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ORIGINAL ARTICLE

Factors associated with the occurrence of upright birth in Brazil

Fatores associados à ocorrência de parto em posição vertical no Brasil

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ABSTRACT

Objective: To identify the factors associated with Upright Delivery (UD) performed in hospitals linked to the Rede Cegonha (RC) in Brazil. **Methods:** Cross-sectional study with 3,073 parturients who had vaginal delivery in 606 health facilities in Brazil, located in health regions with a regional action plan approved in the RC. Socioeconomic, demographic, and obstetric characteristics of the parturients, organizational and management aspects of maternity hospitals, and work processes in childbirth care were evaluated. The multivariate logistic regression model with a hierarchical approach was adjusted to identify the variables associated with UD (outcome), estimating Odds Ratios (OR) with a significance level of 5%. **Results:** Of the evaluated parturient, 6.7% gave birth in the vertical position. The following were associated with a greater chance of PPV: being black (OR=2.07); having 13 or more years of study (OR=3.20); giving birth in a high-risk hospital (OR=1.58); giving birth in PPP rooms (which assisted with labor, delivery, and puerperium in the same environment) in Obstetric Centers (OR=2.07) or in-hospital Normal Delivery Centers (OR=1.62); being assisted by an obstetrician nurse (OR=1.64) or by a midwife (OR=7.62) when compared to a doctor; receiving massage during labor and delivery (OR=1.89); using a stool (OR=4.16) and among women who did not ask for/not receive analgesia (OR=3.15). **Conclusion:** The UD is an event related to racial aspects and the education of the parturient, being stimulated in health establishments where good practices of childbirth care are implemented, with adequate ambiance, and with multidisciplinary teams comprising midwives and obstetric nurses.

Keywords: Parturition. Natural birth. Maternal health. Maternal-child health services.

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INTRODUCTION

In obstetrics, the phenomenon of horizontalization of childbirth occurred concomitantly with the process of medicalization and institutionalization of birth. The adoption of this position, although convenient for health professionals, as it facilitates obstetric interventions, is not always beneficial for parturients[1]. Brazilian public policies[2-4], guided by recommendations from international bodies[5], encourage the adoption of good practices in labor and birth care and determine that delivery in the upright birth position (UBP) is encouraged by professionals who assist parturients.

These guidelines highlight the importance of freedom of position during labor, giving the pregnant woman the opportunity to choose the position that is most comfortable for her, encouraging non-supine postures. In this sense, the adoption of UBP is encouraged because there is evidence of its benefits, such as reduced indication of cesarean sections[6], episiotomy and other obstetric interventions[7], cervical tear[7-9] and blood loss[7], shorter intrapartum period[7,10], less need for epidural anesthesia[11] and greater satisfaction in the delivery experience[12], when compared to women who experienced the supine or lithotomous position.

However, evidence on factors associated with UBP is still limited. Expanding knowledge about these relationships can contribute to strengthening strategies that guarantee women the opportunity to choose the most convenient birthing position and, above all, the freedom to refuse unnecessary interventions. Therefore, this study aimed to identify the factors associated with UBP performed in public hospitals affiliated to the Unified Health System (*Sistema Único de Saúde* – SUS), linked to *Rede Cegonha*, in Brazil.

METHODS

This is a cross-sectional study carried out with data from the research entitled "Assessment of Delivery and Childbirth Care in Maternity Hospitals in the Scope of the Stork Network" (*Avaliação das Boas Práticas na Atenção ao Parto e Nascimento em Maternidades non Âmbito da Rede Cegonha*)[13,14], which enabled the evaluation of various dimensions of delivery and birth care, including access and quality of services, management models, reception, resolution and good practices during childbirth and labor.

The research was carried out in public and mixed hospitals (private ones with SUS contracts) in Brazil located in health regions with an action plan by the *Rede Cegonha*, which, in 2015, carried out:

1. 500 or more deliveries[4], regardless of the release of resources (581 maternity hospitals); or
2. Less than 500 births, with release of resources (25 maternity hospitals), totaling 606 maternity hospitals.

