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Is there a relation between mode of delivery and breastfeeding in the first hour of life?

IS THERE A RELATION BETWEEN MODE OF DELIVERY AND BREASTFEEDING IN THE FIRST HOUR OF LIFE?

Existe relação da via de parto com a amamentação na primeira hora de vida?

¿Hay relación entre la vía de parto y el amamantamiento en la primera hora de vida?

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ABSTRACT

Objective: To investigate the relation between mode of delivery, sociodemographic factors and breastfeeding. **Methods:** A quantitative, cross-sectional and descriptive study, carried out with mothers of children aged 0 to 2 years seen at health units during a vaccination campaign in a city in the South of Brazil in June 2013. Participants were 905 women, divided into two groups, according to the delivery method: vaginal delivery group (n=334) and cesarean section group (n=571). They answered a questionnaire comprising sociodemographic information (age, color, schooling, marital status, social class and area of residence) and breastfeeding-related data, such as duration of exclusive breastfeeding, breastfeeding in the first hour of life, and breastfeeding success. Z-Test was applied for independent samples of parametric variables and Kolmogorov-Smirnov Z-Test was used for non-parametric variables, with significance level at p=0.05. **Results:** The vaginal delivery group was white (n=210, 62.87%), with a stable union (n=124, 37.13%), elementary school (n=177, 52.99%), social grade C1 (n=114; 34.13%) and resident in the urban area (n=321; 96.11%). C-section group consisted of white women (n=439, 76.88%), married (n=316, 55.34%), high school graduates (n=223, 39.05%), social grade B2 (n=184; 32.22%) and residents in the urban area (n=544, 95.27%). Breastfeeding in the first hour of life predominated in the vaginal delivery group (n=265; 79.34%), with a significant difference (p≤0.001). **Conclusion:** In the studied group, the mode of delivery was associated to breastfeeding in the first hour of life, and to maternal age, skin color, schooling and social class as well.

Descriptors: Childbirth; Breastfeeding; Demographic Data.

RESUMO

Objetivo: Investigar a relação da via de parto com fatores sociodemográficos e amamentação. Métodos: Pesquisa quantitativa, transversal e descritiva, realizada com mães de crianças de 0 a 2 anos que acessaram unidades de saúde em uma campanha de vacinação em uma cidade no Sul do Brasil, em junho de 2013. Participaram 905 mulheres, divididas em dois grupos, conforme via de parto: grupo parto vaginal (n=334) e grupo cirurgia cesariana (n=571). Responderam a um questionário contendo informações sociodemográficas (idade, cor, escolaridade, situação conjugal, classe social e área de residência) e relacionadas à amamentação, como tempo de aleitamento materno exclusivo, amamentação na primeira hora de vida e sucesso da amamentação. Utilizou-se Teste Z para amostras independentes de variáveis paramétricas e Teste Z de Kolmogorov-Smirnov quando não-paramétricas, com nível de significância p=0,05. Resultados: O grupo parto vaginal era de cor branca (n=210; 62,87%), com união estável (n=124; 37,13%), ensino fundamental (n=177; 52,99%), da classe social C1 (n=114; 34,13%) e residente na área urbana (n=321; 96,11%). O grupo cirurgia cesariana constituiu-se de mulheres brancas (n=439; 76,88%), casadas (n=316; 55,34%), com ensino médio (n=223; 39,05%), da classe social B2 (n=184; 32,22%) e residentes na área urbana

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(n=544; 95,27%). O aleitamento materno na primeira hora de vida predominou no grupo parto vaginal (n=265; 79,34%), com diferença significativa (p≤0,001). **Conclusão:** <mark>A via de parto possuiu relação com amamentação na primeira hora de vida no grupo estudado, bem como com a idade, a cor da pele, a escolaridade e a classe social maternas.</mark>

Descritores: Parto; Aleitamento materno; Dados Demográficos.

