

Factors associated with the interruption of exclusive breastfeeding in infants up to 30 days old

Fatores associados à interrupção do aleitamento materno exclusivo em lactentes com até 30 dias
Factores asociados a interrupción de la lactancia materna exclusiva en lactantes con hasta 30 días



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ABSTRACT

Objective: To identify factors associated with the interruption of exclusive breastfeeding (EBF) in infants up to 30 days old.

Method: A cross-sectional study conducted at a university hospital in southern Brazil, from December 2014 to September 2015, with 341 infants up to 30 days old and their mothers. A semi-structured questionnaire was applied consisting of variables related to sociodemographic characteristics, obstetric history of the mother, companion's education, and data of the infant and of breastfeeding. Collected data were subjected to bivariate and multivariate analysis with the estimation of Prevalence Ratios (PR).

Results: The prevalence of EBF was 79.5%. The factors associated with the interruption of EBF were babies ≥ 21 days, who received formula supplementation at the hospital, women with difficulties breastfeeding after hospital discharge, and non-white.

Conclusion: the factors associated with EBF interruption can help health workers create actions for mothers with difficulties and prevent interruption of EBF.

Keywords: Breastfeeding. Weaning. Prevalence.

RESUMO

Objetivo: Identificar fatores associados à interrupção do aleitamento materno exclusivo (AME) em lactentes com até 30 dias de vida.

Método: Estudo transversal realizado em hospital universitário do Sul do país, de dezembro de 2014 a setembro de 2015, com 341 lactentes com até 30 dias de vida e suas mães. Aplicou-se questionário estruturado composto por variáveis relativas às características sociodemográficas e história obstétrica da mãe, escolaridade do companheiro, dados do lactente e da amamentação. Procedeu-se análise bivariada e multivariada, como cálculo de Razão de Prevalências (RP).

Resultados: Prevalência de 79,5% de AME. Lactentes ≥ 21 dias, que receberam complemento lácteo no hospital, mães com dificuldade de amamentação pós-alta hospitalar e não-brancas apresentaram associação à interrupção do AME.

Conclusão: Os fatores associados à interrupção do AME direcionam os profissionais de saúde a proporem ações de apoio à mãe e lactente em vista de suas dificuldades, prevenindo a interrupção do AME.

Palavras chave: Aleitamento materno. Desmame. Prevalência.

RESUMEN

Objetivo: Identificar factores asociados a la interrupción de la lactancia materna exclusiva (LME) en lactantes con hasta 30 días de vida.

Método: Estudio transversal realizado en un hospital universitario al sur de Brasil, de diciembre de 2014 a septiembre de 2015, con 341 lactantes de hasta 30 días y sus madres. Se aplicó cuestionario estructurado compuesto por variables de características socio-demográficas y la historia obstétrica materna, educación del compañero, datos infantiles y lactancia materna. Se procedió al análisis bivariado y multivariado, con cálculo de Razón de Prevalencia (RP).

Resultados: Prevalencia del 79,5% de LME. Lactantes ≥ 21 días de vida, que recibieron complemento lácteo en hospital, mujeres con dificultad para amamantar después del alta y las no blancas se asocian a la interrupción de LME.

Conclusión: Los factores asociados a la interrupción de LME direccionan a los profesionales para proponer acciones de apoyo a la madre y a su lactante delante de sus dificultades, impidiendo el destete precoz.

Palabras clave: Lactancia materna. Destete. Prevalencia.

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■ INTRODUCTION

In recent decades, an increasing number of studies on breastfeeding has proven the benefits of this practice for the mother and infant. The expansion of breastfeeding at an almost universal level prevents an estimated 20,000 deaths per year from breast cancer and 823,000 deaths each year in children under five worldwide⁽¹⁾. The World Health Organization (WHO) recommends exclusive breastfeeding (EBF) for the first six months of the infant's life, after which other foods should be introduced⁽²⁾ to meet the nutritional needs of infants and ensure healthy growth and development⁽³⁾.

A higher intelligence quotient score, more years of schooling, and higher monthly income during adulthood are some of the benefits of infants breastfed for 12 months or more in comparison with infants who were breastfed for less than a month⁽⁴⁾. The benefits for mothers include protection against breast and ovarian cancer and diabetes type 2⁽¹⁾.

