

## Factors Associated with Adherence to the Exclusive Breastfeeding

Hellen Livia Oliveira Catunda Ferreira <sup>1</sup>  
Mirna Fontenele de Oliveira <sup>2</sup>  
Elizian Braga Rodrigues Bernardo <sup>1</sup>  
Paulo César de Almeida <sup>3</sup>  
Priscila de Souza Aquino <sup>1</sup>  
Ana Karina Bezerra Pinheiro <sup>1</sup>

**Abstract** *This correlational study aimed to verify the association between maternal variables and exclusive breastfeeding in a specialized outpatient clinic in the state of Ceará, Brazil. The practice of exclusive breastfeeding was observed, showing a decrease during the first six months of a child's life. Most women were young, with partners, with a good level of schooling, multigravidas and had six or fewer antenatal consultations in health centers. There was a significant association between multiparity and exclusive breastfeeding variables, showing up as a protective variable for this practice. Most women who breastfed exclusively said they had not received guidance on breastfeeding during prenatal care, which evidences the existence of other external factors that are favorable to exclusive breastfeeding.*

**Key words** *Breastfeeding, Weaning, Nursing*

---

<sup>1</sup> Departamento de Enfermagem, Universidade Federal do Ceará. R. Alexandre Baraúna 1115, Rodolfo Teófilo. 60430-160 Fortaleza CE Brasil. hellen\_enfermagem@yahoo.com.br

<sup>2</sup> Faculdade de Medicina, Universidade Federal do Cariri. Barbalha CE Brasil.

<sup>3</sup> Departamento de Enfermagem, Universidade Estadual do Ceará. Fortaleza CE Brasil.

## Introduction

Brazil has signed internal and external commitments to improve the quality of health care provided to pregnant and postpartum women and newborns in order to reduce maternal and infant morbimortality<sup>1</sup>. In this context, increased exclusive breastfeeding (EB) rates is a goal to be achieved.

EB is understood as feeding the child with breast milk only, without any other liquid or solid food, other than medicines<sup>2</sup>. In addition, breastfeeding is the single strategy that prevents infant deaths the most, as well as promoting physical, mental and psychological health of the child and the woman who breastfeeds. Breastfeeding is recommended for two years or more, and is exclusive in the first six months of life<sup>3</sup>.

Breastfeeding promotion, protection and support is one of the priority care lines of the Technical Department of Child Health and Breastfeeding/DAPES/SAS of the Ministry of Health. It is part of the list of strategies for reduced child mortality, the commitment assumed by Brazil at the international (Millennium Development Goals) and national level, through the Pact for the Reduction of Maternal and Neonatal Mortality, Pact for Life and "More Health" (*Mais Saúde*) Program. Recently, a Term of Commitment was signed between the federal government and state governments (states of the Northeast and Legal Amazon) as a strategy to reduce regional inequalities<sup>4</sup>.

The research carried out on the subject at the national level found that, since the implantation of the National Breastfeeding Incentive Program in the early 1980s, breastfeeding rates in the country have gradually risen but are still below satisfactory levels<sup>5</sup>.

Evidence indicates that, among the determinants associated with adherence to breastfeeding, highlighted are educational strategies during prenatal care, the support of health professionals and the strengthening of the support network to promote breastfeeding, especially among low-income mothers<sup>6</sup>.

Among health professionals, nurses are characterized as a potentiating agent for adherence to breastfeeding, since these professionals have received a systematic training to work with these women in order to promote greater awareness and, therefore, appropriation of the benefits of breastfeeding for both their health and that of their child<sup>7,8</sup>. Thus, we believe that further knowledge about maternal determinants towards the practice of breastfeeding is a relevant strategy.

Therefore, this study aimed to verify the association between maternal variables and EB in a specialized outpatient clinic in the state of Ceará, Brazil.

## Methods

This is a correlational cross-sectional study with a quantitative approach. The cross-sectional design was used because it includes all the individuals of a population at the time of data collection. Moreover, this design is economical, since it allows the investigation of countless variables simultaneously, to compare subgroups, as well as to evaluate health programs and to define future interventions<sup>9,10</sup>.