RESUMEN

Objetivo: *Investigar la relación entre la vía de parto con los factores sociodemográficos y el amamantamiento.* **Métodos:** *Investigación cuantitativa, transversal y descriptiva realizada con madres de niños entre 0 y 2 años que acudieron a unidades básicas de salud en una campaña de vacunación de una ciudad del Sur de Brasil en junio de 2013. Participaron 905 mujeres divididas en dos grupos según la vía del parto: grupo parto vaginal (n=334) y grupo cirugía cesárea (n=571). Las mujeres contestaron un cuestionario con informaciones sociodemográficas (edad, color, escolaridad, situación conyugal, clase social y zona de vivienda) y las relacionadas con el amamantamiento como el tiempo de amamantamiento materno exclusivo, amamantamiento en la primera hora de vida y el éxito del amamantamiento. Se utilizó el test Z para muestras independientes de las variables paramétricas y el test Z de Kolmogorov-Smirnov para las no paramétricas con nivel de significación de p=0,05.* **Resultados:** *El grupo parto vaginal era de color blanco (n=210; 62,87%), parejas de hecho (n=124; 37,13%), con educación primaria (n=177; 52,99%), de la clase social C1 (n=114; 34,13%) y residente del área urbana (n=321; 96,11%). El grupo cirugía cesárea se ha constituido de mujeres blancas (n=439; 76,88%), casadas (n=316; 55,34%), con educación secundaria (n=223; 39,05%), de la clase social B2 (n=184; 32,22%) y residentes del área urbana (n=544; 95,27%). El amamantamiento materno en la primera hora de vida ha predominado en el grupo parto vaginal (n=265; 79,34%) con diferencia significativa (p≤0,001).* **Conclusión:** *La vía del parto tiene relación con el amamantamiento en la primera hora de vida en el grupo investigado así como con la edad, el color de la piel, la escolaridad y la clase social maternas.*

Descriptores: Parto; Lactancia Materna; Dados Demográficos.

INTRODUCTION

The mode of child delivery is a decision to be made jointly by the woman and the doctor, being based on the preference but, mainly, on the needs of the parturient. In this sense, opting for vaginal delivery is often due to its lower risk of complications and rapid recovery. In contrast, the option for a cesarean section occurs because it is faster, painless, and following a medical recommendation[1].

In Brazil, in 2015, C-sections rates fell by 1.5 percentage points in the country. This is the first time this procedure has experienced a decrease since 2010[2]. Before 2015, Brazil had a significant increase in the number of cesarean sections, reaching more than 50% of the total number of births, which made the country the world leader in this type of surgery[3].

The high national rates of cesarean sections can be particularly explained by the individual convergence of the professionals when choosing the mode of child delivery, by the sociodemographic and cultural characteristics of the woman, and by the characteristics of prenatal care[4].

<mark>It is known that, because the cesarean section is a surgical procedure, it can cause serious maternal complications, being indicated only when necessary. Moreover, this mode of delivery also brings consequences for the newborn, increasing the chances of iatrogenic prematurity and hospitalization in neonatal intensive care centers[5]. There are also studies suggesting that the cesarean section is associated with interference with breastfeeding in the first hour of life[6,7].</mark>

The first 60 minutes of the baby's post-natal life, called golden hour, represent the period in which interventions are performed to minimize neonatal complications[8]. Among such interventions, the skin-to-skin contact and breastfeeding in the first hour of life promote a mother-baby bond and stimulate the child's sucking reflex[9]. Thus, measures to promote breastfeeding and skin-to-skin contact in the first hour of life are necessary for a higher neonatal survival rate and lower rates of early weaning[10].

On the other hand, the cesarean section is referred to as a negative factor with regard to breastfeeding, <mark>being related to early weaning and shorter exclusive breastfeeding (EBF) duration[11].</mark>

Considering the role of the obstetric team in promoting the health of the mother-baby binomial, it is of fundamental importance to know the relationship between mode of delivery and breastfeeding, aiming at implementing adequate strategies for each method of child delivery, in order to guarantee the success of breastfeeding. As for the sociodemographic factors and breastfeeding, the relation of such characteristics to the mode of delivery is little explored. Thus, the objective of this study was to investigate the relationship between mode of delivery, sociodemographic factors and breastfeeding.