Data collection was carried out between December 2016 and October 2017, through individual, face-to-face interviews with all postpartum women who gave birth in the health facilities included in the research during the evaluation days of each maternity hospital. The sample was stratified by large geographic region. Thus, the number of days for data collection was defined according to the volume of deliveries in hospitals in each region, setting the North Region at six days, the Northeast and Southeast at two days, the South Region at five days, and seven days in the Midwest. Sample size was calculated based on a cesarean rate of 50%, to detect differences of 5%, with a significance level of 5% and power of 80%, totaling 10,473 postpartum women. The sampling plan generated an overrepresentation of the North, South, and Midwest regions, which was corrected by a calibration procedure[15]. For the interviews, a semi-structured questionnaire was used as an instrument for data collection. Data on the characteristics of the health establishment were obtained from the National Registry of Health Establishments (*Cadastro Nacional de Estabelecimentos de Saúde* – CNES), referring to the year 2015.

For the present study, women who had vaginal delivery in the evaluated maternity hospitals were considered, excluding those who had a twin pregnancy, stillbirth, made use of forceps and observations with ignored information, totaling 3,073 puerperal women analyzed.

Considering the complexity of the phenomenon studied, a theoretical model was constructed to explain the relationships between the dependent and the explanatory variables through three levels: distal, intermediate, and proximal (Figure 1). At the distal level, the geographic region where the birth took place (North, Northeast, Southeast, Midwest or South) was considered.

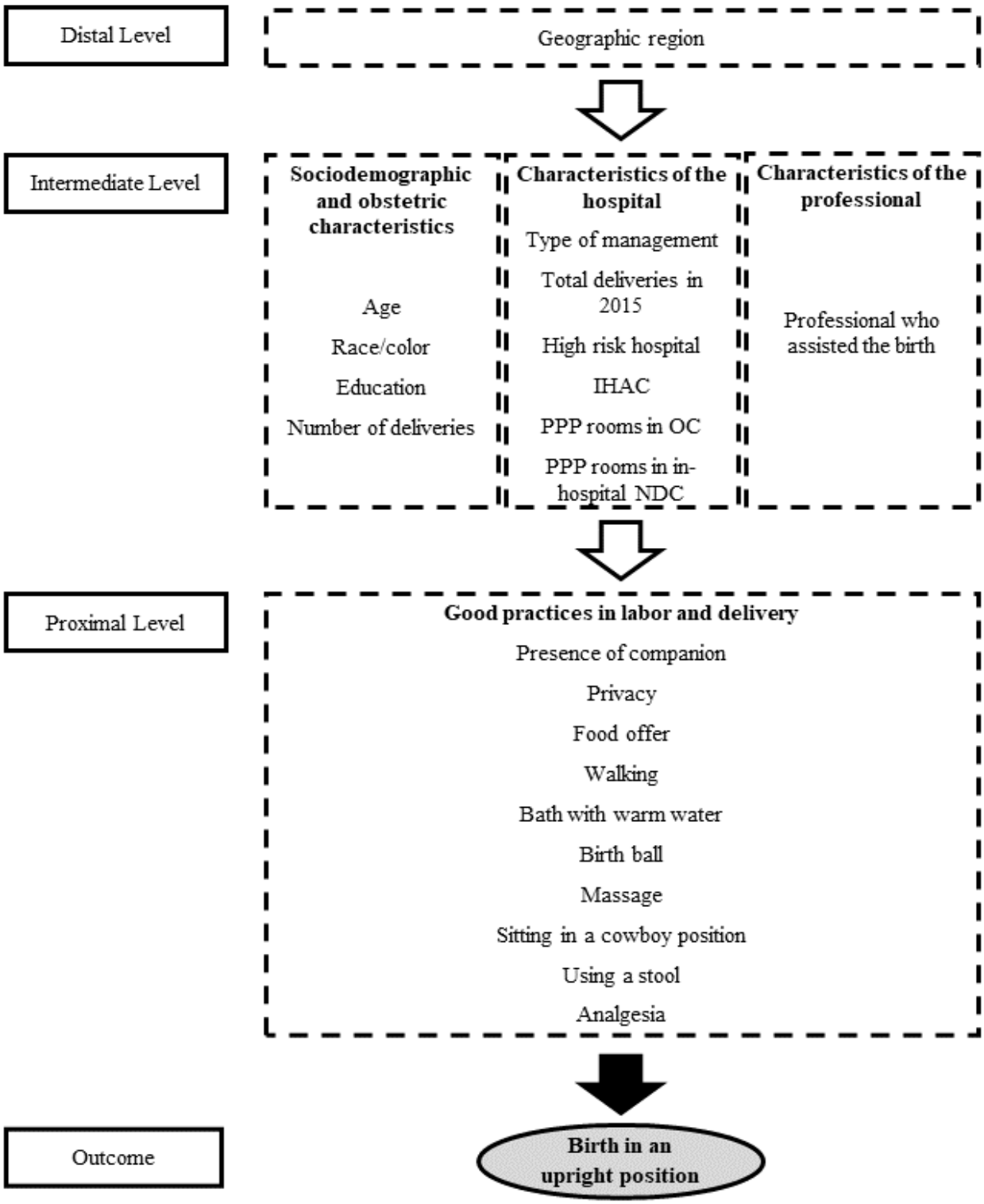
The intermediate level included three blocks:

Block 1: Sociodemographic variables and obstetric information of the puerperal woman, including age group (19 or less, 20 to 29, 30 to 39, 40 or more), self-reported race/color (white, black, brown, yellow/oriental, indigenous), education (0 to 5 years, 6 to 9 years, 10 to 12 years, 13 years or more), and number of deliveries (primiparous, one previous delivery, two previous deliveries, three or more deliveries);

Block 2: Characteristics of the maternity, including type of maternity management (shared, state, municipal), total deliveries performed in 2015 (0 to 2,500, 2,501 to 5,000, more than 5,000), being a high-risk hospital (yes, no), accredited to the Baby-Friendly Hospital Initiative (*Iniciativa Hospital Amigo da Criança* – IHAC) (yes, no), having a room for prepartum, delivery, and postpartum assistance in the same environment (PPP room) in an obstetric center (OC) (none, 1 or more), or in-hospital normal delivery center (NDC) (none, 1 or more)]; and

Block 3: Variables of the professional responsible for the delivery, considering which professional attended the delivery (obstetrician, obstetric nurse, midwife, without assistance). At the proximal level, the characteristics of care

provided during labor and delivery were considered: presence of a companion (yes, no); having privacy respected (yes, no); food offer (yes, no); walking allowed during labor (yes, no); offer of a bath with warm water (yes, no); birth ball (yes, no); massage (yes, no); sitting cowboy style (yes, no); stool (yes, no), and analgesia (asked and received analgesia, asked and did not receive, did not ask and received, did not ask and did not receive).



IHAC: *Iniciativa Hospital Amigo da Criança*; PPP: prepartum, delivery, and postpartum assistance in the same environment; CO: obstetric center; NDC: normal delivery center.

Figure 1. Model for analysis of factors associated with birth in the upright position.

The outcome analyzed in this study was the UBP, obtained by the question "What was the position you were in to have the baby?" with eight answer options:

1. Lying on back with legs raised (gynecological position);
2. Lying flat on the bed;
3. Side-lying on the bed;
4. Recumbent;
5. Upright position, sitting;
6. Upright position, squatting;
7. Upright position, standing;
8. All fours.

The variable was dichotomized (yes, no), considering the UBP those who responded to the options upright, sitting, squatting or standing.

For data analysis, the R Studio software (version 2022.07.0) was used. A descriptive analysis of the data was initially performed, calculating absolute and relative frequencies. The associations between the explanatory variables and the outcome were estimated in crude and adjusted analyses, using a logistic regression model to calculate the odds ratio (OR) and respective 95% confidence intervals (95%CI). Modeling with a hierarchical approach was used to fit the models. At each level, only the variables that presented p≤0.20 in the crude analysis were included. Variables with a value of p≤0.10 remained in the adjusted model when inserted into the model at their respective hierarchical levels. Thus, initially, the association between the variables of the distal level and the outcome was estimated, remaining in the adjusted model (which goes to the subsequent levels) those with p-value≤0.10. Then, to this model with the variables that came from the distal level, the variables of the intermediate level were inserted, remaining in the model the variables that came from the distal level (regardless of the new p-value) and also those from the intermediate level whose p-value was less than or equal to 0.10. Finally, the process was repeated, inserting the variables from the proximal level into the model, adjusted for the variables that came from the distal and intermediate levels. Thus, the adjusted associations were considered at their respective levels adjusted for the variables of the previous levels[16]. The input sequence of the variables in the models followed the hierarchical order shown in Figure 1.