This study was conducted from January to July 2013 in a breastfeeding outpatient clinic of a public maternity school, a reference in obstetrics and gynecology care in the city of Fortaleza, Ceará, Brazil. This service works from Monday through Friday in morning and afternoon shifts and aims to evaluate and encourage breastfeeding practice and to monitor the baby's growth and development during the first six months of life, as well as to investigate health risk conditions, working toward their prevention.

It is composed of a team of four pediatric physicians, one nurse and five nursing technicians. The consultations follow a previous schedule and have a monthly frequency. The first appointment is scheduled at the time of discharge of the post-partum woman and subsequent visits upon child's attendance at the outpatient clinic. In most cases, the child is accompanied by the mother, who becomes the main interlocutor of the health-disease situation at hand.

The study population corresponded to postpartum women attending the follow-up visit of their newborn at the Breastfeeding Outpatient Clinic during the period of the study. In 2012, 4,356 puerperae attended the institution under investigation for the relevant consultation. From this data, the sample of this study was obtained based on the calculation of finite samples<sup>11</sup>, setting a significance level of 95% ( $t_{5\%}=1.96$ ) and an absolute sampling error of 5%, resulting in a sample of 354 puerperae. However, a final sample of 363 puerperae was considered to compensate for losses and bias during data collection.

Sample was systematically selected according to the demand of the institution studied (mothers who accompanied their children in the follow-up visit) and the previously established inclusion criteria.

The study's inclusion criteria were women in puerperium, mothers of full-term and uncomplicated birth children, aged 18 years or over, with lack of physical or mental restrictions that made it impossible to understand the research and the ability to respond.

Data were collected through an interview technique and guided by a data collection tool that addressed dependent variable "adherence to EB" and independent variables "maternal age", "schooling", "origin", "number of previous gestations", "prenatal care", "place of prenatal care", "number of prenatal consultations" and "receiving guidance on breastfeeding in prenatal care".

Statistical analysis was mediated by Statistical Package for Social Sciences (SPSS) version 21.0, which generated the frequency of the studied variables, mean and standard deviation. The multivariate robust logistic regression model was used to analyze correlations. These associations were statistically significant when p-value (probability) was less than or equal to 0.05 in the tests performed<sup>12</sup>.

The research was only implemented after approval of the project by the Research Ethics Committee of the Federal University of Ceará, as well as consent of the clinical director of the institution that hosted the data collection and women who composed the sample of the study, in compliance with standards of Resolution 466/12 of the National Health Council<sup>13</sup>.

## Results

Considering that the population stratum investigated (n=363) represents the population of children attended at the Breastfeeding Outpatient Clinic in question aged between zero and six months of life, we noted that the practice of EB among them was predominant, making a total of 278 (76.6%), according to Table 1.

However, we verified that the frequency of EB is higher in the first months of life, decreasing from 39.2% in children in the first month to 19.8% in the second month, 17.3% in the third month, 8.6% in the fourth month, 7.6% in the fifth month, 6.5% in the sixth month and 1.1% after the sixth month (Table 1).

Table 2 shows the distribution of women according to maternal variables and adherence to EB.

The age of women investigated ranged from 18 to 46 years, with a mean age of  $27.45 \pm 7.02$

years. Women aged between 20 and 30 prevailed (46%) among those who practiced EB (Table 2).

Regarding marital status, 222 (79.9%) women who breastfed exclusively had a partner, and 68 (80.0%) reported having a partner among those who did not practice EB (Table 2).

In the group of women with EB, there was a predominance of complete or incomplete secondary school (75.5%), followed by primary school (19.1%) and higher education (5.4%). On the other hand, the group of women who did not practice EB showed a similar trend, predominantly secondary school (75.2%), but had a case of illiteracy (1.2%) (Table 2).

The number of pregnancies of women investigated ranged from 1 to 12 pregnancies, with a mean pregnancy rate of  $2.14 \pm 1.28$ . Among women who practiced EB, those with two pregnancies predominated (34.9%); on the other hand, in the group of women who did not practice EB, the highest percentage appeared for the primigravidas (49.4%) (Table 2).

Regarding the performance of prenatal care, we found an adherence of 273 (98.2%) among women with EB and 85 (100%) among women without EB. In both groups, the place where most of prenatal consultations took place was at the Health Center, with the attendance of 169 (60.8%) women with EB and 49 (57.6%) without EB, followed by the outpatient clinic of tertiary and secondary hospitals, with 81 (29.1%) women with EB and 32 (37.7%) women without EB (Table 2).