METHODS

This is a quantitative, cross-sectional research with an exploratory and descriptive approach, developed jointly with Basic

Health Units and Family Health Strategy Units, comprising 24 Primary Health Care services (out of a total of 32) of a city in the South region of Brazil.

Data collection took place on the days of the polio vaccination campaign in 2013, carried out by the Municipal Health Surveillance in partnership with the Ministry of Health. The study included women, mothers of children aged 0-2 years, residents of the city where the survey was conducted, who attended the Health Units and mobile units of the municipality on campaign days.

A standardized and pre-coded adapted questionnaire[12] was applied by the researcher to the mothers after the child's vaccination.

This study explored the questionnaire variables concerning the mode of delivery; the sociodemographic factors of the mother, such as age, skin color, schooling, marital status, social class[13] and area of residence; and the breastfeeding-related factors, such as breastfeeding in the first hour of life, success in breastfeeding and duration of EBF (in months).

The mode of delivery (vaginal or cesarean section) was considered as the outcome variable, and a successful breastfeeding was understood as the EBF lasting for at least six months, as recommended by the WHO[14].

The following parameters were used to calculate the sample size for the EBF outcome: 95% confidence interval (CI), 80% power, 34% prevalence of EBF, according to a survey conducted by the municipality on the occasion of the II Assessment of Prevalence of Breastfeeding in Brazilian capitals and the Federal District[12], and RR 1:2, thus resulting in a sample size of 1,015 mothers.

After reviewing and coding the data, it was double-digitized and then compared. Data analysis involved descriptive statistics procedures and bivariate analyses for control of potential confounding factors. For analysis of the normality of the data, the Kolmogorov-Smirnov test was used. After that, the chi-square test was used for comparisons between groups in relation to the categorical variables. For comparison between means, independent samples were evaluated by means of Z Test, when the variables were parametric, and with use of the Kolmogorov-Smirnov Z Test, when they were non-parametric. The significance level of 0.05 was adopted for all tests and analyses were performed using SPSS software, version 15.0.

The evaluations were only carried out after acceptance and signing of the Informed Consent Term (ICT), in compliance with Resolution no. 466/2012 of the National Health Council. This research was approved by the Committee for Ethics in Research on Human Beings of the Federal University of Santa Maria, under Approval no. 129.893.

RESULTS

Of 1,015 mothers that were evaluated, 110 were excluded for not responding to the research instrument in its entirety, leaving 905 participants. These were divided into groups according to the mode of delivery: vaginal delivery (VD) group and cesarean section (CS) group. The number of VD participants was 334 (36.91%), whereas CS had 571 (63.09%) participants.

The sociodemographic data of the participants are presented in Table I, emphasizing that the mean age of the CS group was higher than that of the VD.

Most of the VD women were white (n=210, 62.87%), in a stable union (n=124; 37.13%), with schooling up to elementary school (n=177; 52.99%), belonging to social grade C1 (n=114; 34.13%) and living in the urban area (n=321, 96.11%). On the other hand, the CS was mainly composed of white women (n=439, 76.88%), married (n=316, 55.34%), high school graduates (n=223, 39.05%), social grade B2 (n=184, 32.22%) and urban residents (n=544, 95.27%) (Table I).

The analysis of the data showed differences between the groups as regards the maternal age, skin color, schooling and social class of the mother (p≤0.001). Conversely, the marital status and the area of residence of the mother did not appear to be related to the mode of child delivery.

In the analysis of the relationship between breastfeeding and the mode of child delivery, a significant difference was found only for breastfeeding in the first hour of life (p≤0.001), as shown in Table II. This was demonstrated by a higher number of newborns being breastfed in the first hour among VD mothers compared to CS mothers. With respect to the variables "breastfeeding success" (considering so when the EBF lasts for six months of the baby's life) and "duration of EBF", no association with mode of delivery was found and, in both groups, low breastfeeding success rates and low mean EBF duration were found.

