

Incidence of exclusive breastfeeding: influence of care received during hospitalization for birth



Incidência do aleitamento materno exclusivo: influência da assistência recebida durante a internação por nascimento

Incidencia de la lactancia materna exclusiva: influencia de la asistencia recibida durante la hospitalización por parto

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ABSTRACT

Objective: Identify the incidence of exclusive breastfeeding in the sixth month of life and associated factors according to care received during hospitalization for birth.

Method: A prospective cohort study was conducted in two hospitals (A and B) in Guarapuava, Paraná, Brazil, with 291 pregnant women/puerperal women. Data collection was performed in four moments through interviews and the completion of questionnaires. The outcome variable was the duration of exclusive breastfeeding, while the independent variables were the characteristics of the care received during hospitalization for birth. The proportion difference test was used, with presentation of relative risk.

Results: The incidence of exclusive breastfeeding in the sixth month of the newborn in hospital A and B was 13.8% and 13.0%, respectively. The absence of formula supplementation to the newborn showed a significant association of protection to exclusive breastfeeding. The lack of guidance on breastfeeding techniques and late initiation of breastfeeding showed a significant association for the interruption of exclusive breastfeeding.

Conclusion: The care received during hospitalization for birth was associated with the duration of exclusive breastfeeding. It reinforces the implementation of intra-hospital strategies that promote exclusive breastfeeding, aiming at increasing its rates and favoring maternal and child health.

Descriptors: Breastfeeding; Joint Housing; Nursing.

RESUMO

Objetivo: Identificar a incidência do aleitamento materno exclusivo no sexto mês de vida e fatores associados segundo assistência recebida durante a internação por motivo de nascimento.

Método: Estudo de coorte prospectiva, realizado em dois hospitais (A e B) de Guarapuava, Paraná, Brasil, com 291 gestantes/puerperas. A coleta de dados foi realizada em quatro momentos por meio de entrevistas e o preenchimento de questionários. A variável desfecho foi o tempo de aleitamento materno exclusivo, enquanto as variáveis independentes foram as características da assistência recebida durante a internação para o nascimento. Utilizou-se o teste de diferença de proporções, com a apresentação do risco relativo.

Resultados: A incidência de aleitamento materno exclusivo no sexto mês de vida do recém-nascido no hospital A e B foi de 13,8% e 13,0%, respectivamente. A ausência da oferta de fórmula ao recém-nascido apresentou associação significativa de proteção ao aleitamento materno exclusivo. A falta de orientação sobre a técnica de aleitamento materno e o início tardio da amamentação apresentaram associação significativa para a interrupção do aleitamento materno exclusivo.

Conclusão: A assistência recebida durante a internação para o nascimento mostrou-se associada à duração do aleitamento materno exclusivo. Reforça-se a implementação de estratégias intra-hospitalares que promovam a amamentação exclusiva, aumentando seus índices e favorecendo a saúde materno-infantil.

Descritores: Aleitamento Materno; Alojamento Conjunto; Enfermagem.

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RESUMEN

Objetivo: Identificar la incidencia de lactancia materna exclusiva en el sexto mes de vida y factores asociados según la asistencia recibida durante la hospitalización por el parto.

Método: Estudio de cohorte prospectivo realizado en dos hospitales (A y B) de Guarapuava, Paraná, Brasil, con 291 gestantes/púerperas. La recolección de datos se realizó en cuatro momentos a través de entrevistas y la cumplimentación de cuestionarios. La variable de resultado fue la duración de la lactancia materna exclusiva, mientras que las variables independientes fueron las características de la asistencia ofrecida durante la hospitalización para el parto. Se utilizó la prueba de diferencia de proporciones, con presentación de riesgo relativo.

Resultados: La incidencia de lactancia materna exclusiva en el sexto mes de vida del recién nacido en los hospitales en el hospital A y B fue de 13,8% y 13,0%, respectivamente. La ausencia de la oferta de fórmula al recién nacido presentó asociación significativa de protección a la lactancia materna exclusiva. La falta de orientación sobre la técnica de lactancia materna y el inicio tardío de la lactancia presentaron asociación significativa para la interrupción de la lactancia materna exclusiva.

Conclusión: La asistencia brindada durante la hospitalización por el parto se asoció con la duración de la lactancia materna exclusiva. Se refuerza la implementación de estrategias intrahospitalarias que promuevan la lactancia materna exclusiva, aumentando sus índices y favoreciendo la salud materno-infantil.

Descriptores: Lactancia Materna; Alojamiento Conjunto; Enfermería.