The first postpartum days are crucial for the future of breastfeeding. Mother who stay in a shared room and are 24 hours a day with the baby are more likely to breastfeed exclusively in the first month⁽⁵⁾. Moreover, in-hospital guidance on breastfeeding supports the continuity of breastfeeding for the recommended period⁽⁶⁾. To prolong breastfeeding, in light of its numerous benefits, primary care must provide critical support and follow-up for nursing mothers and their infants.

Identifying the factors associated with the interruption of EBF and understanding the local realities can help improve measures for the promotion and protection of breastfeeding⁽⁷⁾. Similarly, investigating the factors associated with the interruption of EBF provide health workers with insight into their practices related to breastfeeding and on the ideal strategies to encourage the continuity of exclusive breastfeeding.

The hypothesis of this study is the existence of maternal and infant factors associated with the interruption of exclusive breastfeeding in infants up to 30 days old. The aim of this investigation is to identify the factors associated with the interruption of exclusive breastfeeding in infants up to 30 days old.

■ METHOD

This present study is the result of the final work of the graduate nursing course titled, "*Fatores associados à in-*

terrupção do aleitamento materno exclusivo em bebês com até 30 dias de vida"⁽⁸⁾. It is a quantitative, observational, cross-sectional study. Research was conducted at the ambulatory unit of a large teaching hospital (HCPA) in southern Brazil, considered a reference for high-risk pregnancies, with an average of 300 deliveries/month^d, and a certified baby-friendly hospital since 1998. This hospital conducts a set of activities to promote, protect, and support breastfeeding.

During hospitalization, the infant undergoes Newborn Hearing Screening, and the infants with any alteration in the test results are referred to the second retesting stage at the outpatient clinic of the hospital within 30 days after birth. Around 5% of the newborns who stay in the shared room with their mothers return to the retest^d. At this time, the mothers were invited by the researchers to participate in the study.

Research included the infants who returned to the hearing retest within 30 days of life, with their mothers, and who remained during the entire post-natal stay at the Obstetrics Admissions Unit ("UIO"). Infants for whom breastfeeding had been contraindicated were excluded.

The sample size was determined using Epilnfo version 7. The sample was calculated using previous research in the same institution that related independent variables with the outcome of early weaning. We opted for the variable with the lowest relative risk (RR) to define a sample number that can be obtained in the study period. The RR for the outcome early weaning, when associated with the return of women to work, was 1.59⁽⁷⁾. Therefore, the sample size was 341 infants and their mothers, considering a power of 80% and significance level of 5%.

Data were collected from 22 December 2014 to 22 September 2015, through a structured questionnaire prepared by the researchers, applied to the mothers of infants who returned to the hearing retest. Ten questionnaires were previously tested with the studied population and adjusted accordingly.

The interruption of EBF was the dependent variable, which is associated with the independent variables for sociodemographic characteristics, characteristics of the infant, the companion's education, obstetric history, and breastfeeding history.

The data were subjected to descriptive analysis. Pearson's Chi-square test or Fisher's exact test were applied to compare the proportions, depending on the percentage of cells with the expected number ≤ 5 . The Poisson regression was used to control confounding factors. Multivariate analysis included the variables with a value of $p \leq 0.20$ in

^d Data provided by the institution

bivariate analysis. The applied measure of effect was the Prevalence Ratio (PR) with a 95% confidence interval and a significance level of 5% ($p \leq 0.05$). The analyses were conducted using SPSS software, version 18.0. The project was submitted and approved by the research commission of the Escola de Enfermagem da Universidade Federal do Rio Grande do Sul (#028382) and by the research ethics committee of the Hospital de Clínicas de Porto Alegre (HCPA) (#140681), as established by Brazilian law for human research. The patients who agreed to participate in the study signed an informed consent statement.

■ RESULTS

In all, 341 infants aged up to 30 months and their mothers were included in the study. Of these infants, 20.5% were not exclusively breastfed and other food was supplementing or replacing breast milk. Table 1 shows the sociodemographic characteristics of the mothers, the characteristics of the infants, and the level of education of the companions. The variables with a statistical significance were mother's skin colour, return to work, age of the infant, and education of the companion.