The research was approved by the Ethics Committees in Research with Human Beings of Universidade Federal do Maranhão and Escola Nacional de Saúde Pública Sérgio Arouca, CAAE 56389713.5.3001.5240, on December 14th, 2016. All precautions were taken to ensure confidentiality of information, safeguarding the ethical principles of autonomy, justice, beneficence and non-maleficence, privacy, and confidentiality. All postpartum women were previously informed about the study, and those who agreed and signed the informed consent were included. The study followed the guidelines of the STROBE Statement.

RESULTS

Of the 3,073 women who participated in the present study, 208 (6.7%) gave birth in the upright position. The highest percentage of delivery in the vertical position was observed in women between 20 and 29 years old (7.1%), self-declared black (10.9%), with 13 years or more of schooling (11.0%), primiparous (7.2%) and in the southern region of the country (9.2%). The highest percentage of UBP was among shared management hospitals (9.3%), with more than 5,000 deliveries in 2015 (11.2%), in high-risk hospitals (9.3%), with one or more PPP rooms in obstetric centers (10.4%) or in in-hospital normal delivery centers (9.8%). UBP were mostly performed by midwives (32.6%), without the assistance of a professional (28.1%) or by obstetric nurses (8.8%). As for good practices in labor and delivery care, delivery in an upright position was more prevalent among women who were accompanied (6.9%), walked around during labor (7.6%), took a bath with warm water (9.0%), used a birth ball (10.4%), received a massage (11.8%), sat in a cowboy style (11.6%), used a stool (22.1%), and did not ask for and did not received analgesia (7.5%) (Table 1).

In the unadjusted analysis, UBP was associated with: self-declared black mothers compared to white ones (OR=2.13); having 10 to 12 years of schooling (OR=2.05) or ≥13 (OR=3.13) compared to those with up to five years of study; giving birth in a hospital with 5,000 or more deliveries per year (OR=1.99); giving birth in a referral hospital for high-risk pregnancy (OR=1.67), which has a PPP room in the obstetric center (OR=1.95) or in-hospital NDC (OR=1.65); being assisted in childbirth by an obstetrician nurse (OR=1.72), midwife (OR=8.65) or even giving birth without the presence of a professional (OR=6.99) when compared to being assisted by a doctor. All variables at the proximal level (good practices in childbirth care) were associated with UBP, except for the presence of a companion. After adjusting the models, an increase in the chance of UBP was identified in black women (OR=2.07; 95%CI 1.29–3.30); with 13 or more years of schooling (OR=3.20; 95%CI 1.36–7.53); who gave birth in a high-risk hospital (OR=1.58; 95%CI 1.10–2.27), in a PPP in the OC (OR=2.07; 95%CI 1.45–2.96) or in an intra-hospital NDC PPP room (OR=1.62; 95%CI 1.08–2.43). Being assisted by an obstetrician nurse (OR=1.64; 95%CI 1.15–2.32) or by a midwife (OR=7.62; 95%CI 2.26–25.68). Receiving a massage (OR=1.91; 95%CI 1.33–2.76) and use a stool (OR=4.35; 95%CI 2.94–6.44) during labor and delivery; and not asking for and not receiving analgesia (OR=3.33; 95%CI 1.22–9.24) also increased the chance of giving birth in the upright position (Table 2).

Table 1. Sample description according to birthing position. Brazil, 2015 (n=3,073).