■ INTRODUCTION

Exclusive breastfeeding (EBF) until the sixth month of life is recommended by the World Health Organization (WHO) due to its positive influence on the healthy growth and development of newborns (NB). Beyond providing essential nutrients to nutrients, breast milk (BM) contains several bioactive components (e.g., oligo-saccharides and antibodies from human milk) that provide passive immunity to the baby and/or the healthy development of the immune system⁽¹⁾. The benefits of breastfeeding (BF) for lactating women include a reduced risk of breast and ovarian cancer and the lower likelihood of developing type 2 diabetes mellitus⁽²⁾.

Despite the numerous benefits of exclusive breastfeeding, the rates are still below the recommended level. The global target set by the WHO and the United Nations Children's Fund (UNICEF) for 2030 is 70% for EBF⁽³⁾. However, according to preliminary results from the National Study on Infant Food and Nutrition (*Estudo Nacional de Alimentação e Nutrição Infantil* - ENANI) in 2019 and 2020, the prevalence of EBF until the sixth month of a child's life in Brazil was 45.7%, being less frequent in the Northeast region (38.0%)⁽⁴⁾. Isolated studies, however, may present even lower rates. In a region of Paraná, an investigation conducted with lactating women in 2018 showed that the prevalence of EBF was 7.9%⁽⁵⁾.

Given these results, numerous strategies have been developed to promote and support BF. One of them is the Baby-Friendly Hospital Initiative (*Iniciativa Hospital Amigo da Criança*), a hospital strategy launched in 1991 by the WHO and UNICEF, with the aim of improving breastfeeding initiation, duration, and exclusivity rates.

The strategy summarizes ten key activities that are essential in protecting against barriers to breastfeeding, encompassing issues within the institution, such as having a breastfeeding policy, technical training aimed at healthcare professionals, and community outreach that addresses issues related to the mother and/or baby⁽⁶⁾.

Another fundamental strategy for supporting BF is the creation and expansion of Human Milk Banks (HMB). These facilities have played an important role in assisting nursing mothers, by promoting, protecting, and supporting BF. They provide support to women who have difficulties in breastfeeding, as well as collecting, processing, and controlling the quality of milk. The activities developed by HMB are sources of guidance on clinical breastfeeding management. Thus, pregnant and lactating women consider these units as reference centers for breastfeeding⁽⁷⁾.

In this sense, the support of healthcare professionals is essential to foster the adherence to and maintenance of EBF. However, guidance provided by the healthcare team is often superficial, and care may be influenced by a lack of training in breastfeeding management, contributing to early weaning⁽³⁾. Insufficient knowledge about lactation management and the factors that negatively impact breastfeeding practices encourage fragmented breastfeeding, failing to encompass comprehensive care for the mother-child binomial⁽⁵⁾.

Nurses use several strategies to promote, protect and support EBF, which include guidance through support groups and home visits, as well as reinforcing the importance of family and professional training as key points for the success of this practice. Therefore, professionals should not restrict their guidance to

the advantages and benefits of BF, but rather focus on integrating and strengthening the entire support network for women, which can enhance maternal self-confidence in breastfeeding⁽⁸⁾.

In addition to promoting sustainability and reducing social inequalities, promoting EBF is directly aligned with the Sustainable Development Goals (SDG)⁽¹⁾. BF has a direct impact on the first (No Poverty), second (Zero Hunger) and third sustainable goals (Good Health and Well-Being), reflecting on the maintenance of maternal and child health, gender equality and women's empowerment. The effect of breastfeeding on intelligence and human capital is also relevant for the fourth (Quality Education) and eighth goals (Decent Work and Economic Growth). Finally, by helping to reduce the gap between rich and poor, breastfeeding can contribute to the tenth goal (Reduced Inequalities)⁽²⁾.

Therefore, a better understanding of the support and assistance provided during hospitalization for birth can help identify possible problems in maintaining EBF and promote early intervention and referral. Thus, this study not only contributes to improving breastfeeding practices but also supports the achievement of the SDGs by 2030.

The objective of this study was to identify the incidence of exclusive breastfeeding in the sixth month of life and associated factors based on the care received during hospitalization for childbirth.

■ METHOD

This research is part of the multicenter project entitled: "Exclusive Breastfeeding: sociocultural determinants in Latin America". It is a prospective cohort study conducted with pregnant/puerperal women registered in basic health units (BHU) in the city of Guarapuava, Paraná.

The municipality has three general hospitals. Two of them are referral hospitals for childbirth, designated to in this study as hospital A and hospital B. Both hospitals are medium-sized, philanthropic, and do not have the Baby-Friendly Hospital Initiative (BFHI) title. Hospital A, located in the central area of the municipality, has 29 obstetric beds and one HMB. Hospital B, which does not have an HMB, is also located in the central area and has 31 obstetric beds.

The study included pregnant women with gestational age (GA) from the 30th week onwards, aged over 18 years, and who had attended at least three prenatal consultations. To continue the research, the participant needed to have attended a postpartum consultation. The non-inclusion criteria were situations that prevented breastfeeding, such as drug use and HIV (Human Immunodeficiency Virus) diagnosis. Participants were considered lost to follow-up if they were absent on three different data collection attempts, changed addresses, or in cases of stillbirth or neonatal death.