The data shown in Table 2 refer to the obstetric history of the mothers. The statistically significant variables were number of prenatal consultations, the mother's participation in prenatal groups, and type of current delivery.

Table 3 shows the variables relating to breastfeeding. It is observed that most of the variables were statistically significant, except how the hospital supplement was received, intent to breastfeed after discharge, whether mother received help to breastfeed, and if mother is breastfeeding on free demand.

The variables that reached a significance level ≤ 0.20 were inserted in the multivariate analysis presented in Table 4. The mothers who claimed to be non-white were more prone to interrupt breastfeeding (PR: 2.58; CI95% 1.18 to 5.62; $p = 0.018$). Those who had some difficulty breastfeeding after discharge were 2.64 times more likely to interrupt exclusive breastfeeding within the first month of life of the infant in comparison to the mothers who did not have difficulties after hospital discharge.

In the variables related to the infant, the prevalence of interrupted breastfeeding in infants with 21 days or more was around four times greater than in infants with 20 days or less. The infants who were given formula and breast milk at the hospital were two times more likely to have interrupted breastfeeding than those who did not receive formula.

The results show that during the hospital stay at the shared room, 23.5% of the infants received a supplement,

generally offered in a cup (93.8%). The most common justifications provided by the mothers was that the "infant could not suck" (35.0%) and hypoglycaemia (30.0%).

As regards difficulties breastfeeding after hospital discharge, 44.7% of mothers reported some kind of difficulty, especially nipple fissure (64.1%).

■ DISCUSSION

In the discussion, we will only focus on the variables that obtained a statistical significance after multivariate analysis or are somehow related to these variables.

The prevalence of exclusive breastfeeding at the end of the first month of life of the infants in this study is considered "good" according to parameters established by the WHO⁽²⁾. In a study⁽⁹⁾ conducted previously at the same hospital, this rate was 54% when the institution was completing 10 years of certification as a baby-friendly hospital. The increase in exclusive breastfeeding rates may be a reflection of the constant work to promote and protect breastfeeding conducted by the workers at the institution, and the establishment of government programmes, like the *Rede Cegonha* (Stork Network) in 2011 and the *Estratégia Amamenta e Alimenta Brasil* (Strategy Breastfeed and Feed Brazil).

Despite the increase in the percentage of EBF found in this study, a higher rate was found in a cohort study conducted in Bahia, which found 89.6% of infants being exclusively breastfed by the end of the first month of life⁽⁶⁾. However, a very different reality is found nationwide, including in the same state in which this research was conducted. A prospective cohort study conducted in Pelotas/RS found that 60% of infants were exclusively breastfed in the first month, and around 10% had already been weaned⁽⁷⁾. An even lower percentage was found in Jordan, South-East Asia, where only 37.8% of infants with 30 days of age were being exclusively breastfed, dropping to 6% in the fourth month of life of the infant⁽¹⁰⁾.

One of the factors found in this research associated with the interruption of EBF was skin colour. Self-proclaimed non-white mothers are more prone to stop exclusively breastfeeding their children than self-proclaimed white mothers. This finding is corroborated in other research⁽¹¹⁾, in which it was noted that white mothers were 20% more likely to exclusively breastfeed until the sixth month of life of the infant. A similar result was found in a study conducted in Campinas/SP; however, the focus was on the skin colour of the infant rather than the mother. It was observed that black/brown-skinned infants are breastfed for less time than white infants⁽¹²⁾.

