mainly in puerperal women who had undergone cesarean section. The symptom impairs women's daily activities, such as rest, urination, evacuation and mobility[1,9,20]. In all the participants, severe pain was related to feelings of weakness and fainting. It should be borne in mind that at the time of data collection, due to the SARS-CoV-2 pandemic, the presence of a companion in the rooming-in unit was not allowed. Thus, the care of the NB was the sole responsibility of the mother, assisted by health professionals[24]. This situation has the potential to generate greater fatigue, a sense of fear, sadness, anguish and insecurity[25], culminating in more serious conditions such as postpartum depression and difficulties in bonding with the NB[9].

When assessing the variables related to severe pain, there was no association with age, skin color, social class, parity or the presence of a second-degree laceration. Age was not associated with severe pain in other studies[9]. There was also no difference in the prevalence or levels of pain when comparing white, Hispanic and black women[17]. There was no association between pain and parity in two similar studies[1,9]. The presence of second-degree lacerations (spontaneous or after episiotomy, which occurred in four cases) was not related to greater pain in this study or in another study[9], but it is difficult to compare the results as there are differences in the way lacerations are described and assessed[1].

Having had the NB referred to the NICU was significantly associated with severe pain. The study[9] reached the same conclusion, with the justification that the need to travel to another unit to have contact with the NB and the emotional burden of seeing

it so young and under intensive care exacerbates the pain felt in the puerperium. In addition, feelings of fear, anguish, anxiety, and insecurity generated by the mother-NB separation negatively influence the perception of pain[9]. As pain is influenced by psychological factors[3], this finding may be related to the labor and birth process, which is probably more traumatic in these pregnancies. The sample size and method of this study did not allow us to assess this association.

Instrumental delivery and postpartum hemorrhage were associated with intense puerperal pain. No studies were found showing a relationship between instrumental delivery and puerperal pain. As instrumental delivery is associated with a higher prevalence of perineal injuries, severe lacerations, fecal incontinence and urinary retention/incontinence[23] it is possible to assume that there is greater local trauma when instruments are needed. In addition, the indication for the procedure is related to problems, dystocia and/or prolonged deliveries, leading to an association between assisted delivery and post-traumatic stress[27], which may also explain this difference. For postpartum hemorrhage, the uterine contraction promoted by the uterotonic drugs used in the treatment[28], together with the manipulation and interventions needed to control the bleeding, may explain the results found.

It was decided to analyze reported pain and the woman's perception of how she was medicated for pain separately. This perception can be a way of both reporting that there is still pain and describing the inadequacy of care for the woman's demands. The two outcome variables are complementary, since having severe pain can be related to feeling inadequate analgesia and vice versa. However, in this sample, there were women who reported severe pain and did not feel that they had been inadequately medicated, just as some women reported inadequate analgesia but not severe pain. This finding merits further study in order to better understand the associated factors.

Vaginal delivery was significantly associated with the perception of inadequate analgesia. This can be explained by the practice adopted by the HU/UFSC/EBSERH at the time of the study, which included simple analgesics and oral anti-inflammatory drugs only on demand for vaginal postpartum. The use of pharmacological pain relief methods according to the patient's needs potentially leads to delays and failures in analgesia[22], due to the difficulty in communicating and assessing pain and the service's routines (drug schedules, number of patients admitted and the team's capacity to provide care, among other factors). The absence of companions during the period and the consequent overload on the care team may also have contributed to these delays.

The perception of inadequate analgesia was associated with the NB being referred to the NICU among women who had a vaginal birth. When the NB is hospitalized and the mother has clinical conditions, she spends long periods of time near her child in the NICU, which can lead to longer delays in administering drugs, which is exacerbated if the drug is administered on demand. Self-declared black/brown or indigenous women reported having been inadequately medicated for pain in the puerperium, both in the whole sample and in those who had vaginal births. These results are in line with the study[29], which looks at ethnic-racial differences in prenatal care and childbirth in Brazil, and shows inequalities and disparities related to race in health care and, consequently, in final health indicators. These are also the findings of a study carried out in the United States, which showed disparities in postpartum pain management between Hispanic and black women that are not explained by a lesser sensation of pain[17]. The small number of participants in the study does not allow for an analysis of each group (black/brown/indigenous) separately, but it should serve as a warning for appropriate care for these racial groups.

This study had some limitations. The questionnaire was administered over a variable period (between one and four days postpartum), which may have altered perceptions and led to less consistent responses regarding pain intensity. Despite the significant number of participants, when distributing the groups according to the variables analyzed, some groups did not reach the number of participants needed to carry out statistical tests, making analysis difficult. Another limiting point was the fact that pain in the late puerperium was not addressed, due to the difficulty in contacting the puerperae, mainly because of the social restrictions experienced at the time. The unique period of the SARS-CoV-2 pandemic influenced some of the parameters analyzed, such as inadequate prenatal care in more than half of the cases and the lack of a companion in the rooming-in unit. In addition, the study refers to a single hospital, which makes the results less generalizable.

The study highlights important points for care. The finding that puerperal women reported being inadequately medicated for pain in the vaginal postpartum period led to a change in the conduct adopted at the HU/UFSC/EBSERH, which was suggested, discussed, and implemented, so that analgesics be prescribed at set times. Furthermore, it should be emphasized that the care team needs to pay more attention to analgesia for women who have had instrumental deliveries, postpartum hemorrhage, and those whose NBs are in the NICU. Another highlight is the perception of inadequate analgesia by black, brown, and indigenous women. Ethnic-racial differences in health care reflect a social and structural problem in institutions and constitute a point of care that must be improved[29], not only in terms of the perception and adequacy of each member of the care team, but with care conducts aimed at minimizing these inequities. Further research is needed to assess whether there have been any changes following the pandemic.

Pain in the puerperium is multifactorial and is experienced differently by each individual. All the findings of the present study suggest the need for protocols for the continuous and individualized assessment and management of pain in the puerperium[30].

CONCLUSION

The associations found varied according to mode of delivery. In both modes, severe pain and perception of inadequate analgesia were associated with NB referred to the NICU, postpartum hemorrhage and non-white skin color. In relation to vaginal delivery, instrumental delivery is added to the factors already described. Therefore, pain impairs self-care and NB care.

It is expected that the study will promote the continuous assessment of pain and discomfort levels in the puerperium and the constant revision of institutional practices adopted for this assessment and consequent management.

AUTHORS' CONTRIBUTIONS

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Statistical Analysis, Data Collection, Research, Writing - Preparation of the Original, Writing - Review and Editing, Visualization
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