The inclusion period for participants was from July 2021 to June 2022, with follow-up until December of the respective year. Data collection took place in four stages: recruitment during the gestational period; the second, third and fourth stages were conducted one, three and six months after birth, respectively. It is worth noting that during data collection, all necessary precautions were taken, including maintaining 1.5m between the interviewer and the participant, use of masks and using hand sanitizer.

A non-probabilistic, convenience sampling method was chosen, considering the ease of locating the BHU. The sample was calculated considering the records of 1,146 pregnant women registered at the municipality's BHU in July 2021, with a power of 80%, a sampling error of 5%, and a significance level of 95%, totaling 288 participants. This total was increased by 20% for potential losses, reaching 345 pregnant women. However, 354 participants were interviewed in the initial recruitment phase.

Of the 354 initially included pregnant women, and considering losses during follow-up (Figure 1), the final sample comprised 291 participants. The losses during data collection occurred due to a change of address or city (n=29), absence during three consecutive data collection attempts (n=20), and cases of stillbirth or neonatal death (n=3). The questionnaires that were incomplete (n=11) were due to the interviewers not completing one or more pieces of information.

Using the list of pregnant women and their respective residential addresses provided by the BHU, with the support of community health agents, the first contact was made, and the follow-up was conducted at their homes. Data collection was carried out using questionnaires, previously developed and validated in the

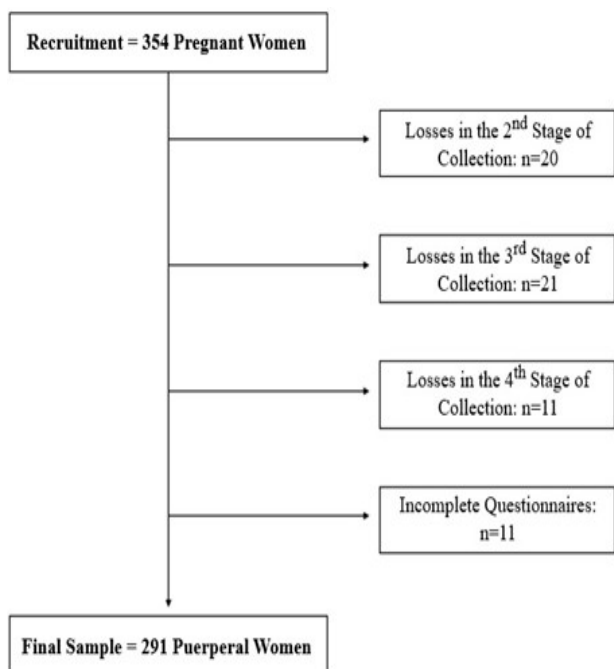


Figure 1 – Flowchart of the final study sample selection process. Guarapuava, PR, Brazil, 2024
Source: Research data, 2024

multicenter study. The first questionnaire was applied during recruitment to collect sociodemographic data. In the second meeting, one month after birth, three instruments were applied: one regarding obstetric and neonatal data, another with information about the

experience in the hospital setting and the perception of support from professionals regarding BF practices (Chart 1).

The questionnaire addressing the practice of BF, identifying the interruption or maintenance of EBF, was applied in the first, third and sixth months after birth. It is worth mentioning that all questionnaires underwent a pilot test, to obtain a better understanding of the instruments for organizing and planning the time for data collection.

All data collection was conducted through home visits, by five undergraduate nursing students in their final year and two postgraduate students in a *strictu sensu* program, duly trained on the objectives of the research, the importance and the role of the interviewer, presentation of the instruments used and on the ethical aspects of the research. The training sessions lasted approximately four hours. After the training, a new pilot test was carried out with the interviewers to facilitate the application of the research instruments, as well as to detect possible problems that could arise during data collection.

For analysis purposes, the concept proposed by the WHO for EBF was considered, defined as when the child receives only BM directly from the breast or expressed, or human milk from another source, without the provision of other liquids or solids, except for drops

Chart 1 – Experience in the hospital and perception of support received. Guarapuava, PR, Brazil, 2024.