Table 1 –Bivariate analysis of the interruption of the EBF in infants up to 30 days old with the sociodemographic characteristics, characteristics of the infant, and schooling of the companion, HCPA, Porto Alegre (RS), 2015

Variables	n	Interruption of EBF within the 1 st month n (%)	p*
Mother's age			0.678
< 20	53	12 (22.6)	
≥ 20	288	58 (20.1)	
Mother's education			0.710
Finished primary school	101	22 (21.8)	
Secondary school or more	240	48 (20.0)	
Mother's skin colour			0.084
White	199	34 (17.1)	
Non-white	142	36 (25.4)	
Marital status			0.499
With companion	315	66 (21.0)	
Without companion	26	4 (15.4)	
Paid occupation			0.995
Yes	185	38 (20.5)	
No	156	32 (20.5)	
Maternity leave			0.644
Yes	151	32 (21.2)	
No	34	6 (17.6)	
Return to work			0.043
Yes	14	6 (42.9)	
No	171	32 (18.7)	
Family income			0.725
Up to 2 minimum wages	93	17 (18.3)	
2-4 minimum wages	167	37 (22.2)	
More than 4 minimum wages	63	12 (19.0)	
Infant's age			0.136
Less than 10 days	31	4 (12.9)	
10 - 20 days	264	52 (19.7)	
More than 20 days	46	14 (30.4)	
Newborn < 2500g			0.520
Yes	15	4 (26.7)	
No	326	66 (20.2)	
Newborn < 37 weeks			>0,999
Yes	18	3 (16.7)	
No	322	67 (20.8)	
Companion's education			0.157
Finished primary school	104	26 (25.0)	
Finished secondary school or more	199	36 (18.1)	

Source: Research data, 2015.

* Pearson's Chi-square Test or Fisher's exact test

Table 2 –Bivariate analysis of the interruption of EBF in infants up to 30 days old with the obstetric history, HCPA, Porto Alegre (RS), 2015

Variables	n	Interruption of EBF within the 1 st month n (%)	p*
First pregnancy			0.526
Yes	159	35 (22.0)	
No	182	35 (19.2)	
Prenatal care			0.205
Yes	340	69 (20.3)	
No	1	1 (100.0)	
Number of prenatal consultations			0.118
<6	31	3 (9.7)	
≥ 6	292	63 (21.6)	
Prenatal category			0.976
Unified Health System	275	56 (20.4)	
Health insurance	41	8 (19.5)	
Private	9	2 (22.2)	
Unified Health System + Health insurance	8	2 (25.0)	
Unified Health System + Private	7	1 (14.3)	
Guidance on breastfeeding in prenatal care			0.820
Yes	129	27 (20.9)	
No	211	42 (19.9)	
Participation in prenatal group			0.182
Yes	34	4 (11.8)	
No	307	66 (21.5)	
Guidance on breastfeeding in prenatal group			0.559
Yes	28	3 (10.7)	
No	6	1 (16.7)	
Type of delivery	236	43 (18,2)	0.114
Vaginal	236	43 (18.2)	
Caesarean section	105	27 (25.7)	
Vaginal with episiotomy			0.588
Yes	111	22 (19.8)	
No	123	21 (17.1)	
Skin-to-skin contact			0.221
Yes	219	41 (18.7)	
No	119	29 (24.4)	

Source: Research data, 2015.

* Pearson's Chi-square Test or Fisher's exact test

This factor is contradictory in the literature of the area, and there is some disagreement about the mother's skin colour in the process and duration of exclusive breast-

feeding. This variable remains the focus of studies to reveal whether it is associated with the early weaning of infants⁽⁶⁻¹³⁾. However, little research can conclude whether

Table 3 – Bivariate analysis of the outcome interruption of EBF in infants up to 30 days of age with independent variables related to breastfeeding, HCPA, Porto Alegre (RS), 2015 (continue)

Variables	n	Interruption of EBF within the 1 st month n (%)	p*
Breastfeeding of previous children			0.018
Yes	169	28 (16.6)	
No	13	6 (46.2)	
Breastfeeding in CO			0.047
Yes	293	55 (18.8)	
No	48	15 (31.3)	
Breastfeeding in the delivery room			0.061
Yes	112	15 (13.4)	
No	180	40 (22.2)	
Breastfeeding in AC			0.108
Yes	338	68 (20.1)	
No	3	2 (66.7)	
Difficulty breastfeeding in AC			<0.001
Yes	180	53 (29.4)	
No	160	17 (10.6)	
Newborn was given dummy/pacifier at hospital			0.029
Yes	13	6 (46.2)	
No	327	63 (19.3)	
Newborn received supplement at hospital			<0.001
Yes	80	34 (42.5)	
No	261	36 (13.8)	
How the supplement was received			>0.999
Cup	75	32 (42.7)	
Syringe	2	1 (50.0)	
Cup + Syringe	3	1 (33.3)	
Intention to breastfeed after discharge			0.369
Yes	339	69 (20.4)	
No	2	1 (50.0)	
Hospital discharge in EBF			<0.001
Yes	324	53 (16.4)	
No	17	17 (100.0)	
Hospital discharge with guidance:			<0.001
EBF	317	48 (15.1)	
Breastfeeding + formula	23	21 (91.3)	
Other	1	1 (100.0)	
Difficulty in breastfeeding after discharge			<0.001
Yes	151	46 (30.5)	
No	187	21 (11.2)	