DISCUSSION

The study in question presented a high C-section rate (63.09%) in relation to vaginal delivery. Similar data was found in other study conducted in the South region, whose findings demonstrated that more than 60% of the child deliveries performed in Santa Catarina in 2012 were via cesarean section[15].

Differently from other countries such as the United States and Italy, where c-section rates remain around 30%[16], Brazil has rates above 50%[3]. The high rates of cesarean section are more noticeable in less developed countries such as Brazil, where cultural, sociodemographic and economic factors interfere in the choice of the mode of delivery[16]. Thus, it is important to highlight the high rates of maternal and neonatal morbidity and mortality brought to the health system by c-sections[17,18].

Table I - Sociodemographic characterization of the interviewed mothers according to the mode of child delivery. Santa Maria, Rio Grande do Sul, Brazil, 2013.

Sociodemographic characterization	VD (n=334)	CS (n=571)	p^*
Age (years) Mean (SD)	26.51±7.45	29.27±6.55	0.001**
Color	**n (%)**	**n (%)**	
White	210 (62.87)	439 (76.88)	
Brown	69 (20.66)	68 (11.91)	
Black	47 (14.07)	44 (7.71)	0.001**
Yellow	3 (0.90)	6 (1.05)	
Indigenous	2 (0.60)	4 (0.70)	
Level of education	**n (%)**	**n (%)**	
No schooling	2 (0.60)	2 (0.35)	
Elementary School	177 (52.99)	135 (23.64)	
High school	118 (35.33)	223 (39.05)	0.001**
Incomplete higher education	14 (4.19)	64 (11.21)	
Complete higher education	17 (5.09)	142 (24.87)	
Marital status	**n (%)**	**n (%)**	
Stable union	124 (37.13)	154 (26.97)	
Married	113 (33.83)	316 (55.34)	
Single	85 (25.45)	85 (14.89)	
Separated	10 (2.99)	13 (2.28)	0.600
Widow	2 (0.60)	2 (0.35)	
Social class	**n (%)**	**n (%)**	
Social grade A1	0 (0)	4 (0.70)	
Social grade A2	2 (0.60)	45 (7.88)	
Social grade B1	14 (4.19)	95 (16.64)	
Social grade B2	79 (23.65)	184 (32.22)	0.001**
Social grade C1	114 (31.43)	129 (22.59)	
Social grade C2	94 (28.14)	79 (13.84)	
Social grade D	26 (7.78)	29 (5.08)	
Social grade E	4 (1.20)	3 (0.53)	
Area of residence	**n (%)**	**n (%)**	
Urban	321 (96.11)	544 (95.27)	0.564
Rural	12 (3.59)	25 (4.38)	

Variables presented as Mean ± standard deviation (SD), or n = absolute number and % = frequency. VD: vaginal delivery group; CS: Cesarean section group. *Z test. **$p \le 0.05$.

Table II - Analysis of breastfeeding-related factors according to the mode of child delivery. Santa Maria, Rio Grande do Sul, Brazil, 2013.

Breastfeeding-related factors	VD	CS	p^*
Breastfeeding in the first hour of life	265 (79.34)	397 (69.53)	0.001*
Breastfeeding success**	86 (25.75)	158 (27.57)	0.438
Duration of EBF (months)***	3.14±3.19	3.22±3.27	0.889

Variables presented as Mean ± SD, or n (%). VD: Vaginal delivery group. CS: cesarean section group. EBF: exclusive breastfeeding. *$p \le 0.05$; **Breastfeeding is deemed successful when EBF lasts for six months of the baby's life; ***Z test.

In the present study, some variables seem to influence the decision-making regarding the mode of delivery, as seen in a study on the association between the mode of delivery and temporal and sociodemographic variables in Brazilian women, which observed that the c-section rate is lower among younger mothers with low schooling, but increases with age and years of study[17]. Such results are similar to those found in the present study, since the mean age was 26.51 years among VD women. Even though the mean age of the mothers in the current study is not so young, VD and CS groups had a significant difference as for the type of delivery, and they are therefore regarded here as "young mothers".