Please tell us about your experience in the hospital during your baby's birth and your perception of the support received.	
1. Before my baby was born, someone at the hospital talked to me about how to breastfeed and why.	() Yes () No
2. The hospital staff are specialized in breastfeeding and support mothers who want to breastfeed.	() Yes () No
3. Someone at the hospital showed me different techniques on how to breastfeed my baby.	() Yes () No
4. The hospital staff instructed me to give my baby breast milk without replacing it with other liquids, bottles or pacifiers.	() Yes () No
5. At least once during my hospital stay, someone at the hospital supervised my baby's breastfeeding.	() Yes () No
6. The hospital staff recommended that I breastfeed my baby whenever he/she requested it.	() Yes () No

Please tell us about your experience in the hospital during your baby's birth and your perception of the support received.	
7. Immediately after birth, my baby and I had skin-to-skin contact.	☐ Yes ☐ No
8. I breastfed my baby for the first time:	☐ < 30 min. after birth. ☐ 30 min. to 1 hour after birth. ☐ > 1 hour after birth.
9. The hospital staff gave formula to my baby.	☐ Yes ☐ No
10. My baby and I were in the same room during my hospital stay and were not separated for more than 1 hour per day.	☐ Yes ☐ No
11. The hospital staff gave bottles or pacifiers to my baby.	☐ Yes ☐ No
12. When I was discharged from the hospital, they gave me formula, bottles, or pacifiers to take home.	☐ Yes ☐ No
13. When I was discharged from the hospital, they told me I would need a follow-up visit and helped me schedule it.	☐ Yes ☐ No
14. When I left the hospital, they gave me information about support groups for breastfeeding mothers.	☐ Yes ☐ No
15. Before or during my hospital stay, I saw or read a written policy about breastfeeding in the hospital.	☐ Yes ☐ No
16. I believe this hospital improved my breastfeeding experience.	☐ Yes ☐ No

Source: Research data, 2024

or syrups containing vitamins, oral rehydration salts, mineral supplements, or medications⁽¹⁾.

From the manually completed instruments, double data entry was performed to verify possible inconsistencies and typing errors. Data processing and analysis were performed using the Statistical Package for the Social Sciences (SPSS, version 21.0).

For the evaluation of categorical variables (education level, ethnicity, family income, marital status, employment, smoking habits, alcohol consumption, planned pregnancy, number of pregnancies, delivery method, high-risk pregnancy, delivery complications, and sex of the NB), the absolute and relative frequencies were

calculated and the respective distributions constructed. For continuous variables (age, gestational age, number of prenatal consultations and birth weight), measures of central tendency (mean and standard deviation) were calculated).

It should be noted that the family income category used in this study was based on the participants' subjective perception of their financial conditions, with the following response options: less than the needs, sufficient for needs and more than the needs. The reference for "needs" is linked to the family's basic and essential expenses, such as food, housing, health and education.

The incidence of EBF was calculated six months after birth and was considered the dependent variable of this study. To compare the incidence of EBF, the difference in proportions test (Fisher's exact test or Pearson's chi-square test and the likelihood ratio test) was used, with the presentation of the relative risk (RR) and 95% confidence interval (95%CI). The Kolmogorov-Smirnov test was used to verify data normality.

The study was approved by the Research Ethics Committee of the *Universidade Estadual de Maringá* and received the Certificate of Presentation for Ethical Assessment (CAAE) number 46720921.3.0000.0104, on 05/27/2021. The participants were informed about the objectives of the study and signed the Informed Consent Form (ICF).

■ RESULTS

Of the 354 women recruited, the mean age of the mothers was 27 years (SD+6.2), of which 45.2% had complete high school and the majority was identified as white (57.3%). Most participants reported that their income was sufficient for basic needs (69.8%), 85.9% had a partner and 65.8% were not employed. Most reported not smoking (85.0%) and not having consumed alcohol in the last three months (91.0%) (Table 1).

Table 2 describes the obstetric and neonatal characteristics of the study participants, with data collected in the first month after birth. The average GA was 38.6 weeks (SD+1.7) and the pregnancy was unplanned (59.3%). Most pregnant women were multiparous (66.8%), with an average of 11 prenatal consultations (SD+3.3) and reported having had a cesarean section (54.5%). Most pregnancies were classified as low-risk (54.2%) and had no complications during delivery (82.6%). Regarding newborns, the majority were male (51.2%) and had a birth weight of 3,177 grams (SD+442.4).

The incidence of EBF decreased over time in both hospitals. Hospital A had an EBF incidence of 72.2%, 38.7%, and 13.8% in the first, third, and sixth months of follow-up, respectively, while in hospital B the rate was 67.8%, 34.9%, and 13.0%, referring to the same evaluation periods. Regarding the hospital experience with EBF (Table 3), in hospital A, the lack of formula feeding provided to the newborn showed a significant association with protection against EBF (RR=0.09; CI=0.01-0.67). In hospital B, the lack of guidance on the BF technique (RR=5.25; CI=2.2-12.5) showed a significant association with EBF discontinuation. Early initiation of BF within 30 minutes (RR=3.95; CI=1.51-10.3) and between 30 and 60 minutes (RR=1.37; CI=0.37-5.13) after birth was a predictor for EBF maintenance, compared to babies

Table 1 – Sociodemographic characterization of pregnant women recruited with gestational age from 30 weeks, age > 18 years, who attended at least three prenatal consultations. Guarapuava, Paraná, Brazil, 2024 (n=354)

Variables	Frequencies	
	n	%
Education level		
Incomplete Elementary School	95	26.8
Complete Elementary School	28	7.9
Incomplete High School	58	16.4
Complete High School	102	28.8
Incomplete Higher Education	26	7.3
Complete Higher Education	45	12.7

Table 1 – Cont.