The number of prenatal care visits for both groups ranged from zero to fourteen, with mean consultations of  $6.36 \pm 2.03$ . More than half of the women who practiced EB (51.8%) performed up to six consultations, whereas in the group of women who did not practice EB, most (54.2%) had performed more than six prenatal care visits (Table 2).

Breastfeeding guidance during prenatal care was lacking for 146 (52.5%) women who exclusively breastfed and 49 (57.65%) women who did not breastfeed exclusively (Table 2).

Only the variable number of previous gestations had a significant correlation with EB practice ( $p = 0.001$ ), with a prevalence ratio of 0.38. The other dependent variables mother's age, marital status, schooling, prenatal care, place of prenatal care, number of prenatal consultations and EB guidance in prenatal care did not correlate with the outcome of interest.

**Table 1.** Distribution of infants according to age and adherence to exclusive breastfeeding, Fortaleza-Ceará-Brazil, 2013.

Child's age	Exclusive Breastfeeding (EB)					
	Yes		No		Total	
	N	%	N	%	N	%
0m ---  1m	109	39.2	12	14.1	121	33.3
1m ---  2m	55	19.8	16	18.8	71	19.6
2m ---  3m	48	17.3	19	22.4	67	18.5
3m ---  4m	24	8.6	06	7.1	30	8.3
4m ---  5m	21	7.6	10	11.8	31	8.5
5m ---  6m	18	6.5	17	20.0	35	9.6
≥ 6m	03	1.1	05	5.9	08	2.2
<b>Total</b>	<b>278</b>	<b>100</b>	<b>85</b>	<b>100</b>	<b>363</b>	<b>100</b>

**Table 2.** Distribution of women according to maternal variables and adherence to Exclusive Breastfeeding, Fortaleza-Ceará-Brazil, 2013.

Maternal Variables	Exclusive Breastfeeding (EB)		Mean (SD)	p value
	Yes	No		
	N %	N %		
Age (years)				
≤ 20	54 19.4	11 12.9	27.45 (± 7.02)	0.626
20 — 30	128 46.0	44 51.8		
30 — 40	81 29.2	27 31.8		
≥ 40	15 5.4	03 3.5		
Marital Status				
With partner	222 79.9	68 80.0		0.977
Without partner	56 20.1	17 20.0		
Schooling				
Illiterate	- -	01 1.2		0.413
Primary School	53 19.1	14 16.5		
Secondary School	210 75.5	64 75.2		
Higher Education	15 5.4	06 7.1		
Gestations				
1	94 33.8	42 49.4	2.14 (± 1.28)	<b>0.001</b>
2	97 34.9	20 23.5		
≥ 3	85 31.3	23 27.1		
Prenatal Care				
Yes	273 98.2	85 100.0		0.999
No	05 1.8	- -		
Place of Prenatal Care				
Health Center	169 60.8	49 57.6		0.463
Tertiary Hospital Outpatient Clinic	64 23.0	26 30.6		
Private Clinic	22 7.9	03 3.5		
Secondary Hospital Outpatient Clinic	17 6.1	06 7.1		
Did not perform prenatal care	05 1.8	- -		
Workplace outpatient clinic	01 0.4	01 1.2		
Number of Prenatal care visits				
None	05 1.9	- -	6.36 (± 2.03)	0.332
≤ 6	144 51.8	39 45.8		
> 6	129 46.3	46 54.2		
Guidance on EB in Prenatal care				
No	146 52.5	49 57.6		0.350
Yes	132 47.5	36 42.4		
<b>TOTAL</b>	<b>278 100.0</b>	<b>85 100.0</b>		

## Discussion

Despite all the scientific evidence supporting the superiority of breastfeeding over other forms of infant feeding, most children in Brazil and the world are not breastfed for two years or more and do not receive exclusive breast milk in the first six months, as recommended by the World Health Organization (WHO). At the global level, about 35% of babies from zero to 6 months of age are exclusively breastfed<sup>3</sup>. The Second Survey of Prevalence of Breastfeeding in the Brazilian Capitals and Federal District (DF) showed a similar behavior among the different capitals and regions of the country, since 41% of total children under six months of age analyzed were in EB<sup>5</sup>. In the investigated reality, a percentage above this average was found (76.6%), which indicates a specialized quality service regarding encouraging EB practice.