Table 3 – Bivariate analysis of the outcome interruption of EBF in infants up to 30 days of age with independent variables related to breastfeeding, HCPA, Porto Alegre (RS), 2015 (continuation)

Variables	n	Interruption of EBF within the 1 st month n (%)	p*
Received help to breastfeed			0.336
Yes	109	31 (28.4)	
No	44	16 (36.4)	
Encouraged to continue breastfeeding			0.164
Yes	278	59 (21.2)	
No	60	8 (13.3)	
Newborn was given dummy/pacifier after discharge			0.001
Yes	178	49 (27.5)	
No	163	21 (12.9)	
Breastfeeding on free demand			0.621
Yes	261	49 (18.8)	
No	75	16 (21.3)	
Smoking during lactation			0.074
Yes	42	13 (31.0)	
No	299	57 (19.1)	

Source: Research data, 2015.

* Pearson's Chi-square Test or Fisher's exact test

Table 4 – Multivariate analysis of the factors associated with the interruption of EBF in infants up to 30 days old, HCPA, Porto Alegre (RS), 2015

Variables	PR (CI95%)	p
Mother's skin colour (non-white)	2.58 (1.18 – 5.62)	0.018
Infant's age range		
≤ 9 days	1.00	
10 - 20 days	1.70 (0.51 – 5.69)	0.391
≥ 21 days	3.97 (1.01 – 15.6)	0.049
Infant received supplement at the hospital	2.04 (1.07 – 3.92)	0.031
Difficulty breastfeeding after discharge	2.64 (1.12 – 6.21)	0.026

Source: Research data, 2015.

this factor predicts the interruption of EBF, and further studies are needed to elucidate this issue.

The association between age of the infant and early interruption of EBF also showed statistical significance in this study. It was noted that the range with the highest number of infants was between 10 to 20 days of life (77.4%), but there was a higher prevalence of interruption of EBF in infants aged 21 days or more, and these were four times more susceptible to interrupted EBF by the end of the first month than those

with fewer days of life. This finding is consistent with other research, in which there is a reduction in the probability of infants with EBF in the first days of life and an increase of EBF as the infant gets older^(14, 15). Similar research data show that the prevalence of EBF drops 17% every month of the infant's life⁽¹¹⁾, and among adolescent mothers, EBF drops 24% on average every month of the infant's life⁽¹³⁾.

As the months pass, research shows that 13.8% of infants were offered water in the first month of life, 15.3%

were offered some kind of tea, and 17.8% consumed non-human milk⁽¹⁴⁾. Although the rate of EBF was high in this study, this percentage can drop sharply, especially after 30 days, since this is the stage when other liquids are usually introduced in the infant's diet⁽¹⁵⁾.

The superiority of breast milk in relation to milk from other sources is unquestionable, as human milk has the essential nutrients infants need for their growth and development. Moreover, the composition of processed milk cannot be compared with the properties of human milk, and the introduction of formula before six months of age can cause diarrhoea, respiratory disease, and other health problems⁽³⁾.

In this study, offering formula at the hospital was associated with the interruption of EBF. During the stay in the obstetrics admissions unit, 23.5% of infants received formula at least once, which is a 97.4% increase in the use of a milk supplement in comparison with the cohort conducted at the institution 10 years earlier, where 11.9% of infants received industrialised milk⁽⁹⁾.