Variables	Frequencies	
	n	%
Race/Color		
White	203	57.3
Brown	130	36.7
Black	16	4.5
Yellow	4	1.1
Indigenous	1	0.3
Family Income		
Less than Needs	87	24.6
Sufficient for Needs	247	69.8
More than Needs	20	5.6
Marital Status		
With Partner*	304	85.9
Without Partner**	50	14.1
Employed		
Yes	121	34.2
No	233	65.8
Smoking		
Yes	53	15.0
No	301	85.0
Alcohol Consumption		
Yes	32	9.0
No	322	91.0

*Includes married women or those in a stable union

**Includes single, divorced, and widowed women

Source: Research data, 2024

Table 2 – Obstetric and neonatal characteristics of mothers and newborns. Guarapuava, Paraná, Brazil, 2024

Variables	Frequencies	
	n	%
Planned Pregnancy (n=354)		
Yes	144	40.7
No	210	59.3
Pregnancies (n=334)		
Primiparous	111	33.2
Multiparous	223	66.8
Delivery Method (n=334)		
Vaginal	152	45.5
Cesarean	182	54.5
High-Risk Pregnancy (n=334)		
Yes	153	45.8
No	181	54.2
Delivery Complications (n=334)		
Yes	58	17.4
No	276	82.6
NB Sex (n=334)		
Female	163	48.8
Male	171	51.2

NB = newborn
Source: Research data, 2024

Table 3 – Experience, perception of support received and association with exclusive breastfeeding in two hospitals (A and B) in Guarapuava, Paraná, Brazil, 2024

Hospital A					Hospital B			
Variable	EBF (n=160)		p-value	RR (95% CI)	EBF (n=131)		p-value	RR (95% CI)
	Yes n(%)	No n(%)			Yes n(%)	No n(%)		
Chat about BF								
Yes	5 (8.8)	52 (91.2)			3 (9.7)	28 (90.3)		
No	17 (16.5)	86 (83.5)	0.232*	0.53 (0.21 -1.36)	14 (14.0)	86 (86.0)	0.761*	0.69 (0.21-2.25)
Specialist EBF team								
Yes	19 (14.8)	109 (85.2)			9 (11.8)	67 (88.2)		
No	3 (9.4)	29 (90.6)	0.571*	1.58 (0.50-5.02)	8 (14.5)	47 (85.5)	0.650 [†]	0.81 (0.33-1.98)
BF Technique								
Yes	7 (12.7)	48 (87.3)			10 (35.7)	18 (64.3)		
No	15 (14.3)	90 (85.7)	0.786 [†]	0.89 (0.39-2.05)	7 (6.8)	96 (93.2)	0.000[†]	5.25 (2.2-12.5)
EBF Guidance								
Yes	20 (16.0)	105 (84.0)			17 (17.9)	78 (82.1)		
No	2 (5.7)	33 (94.3)	1.00*	2.8 (0.69-11.4)	0	36 (100.0)	0.166*	-
EBF Supervision								
Yes	22 (15.0)	125 (85.0)			17 (13.6)	108 (86.4)		
No	0	13 (100.0)	0.364*	-	0	6 (100.0)	0.218*	-

Table 3 – Cont.

Hospital A					Hospital B			
Variable	EBF (n=160)		p-value	RR (95% CI)	EBF (n=131)		p-value	RR (95% CI)
	Yes n(%)	No n(%)			Yes n(%)	No n(%)		
On demand EBF Guidance								
Yes	19 (16.0)	100 (84.0)			15 (19.5)	62 (80.5)		
No	3 (7.3)	38 (92.7)	0.061*	2.18 (0.68-7.00)	2 (3.7)	52 (96.3)	0.198*	5.26 (1.25-22.1)
Immediately after birth there was skin-to-skin contact (mother and baby)								
Yes	17 (17.2)	82 (82.8)			12 (19.4)	50 (80.6)		
No	5 (8.2)	56 (91.8)	0.156*	2.10 (0.81-5.39)	5 (7.2)	64 (92.8)	0.066*	2.67 (0.98-7.15)
The mother breastfed the baby for the first time								
< 30 minutes	7 (24.1)	22 (75.9)		2.29 (0.91-5.75)	8 (30.8)	18 (69.2)		3.95 (1.51-10.3)
30 minutes to 1 hour	7 (12.7)	48 (87.3)		1.21 (0.46-3.14)	3 (10.7)	25 (89.3)		1.37 (0.37-5.13)
> 1 hour	8 (10.5)	68 (89.5)	0.187 [†]	1.00	6 (7.8)	71 (92.2)	0.020[‡]	1.00
NB Formula								
Yes	1 (1.9)	53 (98.1)			5 (7.6)	61 (92.4)		
No	21 (19.8)	85 (80.2)	0.001*	0.09 (0.01-0.67)	12 (18.5)	53 (81.5)	0.074*	0.41 (0.15-1.1)

Table 3 – Cont.