In an attempt to reduce infant mortality rates in Brazil, one of the recommendations of the Ministry of Health is that every child should leave the maternity hospital with the first appointment scheduled in a health service or clinic, preferably in the first week of life<sup>1</sup>. This recommendation is complied with by the institution studied, as well as following the 10 steps of the Baby-Friendly Hospital Strategy, with certification. This shows that, when put into practice, initiatives of this nature result in the improvement of health indicators of its users.

In this study, we observed that the frequency of EB was higher in the first month of life, decreasing with child's age. A similar finding was obtained in a study on European infants, where the proportion of mothers offering EB in the first, third and sixth month was 67.7% (n = 168), 58.1% (n = 144) and 12.5% (n = 31), respectively<sup>14</sup>.

Among the factors discussed, it was verified that the mother's age profile was similar to that found in other studies, mostly between 20 and 30 years<sup>9,15</sup>. In the last decade, there was a significant change in the profile between the years, with a decrease in the share of mothers under the age of 24 and an increase in those older than 25 years, evidencing a trend of increasing maternal age, reported in the Federal District and the other Brazilian capitals<sup>5</sup>.

Although the results of this study did not find a relationship between maternal age and adherence to EB, a cross-sectional study carried out in the city of Londrina-PR with 770 escorts of children under 12 months of age during the polio vaccination campaign has a significant as-

sociation between EB and maternal age, showing that adolescent mothers were more likely not to exclusively breastfeed their children than mothers aged between 20 and 25 years and those aged 35 years and older<sup>16</sup>.

Thus, maternal age is an important factor and should be considered when analyzing the factors related to early weaning, since mothers under the age of 20 tend to introduce food earlier in the baby's life<sup>17,18</sup>.

Another aspect that should be evaluated against adherence to breastfeeding is marital status, since studies have shown a statistically significant association between these variables<sup>19</sup>. In a study conducted in the United States of America (USA) with 25,197 telephone interviews in 2007 and 2008, it was found that children living with both parents were more likely to have been exclusively breastfed (80.4%) than children of other types of families<sup>20</sup>. Thus, although data related to the marital status and the EB in this study did not show statistical significance, we can see similarities between these studies, since most of the women with their partners show a positive influence on the EB practice.

Regarding the educational level, there was no positive significance between EB and this variable, which is in agreement with other findings<sup>17</sup>. However, studies show that early weaning is associated with low maternal schooling<sup>21</sup>. A higher level of maternal schooling seems to be a predictive factor for the successful practice of EB and may be related to increased maternal self-confidence in the face of discomforts and problems of breastfeeding, and allows the analysis of the external factors that influence this practice more consciously and coherently in view of its benefits<sup>17</sup>.

Corroborating with the findings of this study, the experience of previous gestation is described as a protective factor against adherence to breastfeeding. The greater the number of pregnancies, the greater the experience of the mothers and, therefore, the longer the duration of breastfeeding for the next children<sup>14</sup>.

Not having breastfed a child previously is the variable with the highest independent risk for abandonment of EB or complete cessation of breastfeeding, followed by breastfeeding for four months or less. Mothers who value breastfeeding to a previous child as "very positive" breastfeed more than those who value breastfeeding as "not or barely positive"<sup>14</sup>. The adequate prenatal care follow-up of these mothers allows the identification of problems and risks in a timely manner for intervention. In this study, the women in-

investigated had performed on average six prenatal visits. In a study of the Brazilian situation in 2008, the proportion of pregnant women who performed seven or more prenatal care consultations increased from 46% in 2000 to 53% in 2008, with important regional differences: 68% in the South, 35 % in the Northeast and 29% in the North (Figure 3); and only 2.5% did not perform prenatal care<sup>22</sup>.

Thus, an attentive and accurate eye of the health team focused on the mothers who did not breastfeed previously, as well as on the primiparous women, promoting strategies with a dialogic and enabling approach in the process of breastfeeding empowerment and belonging is essential.