The most frequently quoted justification of the mothers in this study for the use of supplements was that the infant "could not suck the breast", which can be associated with the use of dummies or pacifiers, incorrect positioning of the infant, and problems related to nipple anatomy⁽³⁾.

Another reason often cited by the mothers for the use of supplements was hypoglycaemia of the infant (30.0%), which may be associated with insufficient intake of milk for the infant's metabolic demand due to suction difficulties. The preferred management of asymptomatic infants with low blood glucose (between 25 and 45 mg/dL) is offering breast milk⁽¹⁶⁾. For this reason, there is no justification for offering formula, as milk can be pumped and given to the nursing infant. This finding reinforces that health teams should indicate milk supplements with caution, especially considering this factor predicted the interruption of EBF in this study.

It was also observed that the mothers of infants who were given formula while in hospital were two times more predisposed to interrupt EBF before the end of the first month of life in comparison to those who were not offered formula. A north-American study found similar data, and stresses that formula received in hospital increases three-fold the risk of interrupted breastfeeding on the 60th day of life⁽¹⁷⁾.

Furthermore, an Australian study found that infants who were breastfed for the first 24-48 hours after birth were more likely to continue breastfeeding until six months of age than those who received formula in the early postpartum period⁽¹⁸⁾. This reinforces the importance of having institutional protocols with strict indications for prescribing formula.

The way that milk is offered also deserves special attention, since the likelihood of interrupting EBF between 30 and 60 days is significantly greater in infants who receive formula in hospital with a bottle than those who use alternative feeding methods⁽¹⁷⁾. According to a cohort study conducted with around 600 mothers and their children, the use of the bottle directly contributed to the decrease of EBF⁽¹⁰⁾.

Since the study hospital is baby-friendly, supplementation, when needed, should be administered in a "cup" to avoid nipple confusion possibly caused by the use of bottles⁽¹⁹⁾. The "cup" can be an effective strategy for offering milk to the infant without interfering with breastfeeding. A randomised clinical trial conducted with infants classified as late preterm found that milk offered in a cup significantly increases the probability of EBF at discharge and three to six months after discharge when compared with milk offered in a bottle⁽²⁰⁾.

It is important to note that virtually all the infants who received milk supplements at home used a bottle, which can suggest a lack of guidance or understanding of mothers about the use of the "cup" to avoid replacing the breast with the bottle.

In a literature review, authors⁽¹⁹⁾ stressed the difficulty determining whether infants are refusing the breast and preferring the bottle because they are already having trouble breastfeeding or if these infants have nipple confusion. However, there is still no consensus on this issue in scientific literature, and further studies are needed to clarify these relationships.

Although the infants, when admitted, received supplementation using a "cup" and the mothers were advised on the reasons for using this method, hospital staff are conveying the message that breast milk is insufficient and requires supplementation, which can discourage breastfeeding or even show mothers how to cope with breastfeeding difficulties, if any, at home. In this regard, the role and guidance of the hospital health team to the mothers and their families is critical for the prevention of inappropriate habits that can culminate in interrupted EBF.

The early introduction of food for infants can have a cultural basis, involving the myths and beliefs that pervade breastfeeding. Expressions such as, "weak milk", "not enough milk", or "the baby wouldn't accept the breast", reported by mothers demonstrate their insecurity regarding breastfeeding and can be instrumental in the early introduction of other foods and the use of dummies/pacifiers and bottles.

Another identified factor that interferes with breastfeeding is the use of dummies/pacifiers, which, despite not

determining the interruption of breastfeeding within the 30 days of the infant's life, it is mentioned in other studies as a factor that can anticipate weaning⁽⁶⁾ and possibly lead to nipple confusion⁽¹⁹⁾.

Even with the guidance offered to the mothers, it was not possible to prevent a small percentage of infants of this study from receiving a dummy/pacifier during the hospital stay. Although the use of this artefact was mostly the mother's initiative, there is a cultural appeal for its use from the families and people surrounding the mother. The prenatal consultations, the mother's groups, and the first appointment of the infant are appropriate moments to raise awareness on the importance of breastfeeding and clarify the myths surrounding breastfeeding.