Hospital A					Hospital B			
Variable	EBF (n=160)		p-value	RR (95% CI)	EBF (n=131)		p-value	RR (95% CI)
	Yes n(%)	No n(%)			Yes n(%)	No n(%)		
Rooming-in								
Yes	18 (12.7)	124 (87.3)			12 (10.7)	100 (89.3)		
No	4 (22.2)	14 (77.8)	0.278*	0.57 (0.22-1.50)	5 (26.3)	14 (73.7)	0.074*	0.41 (0.16-1.02)
Hospital staff provided a bottle or pacifier								
Yes	-	-			-	-		
No	22 (13.8)	138 (86.3)	-	-	17 (13.0)	114 (87.0)	-	-
Discharge included formula, bottle, or pacifier for home use								
Yes	-	-			-	-		
No	22 (13.8)	138 (86.3)	-	-	17 (13.0)	114 (87.0)	-	-
Discharge included information about follow-up visits								
Yes	9 (13.4)	58 (86.6)			10 (15.4)	55 (84.6)		
No	13 (14.0)	80 (86.0)	0.921 [†]	0.96 (0.44-2.12)	7 (10.6)	59 (89.4)	0.416 [†]	1.45 (0.59-3.58)

Table 3 – Cont.

Hospital A					Hospital B			
Variable	EBF (n=160)		p-value	RR (95% CI)	EBF (n=131)		p-value	RR (95% CI)
	Yes n(%)	No n(%)			Yes n(%)	No n(%)		
Provided information about support groups								
Yes	5 (14.7)	29 (85.3)			3 (15.8)	16 (84.2)		
No	17 (13.5)	109 (86.5)	0.786*	1.10 (0.43-2.74)	14 (12.5)	98 (87.5)	0.713*	1.26 (0.40-3.98)
Written BF policy at the hospital								
Yes	18 (17.8)	83 (82.2)			12 (15.0)	68 (85.0)		
No	4 (6.8)	55 (93.2)	0.060*	2.63 (0.93-7.40)	5 (9.8)	46 (90.2)	0.437*	1.53 (0.57-4.09)
Hospital improved experience with BF								
Yes	17 (13.6)	108 (86.4)			12 (15.0)	68 (85.0)		
No	5 (14.3)	30 (85.7)	1.00*	0.95 (0.38-2.40)	5 (9.8)	46 (90.2)	0.437*	1.53 (0.57-4.09)

BF = Breastfeeding; EBF = Exclusive Breastfeeding; NB = newborn
*Fisher's exact test; †Pearson's chi-square test; ‡Likelihood ratio test
Source: Research data, 2024

who started breastfeeding within one hour after birth. The other items analyzed did not show a significant association with EBF maintenance or early weaning.

■ DISCUSSION

This study showed a decline in the maintenance of EBF over time and an incidence of EBF up to the sixth month of life below that recommended by national and international agencies in both hospitals A and B (13.8% and 13.0%, respectively), corroborating another study conducted in Rio Branco, Acre, in which the maintenance of EBF until the sixth month was 16.4%⁽⁹⁾. The WHO considers an EBF prevalence of 90% to 100% to be very good, 50% to 89% good, 12% to 49% fair, and 0% to 11% poor⁽¹⁰⁾.

The standards of BF and complementary feeding differ between municipalities with greater and lesser poverty. Municipalities with better socioeconomic conditions have more appropriate feeding practices than those with lower conditions. Among babies under six months of age, there is an increase in the proportion of children on mixed breastfeeding (using BM and another type of milk) and, according to the data, approximately 30% of babies abandoned exclusive breastfeeding in the first month of life⁽¹¹⁾.

The increase in mixed feeding in children living in municipalities with lower financial conditions may be influenced by inequality in relation to low-income women. Socioeconomically vulnerable women face significant structural and social barriers that prevent them from asserting their right to exclusively breastfeed for the recommended or desired duration⁽¹¹⁾.

A study conducted during the COVID-19 pandemic in Balneário Gaivota, Santa Catarina, showed a prevalence of EBF of 43.1%. The authors emphasize that most of the factors related to maintaining EBF are behavioral and modifiable. Health promotion initiatives are needed to enhance both individual and collective health while reducing vulnerabilities and health risks resulting from multiple social determinants⁽¹²⁾.