As for schooling, it was observed in the current investigation that, the lower its level, the greater the probability of vaginal delivery. In VD, more than 50% of the mothers studied only up to elementary school, whereas in CS there was a predominance of women who had completed high school or higher education. Other aspects under analysis, the marital status and the area of residence, did not show any relation with the mode of delivery. It was observed that the mothers in the CS group have higher schooling and income. There was a higher prevalence of women belonging to the social grade B2 in the group that underwent cesarean sections and a higher prevalence of women of social grade C1 in vaginal deliveries. According to the literature, c-sections rate increases with age and family income. This may be related to giving birth in private hospitals, which show higher c-section rates when compared to public hospitals[19].

Similar data to the current research was found in a Brazilian study, which observed that cesarean section was more strongly associated with better socioeconomic conditions, level of education and skin color (white) of the woman in puerperium, indicating that the clearer the color of the skin and the better the socioeconomic level, the greater the proportion of the surgical procedure[19]. In regard to the skin color, the study in question did not observe differences, since, in both groups, the mothers were predominantly of the white race. In contrast, in the United States, for example, white women with a higher socioeconomic level undergo vaginal delivery most frequently[20]. Thus, when the woman can decide about the mode of delivery, the discrepancy in c-section rates between Brazil and the United States may reveal the influence of factors other than only skin color and socioeconomic level, with inclusion of biological issues, cultural and social factors among those that influence the choice of the methods of childbirth.

As for the breastfeeding factors investigated in the present study, only breastfeeding in the first hour of life showed an association with the mode of delivery, and it was verified that almost 80% of VD mothers breastfed within the first hour, whereas in the CS group only 69.53% managed to do so. One of the explanations for such phenomenon may be the delay in skin-to-skin contact between mother and baby, and the occurrence of neonatal complications before or during the c-section[7,11], which would also interfere with breastfeeding in the first hour of life.

A study conducted in public hospitals of Rio de Janeiro, with 673 women undergoing puerperium, concluded that vaginal delivery had a protective effect against delayed breastfeeding initiation, compared to cesarean section[21].

In vaginal delivery, the direct contact between the mother and the baby in the first few minutes after birth contributes to the mother's recognition by the newborn, which indicates that the child is ready to breastfeed[7,22]. C-section may represent a barrier to the initiation of breastfeeding, since the contact between mother and baby is delayed due to postoperative care[21,23].

The mode of delivery, in turn, in the current study, did not seem to be related to the duration of EBF and the success of breastfeeding. It is known, however, that the duration of EBF and the success of breastfeeding are influenced by several factors[11], which may have overlapped the data investigated in the research. Therefore, one should emphasize the importance of health strategies aimed at promoting breastfeeding and skin-to-skin contact between mother and baby in the first hour after childbirth, in order to favor mother-child bonding and increase the chances of neonatal survival[10].

This study presented as a limitation the cross-sectional design, since some aspects could be obtained with greater reliability by means of a prospective follow-up. Memory bias may also have occurred while the participants responded to the research instrument.

It is recommended that further studies with a longitudinal design be carried out addressing the relation between the mode of delivery and the factors investigated, which may contribute to a better understanding of the subject.

CONCLUSION

The findings of this research allow us to infer that breastfeeding in the first hour of life is related to the mode of delivery observed in the studied group. Furthermore, the women who underwent C-section were predominantly married, with a high educational level and a higher social class when compared to those who had a vaginal delivery.

CONFLICTS OF INTEREST

The authors report that there were no conflicts of interest.

CONTRIBUTIONS

Guilherme Tavares de Arruda, Sabrina Cabreira Barreto, Vanessa Lago Morin, Melissa Medeiros Braz, Hedioneia Maria Foletto Pivetta participated in the elaboration of the research idea, data collection and final writing of the article. **Gustavo do Nascimento Petter** participated in the elaboration of the research idea, statistical analysis and final writing of the article.

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