In a longitudinal study with 531 children, it was observed that failing to perform prenatal care increased by 173% the risk of reducing the duration of breastfeeding<sup>23</sup>. It is worth mentioning that the great care challenge is currently not only related to the number of consultations, but also to the quality of care and behaviors during prenatal care. A prenatal consultation that clarifies the possible risks to mother and child health and provides possibilities to avoid them will contribute to improved postpartum experience.

Some authors suggest that prenatal care is the ideal time to provide guidelines on breastfeeding, since specific interventions for professional support and access to adequate information have shown effectiveness in improving the rates of this practice<sup>24,25</sup>.

In this study, it was found that more than half of the sample did not receive health education about breastfeeding during prenatal care, however, they breastfed. This may be related to the existence of other sources of health information that influence the act of breastfeeding, such as the women's social support network, the spoken media, internet research sources or social networks, as well as life experiences and motivation. However, this will only be successful if the correct information is disseminated, which shows the need to have an expert on the subject spearheading this process. Therefore, other investigations are suggested to clarify this association.

It is known that health professionals, especially nurses, play a fundamental role in the pro-

motion, protection and support of breastfeeding, and in order to fulfill this role, in addition to knowledge and skills related to technical aspects of lactation, it is necessary to take a careful, comprehensive look, always taking into consideration the emotional aspects, the family culture, the women's support social network, among other aspects to discover with each individual in particular<sup>1</sup>.

## Conclusion

It was observed that there was a predominance of EB practice in the outpatient service investigated. However, this adherence tended to decrease during the first six months of the child's life, showing that keeping EB for the period recommended by the WHO is still a challenge for mother and child health care services.

Regarding the sociodemographic maternal variables, most women investigated were between 20 and 30 years old, with a partner, with secondary school education level and came from the capital. None of these variables served as a protective factor for EB practice.

Regarding maternal obstetric variables, there was a predominance of two previous pregnancies (EB group), adherence to prenatal consultations (both groups), with main place of prenatal care being the health center (both groups) and with up to six consultations (EB group). Among these variables, only the number of previous pregnancies worked as a protective factor of EB practice.

In the institution investigated, the presence of nurses in the breastfeeding outpatient clinic is still incipient, but stands out for educational interventions on this practice. It is believed that a search for longitudinal performance, which includes the implementation of educational interventions and the monitoring of the expected results of its clientele is a trend among nurses, and this type of strategy finds viability in settings such as specialized outpatient clinics.

Furthermore, it is hoped that the described construct could provide support to health professionals for the planning and implementation of pro-breastfeeding interventions and the promotion of mother and child health.

## Collaborations

HLOC Ferreira, MF de Oliveira and EBR Bernardo worked on the design of the study, data interpretation and on paper writing and formatting. PC de Almeida collaborated in data analysis. PS Aquino and AKB Pinheiro contributed to the paper's critical review. All authors approved the final version to be published.