In the United States, a cohort study found that 24.7% of children were exclusively breastfed until the sixth month of life. Advanced maternal age, lower body mass index (BMI), higher income, higher education level and non-smoking had a positive influence on the maintenance of this practice⁽¹³⁾. Conversely, factors associated

with EBF abandonment included pacifier use, alcohol consumption, and the lack of breastfeeding within the first hour of life⁽⁹⁾. Insufficient milk production and unexplained refusal of the baby to breastfeed have also been reported as predictors of early weaning⁽¹⁴⁾.

The results of this study indicate that offering infant formula negatively impacts EBF practices until the sixth month of life. In Pelotas, Rio Grande do Sul, a study showed that a significant portion of babies consumed formula before two months of age⁽¹⁵⁾. It is known that the use of formulas can interfere with the production of BM, since it reduces the baby's sucking demand, which compromises lactation and increases the risk of early weaning. Supplementation with formulas during the first days of life may hinder the proper establishment of BF⁽¹⁶⁾.

The consumption of non-maternal milk, other liquids or solid/semi-solid foods before six months of age is associated with a greater risk of respiratory diseases, otitis, gastrointestinal diseases and allergies⁽¹⁷⁾. Additionally, infants fed by formula before six months of age suffer from appetite regulation disorders, allowing them to be more easily overfed than breastfed infants, making them more predisposed to childhood obesity. Moreover, BM has an effect on the prevention of infectious diseases, diarrhea, respiratory infections and chronic non-communicable diseases in adulthood⁽¹⁸⁾. The abandonment of EBF can compromise a child's health, growth, and optimal development, particularly in the first six months of life.

Therefore, the results of this study highlight the need for a clearer message to pregnant women and their families about the harmful effects of early weaning and the introduction of solid foods before six months of age⁽¹⁾. The lack of counseling on BF during prenatal consultations contributes to early weaning⁽¹⁵⁾. A meta-analysis of BF promotion strategies in Africa found that breastfeeding counseling resulted in significantly higher EBF in the first month of the baby's life, with group interventions being more effective in improving EBF rates than individual or home counseling alone⁽¹⁹⁾.

Educational interventions offered by nurses during hospitalization can increase mothers' confidence in their breastfeeding abilities, which is essential for the continuation of EBF after hospital discharge⁽²⁰⁾. A study conducted in the southern region of Brazil during the pandemic with 756 puerperal women revealed

a positive outcome of health education activities in maintaining breastfeeding, as the prevalence of EBF reached 85%⁽²¹⁾.

A point that deserves to be highlighted in this research is the late initiation of BF as a factor associated with the early interruption of this practice. Breastfeeding in the first hours after birth allows the newborn to better adapt to extrauterine life, based on its glycemic, cardio-respiratory and thermal regulation. The golden hour is characterized by the first hour of the baby's life, and it is recommended that breastfeeding and skin-to-skin contact occur during this time, as the baby is alert and has heightened sucking stimuli, creating the ideal moment to bond with the mother through breastfeeding⁽²²⁾.

In this context, the COVID-19 pandemic had a significant impact on the dynamics of health institutions related to maternity, resulting in access barriers and difficulties in monitoring prenatal, childbirth, and postpartum care. These difficulties arising from the pandemic have directly influenced the quality of services provided, including breastfeeding support⁽²³⁾.

Rooming-in is a key component in establishing ideal early breastfeeding practices, as it provides the physical space to initiate early skin-to-skin contact, early breastfeeding, and on demand breastfeeding⁽²⁴⁾. Supporting mothers to ensure an optimal start to breastfeeding can reduce neonatal mortality by up to 22%⁽²⁵⁾. In India, evidence showed that when women do not breastfeed their newborns within one hour after birth, neonatal mortality rates nearly triple⁽²⁶⁾.

When the lactating woman is encouraged to breastfeed by the hospital staff and has access to professionals who are dedicated to breastfeeding support, there is a tendency for positive EBF outcomes beyond the hospital stay, that is, receiving breastfeeding support from the hospital staff can influence a longer duration of BF⁽²¹⁾.

Inadequate hospital care, including the provision of formula and the lack of support for breastfeeding management, are factors that directly contribute to early weaning. This points to the need for ongoing training of healthcare professionals, especially nurses, as well as restrictions on the use of formulas in maternity wards, as provided by the BFHI. The implementation of these practices has shown positive results in promoting EBF, increasing maternal confidence, and improving exclusive breastfeeding rates⁽²⁴⁾.

However, proper guidance on BF techniques is necessary, because without sufficient knowledge, lactating women are more likely to develop breastfeeding problems and are vulnerable to interruption of EBF, as evidenced by the results of this study. The support offered by nurses during the first 24 hours after birth is essential for the success of BF. Proper guidance on the clinical management of breastfeeding is a determining factor in prolonging the period of EBF⁽²⁷⁾. To this end, information on positioning, correct latch and breastfeeding assessment by the nurse should be included during care practice.