The variable listed above, namely offering milk supplementation and/or dummy/pacifier, are commonly related to difficulties in breastfeeding⁽¹³⁾. In this study, difficulty breastfeeding after hospital discharge also predicted the interruption of breastfeeding, as also found in another study that detected a shorter EBF time in mothers with difficulties breastfeeding⁽²¹⁾. The same study stresses that mothers with difficulty breastfeeding before discharge have a significantly higher weaning percentage by the 60th day of life than those without difficulties.

Just over half of the interviewees in this study mentioned some kind of difficulty during hospitalisation (52.9%), and this percentage dropped after discharge (44.7%), showing that the support received by the mothers can help them overcome these difficulties. Despite the reduction in the frequency of post-discharge difficulties, the continuity of support to mothers from their families and primary care workers is considered essential. If the difficulties are not identified and treated in time, they can trigger the early interruption of breastfeeding.

One of the difficulties of breastfeeding referred to by nursing mothers in this study was nipple fissure, endorsed by literature as predictive of the interruption of EBF⁽⁶⁾. This finding reinforces the need to raise awareness among health workers of the difficulties and doubts of mothers in hospital, which could contribute to a longer EBF period and a positive breastfeeding experience.

Nipple fissures cause pain and discomfort, and can lead mothers to offer supplementation to the infant, thus reducing milk production and even "drying" of breast milk with the reduced frequency of feedings. Offering milk supplementation in a bottle can lead the infant to reject the breast due to nipple confusion or because the infant is satisfied. This rejection causes a vicious circle that may culminate in weaning. Moreover, difficulties related to the breastfeeding technique of the mother and infant can also

lead to nipple confusion⁽¹⁹⁾, which also reveals the importance of dealing with difficulties at an early stage.

■ CONCLUSION

A high rate of EBF was found among the infants of this study; however, this level is still well below the recommendation since most were term infants with appropriate weight, which does not justify the early interruption of breastfeeding. In addition to this finding, the factors associated with early weaning in infants up to 30 days of age were the mother's skin colour (non-white), infants with 21 days or more, receiving milk supplementation in hospital, and difficulty breastfeeding after discharge.

The results of this study reinforce the need to introduce breastfeeding guidelines from the prenatal period until after delivery, when breastfeeding occurs. After delivery, the mothers have doubts and anxieties that can significantly interfere with the success of breastfeeding.

In the period of hospitalisation, health workers should allow room for dialogue on breastfeeding, especially the technical aspects, to prevent problems, such as nipple trauma, that can lead to the interruption of breastfeeding or even weaning. The continuity of care is essential. The primary care system should support mothers in the early postpartum days and continue the support provided at hospital to ensure the maintenance of breastfeeding. Thus, health professionals need knowledge and insight into the possible difficulties faced by these women.

Knowing the factors that may cause the interruption of EBF before the infant completes 30 days of age can help manage the problem, and support the establishment of more effective strategies for health professionals who work in mother and child care. A multidisciplinary approach when managing breastfeeding in mother's groups and individualised assistance for mothers with difficulties, through either consultations or home visits, can improve the rates of EBF. For these strategies to increase the duration of exclusive breastfeeding, multidisciplinary team must be able to motivate and implement them.

We suggest further studies to extend the analysis of the skin colour variable and its relationship with the interruption of EBF since the results of studies on this subject are controversial.

■ REFERENCES

1. Victora CG, Bahl R, Barros AJ, França GV, Horton S, Krasevec J, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet*. 2016;387(10017):475-90.