## References

1. Brasil. Ministério da Saúde (MS). *Atenção à saúde do recém-nascido: guia para os profissionais de saúde*. Brasília: MS; 2011.
2. World Health Organization (WHO). *Indicators for assessing infant and young child feeding practices: conclusions of a consensus meeting held 6-8 November 2007 in Washington, DC, USA*. Geneva: WHO; 2008.
3. World Health Organization (WHO). *Exclusive breastfeeding for six months best for babies everywhere*. Geneva: WHO; 2011.
4. Brasil. Ministério da Saúde (MS). *Pesquisa de Prevalência de Aleitamento Materno em Municípios Brasileiros. Situação do Aleitamento Materno em 227 municípios brasileiros*. Brasília: MS; 2010.
5. Brasil. Ministério da Saúde (MS). *II Pesquisa de prevalência de aleitamento materno nas capitais brasileiras e Distrito Federal*. Brasília: MS; 2009.
6. Nabulsi M, Hamadeh H, Tamim H, Kabakian T, Charafeddine L, Yehya N, Sinno D, Sidani S. A complex breastfeeding promotion and support intervention in a developing country: study protocol for a randomized clinical trial. *BMC Public Health* 2014; 14(36):1-11.
7. Dodt RCM, Ferreira AMV, Nascimento LA, Macêdo AC, Joventino ES, Ximenes LB. Influence of health education strategy mediated by a self-efficacy breastfeeding serial album. *Texto & contexto enferm*. 2013; 22(3):610-618.
8. Watkins AL, Dodgson JE. Breastfeeding educational interventions for health professionals: a synthesis of intervention studies. *J. spec. pediatr. nurs.* 2010; 15(3):223-232.
9. Rothman KJ, Greenland S. Types of epidemiologic study. In: Rothman KJ, Greenland S. *Modern epidemiology*. 2<sup>nd</sup> ed. Philadelphia: Lippincott Williams & Wilkins; 1998. p. 67-78.
10. Klein CH, Bloch KV. Estudos seccionais. In: Medronho K. *Epidemiologia*. Rio de Janeiro: Atheneu; 2002. p. 125-150.
11. Katz DL, Wild D, Elmore JG, Lucan SC. *Jekel's Epidemiology, Biostatistics, Preventive Medicine, and Public Health*. 4<sup>th</sup> ed. Philadelphia: Elsevier/Saunders; 2013.
12. Doria Filho U. *Introdução à bioestatística: para simples mortais*. São Paulo: Negócio Editora; 1999.
13. Brasil. Ministério da Saúde (MS). Conselho Nacional de Saúde. Resolução nº 466, de 12 de dezembro de 2012. *Diário Oficial da União* 2013; 13 dez.
14. Roig AO, Martínez MR, García JC, Hoyos SP, Navidad GL, Álvarez CF, Pujalte Mdel M, De León González RG. Factors associated to breastfeeding cessation before 6 months. *Rev. latinoam. enferm*. 2010; 18(3):373-380.
15. Sampaio PF, Moraes CL, Reichenheim ME, Oliveira ASD, Lobato G. Birth in Baby-Friendly Hospitals in Rio de Janeiro, Brazil: a protective factor for breastfeeding? *Cad Saude Publica* 2011; 27(7):1349-1361.
16. Souza SNDH, Migoto MT, Rossetto EG, Mello DF. Prevalence of breastfeeding and associated factors in the municipality of Londrina (PR, Brazil). *Acta paul. enferm*. 2012; 25(1):29-35.
17. Queluz MC, Pereira MJB, Santos CB, Leite AM, Ricco RG. Prevalence and determinants of exclusive breastfeeding in the city of Serrana, São Paulo, Brazil. *Rev. Esc. Enferm. USP*. 2012; 46(3):537-543.
18. Sanches MTC, Buccini GS, Gimeno SGA, Rosa TEC, Bonamigo AW. Factors associated with interruption of exclusive breastfeeding in low birth weight infants receiving primary care. *Cad Saude Publica* 2011; 27(5):953-965.
19. Jones JR, Kogan MD, Singh GK, Dee DL, Grummer-Strawn LM. Factors Associated with Exclusive Breastfeeding in the United States. *Pediatrics* 2011; 128(6):1117-1125.
20. Pereira RSV, Oliveira MIC, Andrade CLT, Brito AS. Factors associated with exclusive breastfeeding: the role of primary health care. *Cad Saude Publica* 2010; 26(12):2343-2354.
21. Caminha MFC, Batista Filho M, Serva VB, Arruda IKG, Figueiroa JN, Lira, PIC. Time trends and factors associated with breastfeeding in the state of Pernambuco, Northeastern Brazil. *Rev Saude Publica* 2010; 44(2):240-248.
22. Brasil. Ministério da Saúde (MS). Rede Interagencial de Informações para a Saúde. Indicadores e dados básicos para a saúde 2007. Tema do ano: nascimentos no Brasil. Brasília: MS; 2008.
23. Demétrio F, Pinto EJ, Assis AMO. Factors associated with early breastfeeding cessation: a birth cohort study in two municipalities in the Recôncavo region, Bahia State, Brazil. *Cad Saude Publica* 2012; 28(4):641-654.
24. Domingues RMSM, Hartz ZMA, Dias MAB, Leal MC. Adequacy of prenatal care in the National Health System in the city of Rio de Janeiro, Brazil. *Cad Saude Publica* 2012; 28(3):425-437.
25. Campos AAO, Cotta RMM, Oliveira JM, Santos AK, Araújo RMA. Nutritional counseling for children under two years of age: opportunities and obstacles as strategic challenges. *Cien Saude Colet* 2014; 19(2):529-538.

Article submitted 09/03/2016

Approved 25/05/2016

Final version submitted 27/05/2016