Characteristics	UBP, n (%)	Other positions, n (%)
Geographic region		
Midwest	24 (5.4)	449 (94.6)
Northeast	45 (6.6)	563 (93.4)
North	23 (3.8)	616 (96.2)
Southeast	59 (7.7)	726 (92.3)
South	57 (9.2)	511 (90.8)
Age (years)		
19 or less	58 (7.0)	724 (93.0)
20 to 29	104 (7.1)	1,499 (92.9)
30 to 39	44 (6.1)	589(93.9)
40 or more	2 (1.8)	53 (98.2)
Race/color*		
White	71 (7.6)	705 (92.4)
Black	39 (10.9)	341 (89.1)
Brown	91 (5.4)	1,682 (94.5)
Yellow/oriental	5 (9.1)	60 (90.9)
Indigenous	2 (3.9)	30 (96.1)
Education*		
0 to 5	10 (3.8)	311 (96.2)
6 to 9	49 (5.7)	811 (94.3)
10 to 12	128 (7.5)	1,602 (92.5)
13 or more	20 (11.0)	137 (89.0)
Number of deliveries*		
Primiparous	104 (7.2)	1,388 (92.8)
One birth	58 (6.2)	756 (93.8)
Two births	26 (6.3)	385 (93.7)
Three births	20 (6.6)	329 (93.4)
Type of management		
Shared	25 (9.3)	199 (90.7)
State	60 (6.8)	979 (93.2)
Municipal	123 (6.5)	1,687 (93.5)
Total of deliveries in 2015		
0 to 2,500	67 (5.9)	943 (94.1)
2,501 to 5,000	83 (5.2)	1,337 (94.8)
More than 5,000	58 (11.2)	585 (88.8)
High risk hospital*		
No	136 (5.8)	2,172 (94.2)
Yes	72 (9.3)	682 (90.7)
Iniciativa Hospital Amigo da Criança		
No	95 (6.1)	1,577 (93.9)
Yes	113 (7.8)	1,288 (92.2)
PPP rooms in OC		
None	135 (5.6)	2,237 (94.34)
1 or more	73 (10.4)	628 (89.6)
PPP rooms in IH NDC		
None	170 (6.1)	2,449 (93.9)
1 or more	38 (9.8)	416 (90.2)
Professional who assisted the delivery*		
Doctor	113 (5.3)	1,980 (94.7)
Nurse	83 (8.8)	854 (91.2)
Midwife	5 (32.6)	8 (67.4)
No assistance	7 (28.1)	22 (71.9)
Presence of a companion*		
No	9 (4.2)	2,667 (95.8)
Yes	199 (6.9)	2,667 (93.1)
Privacy*		
No	24 (4.5)	422 (95.5)
Yes	59 (4.7)	1,258 (95.3)
Food offer*		
No	90 (5.1)	1,462 (94.9)
Yes	118 (8.5)	1,399 (91.5)
Walking*		
No	35 (4.3)	726 (95.7)
Yes	173 (7.6)	2,134 (92.4)
Bath with warm water*		
No	71 (4.7)	1,524 (95.3)
Yes	137 (9.0)	1,337 (91.1)
Birth ball*		
No	104 (5.2)	2,003 (94.8)
Yes	104 (10.4)	856 (89.6)
Massage*		
No	98 (4.4)	2,011 (95.6)
Yes	110 (11.8)	851 (88.2)
Sitting in a cowboy style*		
No	175 6.2)	2,573 (93.8)
Yes	33 (11.6)	289 (88.4)
Using a stool*		
No	125 (4.6)	2,579 (95.4)
Yes	83 (22.1)	284 (77.9)
Analgesia*		
Asked for and received	5 (2.9)	192 (97.1)
Asked for and did not receive	16 (6.2)	182 (93.8)
Did not ask for and received	13 (4.0)	299 (96.0)
Did not ask for and did not receive	171 (7.5)	2,135 (92.5)

UBP: upright birth position; PPP: prepartum, delivery, and postpartum assistance in the same environment; OC: obstetric center; NDC: normal delivery center; IH: in-hospital; *there are deleted or ignored data.

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DISCUSSION

This population-based study, carried out in 606 health facilities linked to the *Rede Cegonha* in all federal units in Brazil, included 3,073 postpartum women who gave birth through the normal route. It was evidenced that only 6.7% of these deliveries were in upright positions. The factors that were positively associated with UBP were: being a

Table 2. Factors associated with birth in the upright position. Brazil, 2015.