- World Health Organization (CH). Indicators for assessing infant and young child feeding practices: conclusions of a consensus meeting held 6–8 November 2007 in Washington D.C.; USA; 2008 [Internet]. [cited 2016 Nov 10]. Available from: http://www.who.int/nutrition/publications/iyfc_indicators_for_peer_review.pdf.
- Ministério da Saúde (BR). Saúde da criança: aleitamento materno e alimentação complementar. 2. ed. Brasília (DF); 2015.
- Victora CG, Horta BL, Mola CL, Quevedo L, Pinheiro RT, Gigante DP, et al. Association between breastfeeding and intelligence, educational attainment, and income at 30 years of age: a prospective birth cohort study from Brazil. *Lancet Glob Health*. 2015;3(4):e199-205.
- Brodribb W, Kruske S, Miller YD. Baby-friendly hospital accreditation, in-hospital care practices, and breastfeeding. *Pediatrics*. 2013;131(4):685-92.
- Vieira TO, Vieira GO, Oliveira NF, Mendes CMC, Giugliani ERJ, Silva LR. Duration of exclusive breastfeeding in a Brazilian population: new determinants in a cohort study. *BMC Pregnancy Childbirth*. 2014;14:175.
- Kaufmann CC, Albernaz EP, Silveira RB, Silva MB, Mascarenhas MLW. Alimentação nos primeiros três meses de vida dos bebês de uma coorte na cidade de Pelotas, Rio Grande do Sul. *Rev Paul Pediatr*. 2012;30(2):157-65.
- Moraes BA. Fatores associados à interrupção do aleitamento materno exclusivo em bebês com até 30 dias de vida [monografia]. Porto Alegre (RS): Escola de Enfermagem, Universidade Federal do Rio Grande do Sul; 2016.
- Giugliani ERJ, Espírito Santo LC, Oliveira LD, Aerts D. Intake of water, herbal teas and non-breast milks during the first month of life: associated factors and impact on breastfeeding duration. *Early Hum Dev*. 2008;84(5):305-10.
- Abuidhail J, Al-Modallal H, Yousif R, Almesri N. Exclusive breastfeeding (EBF) in Jordan: prevalence, duration, practices, and barriers. *Midwifery*. 2014;30(3):331-7.
- Pereira RSV, Oliveira MIC, Andrade CLT, Brito AS. Fatores associados ao aleitamento materno exclusivo: o papel do cuidado na atenção básica. *Cad Saúde Pública*. 2010;26(12):2343-54.
- Bernardi JLD, Jordão RE, Barros Filho AA. Fatores associados à duração mediana do aleitamento materno em lactentes nascidos em município do estado de São Paulo. *Rev Nutr*. 2009;22(6):867-78.
- Gusmão AM, Béria JU, Gigante LP, Leal AF, Schermann LB. Prevalência de aleitamento materno exclusivo e fatores associados: estudo transversal com mães adolescentes de 14 a 16 anos em Porto Alegre, RS, Brasil. *Ciênc Saúde Coletiva*. 2013;18(11):3357-68.
- Ministério da Saúde (BR), Secretaria de Atenção à Saúde, Departamento de Ações Programáticas e Estratégicas. II Pesquisa de prevalência de aleitamento materno nas capitais brasileiras e Distrito Federal. 1. ed. Brasília (DF); 2009.
- Figueredo SF, Mattar MJG, Abrão ACFV. Hospital amigo da criança: prevalência de aleitamento materno exclusivo aos seis meses e fatores intervenientes. *Rev Esc Enferm USP*. 2013;47(6):1291-7.
- Ministério da Saúde (BR). Atenção à saúde do recém-nascido: guia para os profissionais de saúde. 2. ed. atual. Brasília (DF); 2014. v. 2. Intervenções comuns, icterícia e infecções.
- Chantry CJ, Dewey KG, Peerson JM, Wagner EA, Nommsen-Rivers LA. In-hospital formula use increases early breastfeeding cessation among first-time mothers intending to exclusively breastfeed. *J Pediatr*. 2014;164(6):1339-45.
- Forster DA, Johns HM, McLachlan HL, Moorhead AM, McEgan KM, Amir LH. Feeding infants directly at the breast during the postpartum hospital stay is associated with increased breastfeeding at 6 months postpartum: a prospective cohort study. *BMJ Open*. 2015;5:e007512.
- Zimmerman E, Thompson K. Clarifying nipple confusion. *J Perinatol*. 2015;35(11):895-9.
- Yılmaz G, Caylan N, Karacan CD, Bodur I, Gokcay G. Effect of cup feeding and bottle feeding on breastfeeding in late preterm infants: a randomized controlled study. *J Hum Lact*. 2014;30(2):174-9.
- Rocci E, Fernandes RAQ. Breastfeeding difficulties and influence in the early weaning. *Rev Bras Enferm*. 2014;67(1):22-7. Portuguese.

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