The rapid intervention and support offered by the hospital nurse in recurring situations that negatively impact breastfeeding, such as nipple fissures, engorgement, and mastitis, help reduce maternal pain and discomfort, allowing BF to continue safely and without interruptions. This professional is qualified to identify and treat these complications in a non-invasive and educational manner, which is essential in preventing early weaning⁽²⁷⁾.

Nurses play a fundamental role in encouraging and maintaining EBF, acting as educators, facilitators and emotional support for mothers and their families. The guidance provided by nurses helps clarify common doubts about breastfeeding and can significantly reduce the risk of early weaning, contributing to the well-being of both the child and the mother. It is worth noting that mothers who receive emotional support from healthcare professionals have greater self-confidence to deal with the challenges of breastfeeding and are more likely to maintain it exclusively for a longer period⁽²⁸⁾.

Within the scope of public health policies, nurses are important agents in promoting EBF, integrating health promotion strategies and actions that involve not only the mother-child binomial, but also the family environment and the community. Thus, there is a need for greater investment in the training of professionals working in the BF context, with regard to breastfeeding counseling practices and greater involvement of the family and support network⁽⁸⁾.

The use of educational materials and devices can reinforce the guidelines provided by nursing professionals regarding the clinical management of BF in the hospital setting. Innovating health education strategies

to enhance adherence and maintenance of BF for longer can contribute substantially to overcoming several barriers to this practice in the context of the health of mothers and children⁽²⁰⁾.

Scientific literature has identified a negative association between the free provision of infant formula and the continuation of EBF. A systematic review indicates that the marketing of BM substitutes by infant formula manufacturers, particularly through the provision of free or low-cost samples and promotional materials in healthcare facilities, continues to be a significant barrier to exclusive breastfeeding⁽²⁹⁾.

Additionally, a significant incidence of EBF maintenance up to the sixth month was not found in the hospital that has an HMB unit (Hospital A), which leads to a reflection on the potential role of this strategy in supporting and promoting BF. The actions performed by HMBs help prevent the decline in breastfeeding. In addition to performing specific functions of handling expressed breast milk, they must also carry out educational activities to promote and support BF, and can be considered reference places for breastfeeding for pregnant and nursing women, promoting a welcoming environment, support and learning, disseminating knowledge and strengthening the practice of BF⁽³⁰⁾.

Therefore, the role of nurses in maintaining EBF is a fundamental strategy, as it helps to overcome breastfeeding difficulties, improve maternal and child health indicators and promote healthy development in early childhood, which contributes to the maintenance of EBF. The support offered by these professionals is essential for the success of EBF, helping to minimize stress and anxiety while ensuring that more mothers and babies benefit from the advantages of EBF.

This study has limitations regarding the participants' recall of their hospital experience, considering that the interview was conducted four weeks after hospitalization. Thus, it is possible that participants did not accurately recall events that occurred in the hospital in some cases, which could potentially lead to random errors or recall bias if mothers who were breastfeeding at the time tended to report more positive breastfeeding support. However, one month represents a relatively short recall period compared with other observational breastfeeding studies that assess participants months or years later.

Another important limitation of this study is the use of a non-probabilistic sample, which restricts the possibility of generalizing the results to the general population and may not be representative of other regions or contexts with different healthcare practices.

Finally, these results expand the understanding of the critical role of nurses in hospital care in promoting child and maternal health and contribute to the improvement of public health policies, aimed at achieving global targets, such as those established by the WHO for EBF by 2030. Furthermore, they provide evidence to support a holistic and comprehensive approach to creating hospital environments that are supportive of BF. Therefore, health professionals need to be constantly trained to understand the complexity involved in the practice of BF, as well as the reality of the population they serve.

■ CONCLUSION

The incidence of EBF in the sixth month of the newborn's life was below the WHO recommendations (13.0% and 13.8%). A substantial decrease in the incidence of EBF was observed over the follow-up period, reinforcing the need for interventions to obtain better results in the study outcome. It is worth mentioning that the COVID-19 pandemic may have impacted the quality of the breastfeeding process, as well as the role of healthcare professionals in promoting EBF.

It was concluded that the lack of guidance on the BF technique and the late initiation of BM (> 1 hour after birth) were associated with the interruption of EBF, while the lack of infant formula was shown to be a protective factor for maintaining EBF until the sixth month of life.

Therefore, the findings of this study may contribute to the implementation of strategies that promote EBF and encourage hospital environments to seek the Baby-Friendly Hospital title. On the other hand, it is worth reflecting on the actions developed by HMB, which assume an important role in guiding and promoting BF. This action strengthens the EBF support network, promoting comprehensive care for the mother-baby binomial and significantly contributing to improving exclusive breastfeeding rates.

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■ Data and material availability

Access to the dataset can be obtained upon request to the corresponding author.

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