Characteristics*	Crude analysis		Adjusted analysis	
	OR (95%CI)	p-value	OR (95%CI)	p-value
Intermediary block				
Race/color (ref.: white)				
Black	2.13 (1.37–3.31)	0.029	2.07 (1.29–3.30)	0.027
Brown	1.41 (0.97–2.06)		1.37 (0.93–2.01)	
Yellow/oriental	1.74 (0.65–4.65)		1.79 (0.63–5.06)	
Indigenous	0.69 (0.15–3.10)		0.64 (0.14–2.87)	
Education, in years of study (ref.: 0–5)				
6 to 9	1.52 (0.71–3.25)	0.004	1.34 (0.63–2.86)	0.008
10 to 12	2.05 (1.01–4.18)		1.79 (0.88–3.64)	
13 or more	3.13 (1.30–7.53)		3.20 (1.36–7.53)	
Number of deliveries in 2015 (ref.: 0–2,500)				
2,501 to 5,000	0.88 (0.59–1.30)	0.004	0.66 (0.43–1.02)	0.429
5,000 or more	1.99 (1.31–3.04)		1.22 (0.73–2.02)	
High risk hospital (ref.: no)				
Yes	1.67 (1.19–2.35)	0.003	1.58 (1.10–2.27)	0.013
Iniciativa Hospital Amigo da Criança (ref.: no)				
Yes	1.29 (0.93–1.78)	0.120	1.26 (0.91–1.75)	0.176
PPP rooms in OC (ref.: none)				
1 or more	1.95 (1.38–2.74)	<0.001	2.07 (1.45–2.96)	<0.001
PPP rooms in in-hospital NDC (ref.: none)				
1 or more	1.65 (1.11–2.47)	0.013	1.62 (1.08–2.43)	0.016
Who assisted the delivery (ref.: doctor)				
Obstetric nurse	1.72 (1.22–2.41)	<0.001	1.64 (1.15–2.32)	<0.001
Midwife	8.65 (2.61–8.70)		7.62 (2.26–25.68)	
No assistance	6.99 (2.57–9.04)		8.42 (2.64–26.79)	
Proximal block				
Presence of a companion (ref.: no)				
Yes	0.59 (0.26–1.35)	0.212	-	-
Food offer (ref.: no)				
Yes	1.72 (1.24–2.39)	<0.001	1.17 (0.81–1.67)	0.354
Walking (ref.: no)				
Yes	1.84 (1.21–2.80)	0.004	1.04 (0.64–1.70)	0.952
Bath with warm water (ref.: no)				
Yes	2.01 (1.43–2.81)	<0.001	1.12 (0.75–1.66)	0.570
Birth ball (ref.: no)				
Yes	2.10 (1.51–2.92)	<0.001	0.95 (0.63–1.41)	0.643
Massage (ref.: no)				
Yes	2.90 (2.08–4.02)	<0.001	1.91 (1.33–2.76)	<0.001
Sitting in a cowboy position (ref.: no)				
Yes	1.98 (1.28–3.07)	0.002	1.09 (0.60–1.74)	0.914
Using a stool (ref.: no)				
Yes	1.98 (1.28–3.07)	<0.001	4.35 (2.94–6.44)	<0.001
Analgesia (ref.: did not ask for/did not receive)				
Asked for and did not receive	2.18 (0.69–6.82)	0.017	2.14 (0.68–6.73)	0.044
Did not ask for and received	1.38 (0.42–4.50)		2.03 (0.61–6.72)	
Did not ask for and did not receive	2.68 (0.99–7.25)		3.33 (1.20–9.24)	

OR: odds ratio; 95%CI: 95% confidence interval; PPP: prepartum, delivery, and postpartum assistance in the same environment; OC: obstetric center; NDC: normal delivery center; IH: in-hospital. Ref.: Reference category. *Only the variables that remained in the adjusted model were presented.

black woman, having 13 or more years of schooling, giving birth in a referral hospital for high-risk pregnancy, having a PPP room in an obstetric center or in-hospital NDC, and being assisted by an obstetric nurse or by a midwife. Offering good practices — such as receiving massage, using a stool during labor and delivery, and not asking for/not receiving analgesia — was associated with a greater chance of giving birth in an upright position.

The low frequency of vaginal delivery in the upright position observed in this study represents the continuation of a pattern already presented in the *Nascer no Brasil* research, in which less than 9% of deliveries in the country in 2011 and 2012 occurred in a non-lithotomic position[17]. This outcome is similar to the experience of childbirth in American women, in which 91% of vaginal deliveries performed in hospitals were conducted in supine positions. This high prevalence of deliveries in the supine position is due to the care model practiced in the United States and Brazil, which prioritizes curative and hospital measures for the care of their population and where cesarean section is the most common surgical procedure among women[18-20].

The findings of the aforementioned study are not consistent with the actions of the government and the efforts of civil society to improve delivery and birth care in recent decades in Brazil[2-5]. This situation probably reflects the culture of medicalization of childbirth, which is still very strong in the country, despite efforts to encourage natural childbirth[21].

Differently from what was observed in this study, Andrade et al.[22] found that 61% of deliveries performed in 2014 in a hospital in Pernambuco, a reference for the Ministry of Health (MoH), occurred in a non-supine position. This result differs from the national reality and reflects the joint effort of managers and professionals to change the scenario of obstetric care. They are also similar to that found in Scandinavian countries, where 65% of women tend to give birth in non-supine positions[23] and indicate that the process of change in the model of childbirth care in Brazil, stimulated by *Rede Cegonha*, is under development, but little implemented in some recommendations.

The adoption of vertical positions in the first and second stages of labor has been identified as beneficial for both the mother and the baby, as they are associated with a reduction in obstetric interventions, such as cesarean section, use of episiotomies and forceps, shorter length of time of labor, and less negative effects on the health of mother and baby[6-11]. From this perspective, the recommendations of the World Health Organization (WHO) and the MoH encourage the adoption of practices that promote a safe, quality vaginal delivery in which women are free to assume the position that is most comfortable for them, being encouraged by the professionals who assist them to try non-supine positions during childbirth[2,5].

The distribution of UBP in Brazilian geographic regions was heterogeneous, with a higher proportion in the Southeast and Northeast regions and lower frequency in the Center-West region, consistent with the results of the *Nascer no Brasil* survey, in which deliveries in the lithotomy position were more frequent in the Midwest and less frequent in the Northeast[17].

Being black, compared to white women, increased the chances of giving birth in an upright position. The literature does not describe significant differences regarding the race/color of women and the position of delivery performed within the scope of SUS, when analyzed according to education and income[24]. Racial differences were identified in relation to some unnecessary interventions, characterizing obstetric violence[25,26]. It is possible that the result identified is reflecting both cultural aspects related to the choice to give birth in an upright position among Afro descendants, as well as a different form of discrimination, as discussed by Alves et al.[26]. For these authors, some good practices are more performed in black women because, in the interventionist model of care, which is still hegemonic in Brazil, unnecessary interventions, including elective cesarean section and delivery in the supine position, are routinely performed, and the least amount of them is performed in black women would be better interpreted as evidence of racial discrimination and a certain "carelessness" with these women.

The higher level of education of the parturients increased the chances of carrying out the UBP. This association may have occurred because women with more years of schooling have greater understanding and greater access to information about labor and delivery, making them less vulnerable to practices considered inappropriate[17,22].

Being treated in a high-risk hospital and in an obstetric center or in-hospital normal delivery center with PPP rooms increased the chances of UBP. These results reflect the changes that occurred with the implementation of the *Rede Cegonha*, which allowed, through the environment, the modification of physical spaces aimed at childbirth care, making it possible to implement good practices and educational interventions that improved childbirth care and delivery[4,27].

Another relevant factor in this study was the professional responsible for the delivery. Having the birth assisted by obstetric nurses or midwives, when compared to the doctor, was associated with greater chances of performing UBP, and the latter further increase the chances of delivery in this position. These professionals are indicated by the National Guidelines for Assistance to Normal Childbirth[2] as the most suitable for assisting low-risk postpartum women. In addition, evidence shows that the presence of the nursing team is associated with better results in childbirth care[15,22,28].

Despite the low number of women in this condition (n=7), in this study, a greater chance of adopting the upright position was observed among women who gave birth without professional assistance, compared to those who received assistance from a medical professional. This result

is possibly due to the fact that these women were walking or sitting at the time of delivery, which made an adequate diagnosis of labor impossible. In addition, a previous study points out that women who opted for UBP demand less assistance and fewer interventions, in addition to not being influenced by traditional medical training, which tends to consider the supine position as the most convenient[27]. However, it is necessary to emphasize that the recommendation of the Ministry of Health is that low-risk childbirth should be assisted by a doctor, obstetric nurse or midwife, the last two being related to less intervention and greater satisfaction of women[2].

The performance of some non-pharmacological measures, such as receiving massage and using the stool, were associated with greater chances of performing UBP. A systematic review[29] points out that the performance of comfort massage, by professionals or partners, proved to be effective when applied at the beginning of the latent phase of childbirth, promoting a reduction in the levels of stress and pain, in addition to providing an opportunity for the active participation of the companion. This comfort measure encourages relaxation, improves blood flow and tissue oxygenation, contributing to a more satisfying birthing experience. Furthermore, the use of a stool during labor encourages a change in the parturient's posture and has been shown to be efficient in increasing the rate of dilation, promoting pain relief and facilitating fetal descent[2,5]. This data was also pointed out by a study that evaluated the perception of puerperal women about non-invasive care technologies during childbirth[30].

Not asking for and not receiving analgesia was associated with higher odds of UBP. Thus, it is understood that the adoption of this position contributed to the reduction of the need for analgesia, a benefit already described in the literature[11].

A limitation of the present research refers to the fact that only hospitals in health regions that had plans approved by *Rede Cegonha* were included. It is possible that, with the inclusion of other hospitals, the prevalence of UBP in Brazil would be even lower. As strengths, we emphasize the fact that this is data from an evaluative research of a national character, with representation for the macro-regions of Brazil. The evaluated maternity hospitals, together, perform 65% of deliveries in Brazil[31]. This was the first nationwide survey carried out after the implementation of the *Rede Cegonha* within SUS. These data allow comparing the reality of maternal and child care before and after the implementation of this strategy. We emphasize that the study used different techniques and data collection instruments, validated by experts in the area of maternal and child health, and was carried out with puerperal women soon after childbirth and with all women who gave birth at the time of the interviews, thus reducing memory and selection bias.

Factors associated with birth in the vertical position were black women, with 13 or more years of schooling, assisted by an obstetrician nurse or midwife, who received massage, used a stool during labor and delivery, and did not ask for and did not received analgesia. Finally, delivery in the upright position, despite being more indicated because it requires fewer interventions, still has low adherence in Brazil. The low prevalence of adopting this position points to the need to promote the strengthening of these practices in the daily routine of health services, together with professionals who are inserted in this context. It is also important to emphasize the importance of the effective implementation of environments with physical structure and resources consistent with the needs of these women.

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RESUMO

Objetivo: Identificar os fatores associados aos partos na posição vertical realizados em hospitais vinculados à Rede Cegonha no Brasil. **Métodos:** Estudo transversal com 3.073 parturientes que tiveram parto vaginal em 606 estabelecimentos de saúde no Brasil, localizados em regiões de saúde com plano de ação regional aprovado na Rede Cegonha. Foram avaliadas características socioeconômicas, demográficas e obstétricas das parturientes, aspectos organizacionais e de gestão das maternidades e processos de trabalho na atenção ao parto. Modelo de regressão logística multivariada com abordagem hierarquizada foi ajustado para identificar as variáveis associadas ao parto na posição vertical (desfecho), estimando-se *odds ratio* (OR) com nível de significância de 5%. **Resultados:** Do total de parturientes avaliadas, 6,7% das mulheres tiveram parto na posição vertical. Estiveram associados à maior chance de ocorrência do parto na posição vertical: ser preta (OR=2,07); ter 13 ou mais anos de estudo (OR=3,20); parir em hospital de alto risco (OR=1,58); parir em quartos PPP (que dispunham de assistência ao trabalho de parto, parto e puerpério no mesmo ambiente) em centros obstétricos (OR=2,07) ou em centros de parto normal intra-hospitalares (OR=1,62); ser assistida por enfermeiro obstetra (OR=1,64) ou por obstetriz (OR=7,62) quando comparado ao médico; receber massagem durante o trabalho de parto e parto (OR=1,91); utilizar banqueta (OR=4,35) e entre mulheres que não pediram/não receberem analgesia (OR=3,33). **Conclusão:** O parto na posição vertical é um evento relacionado a aspectos raciais e à escolaridade da parturiente, sendo estimulado em estabelecimentos de saúde onde estão implantadas boas práticas de assistência ao parto, com ambiência adequada e com equipes multiprofissionais contendo obstetriz e enfermeiro obstetra.

Palavras-chave: Parto. Parto natural. Saúde materna. Serviços de saúde materno-infantil.

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