



The impact of training based on the Baby-Friendly Hospital Initiative on breastfeeding practices in the Northeast of Brazil

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Abstract

Objective: To evaluate the impact of training based on the Baby Friendly Hospital Initiative on breastfeeding practices in maternity wards and during the first 6 months of life.

Methods: Ninety percent of nursing auxiliaries and midwives were trained at two institutions (A and B) in Palmares, Pernambuco state. Three hundred and thirty-four mothers were interviewed within the first 48 hours and 10 days after childbirth to evaluate breastfeeding practices at the maternities and fulfillment of steps four through ten of the Baby Friendly Hospital Initiative. A subset of 166 mothers received seven home visits to evaluate breastfeeding practices throughout the first 6 months of life and to compare results with those of a cohort study conducted in the area in 1998.

Results: The performance of maternity B was significantly better than that of maternity A, from steps four to ten and also in terms of exclusive breastfeeding and offering less water or tea to infants ($p < 0.001$). The comparison with a previous cohort study demonstrated an improvement in breastfeeding practices at the maternity wards and an increase of exclusive breastfeeding prevalence (from 21.2 to 70%), during the first 48 hours after delivery and throughout the first 6 months.

Conclusions: The training promoted partial change to some practices related to breastfeeding, having a positive effect on total and exclusive breastfeeding at the maternity wards. However, there was no significant change to these practices over the first 6 months of life, suggesting the need for effective interventions to support exclusive breastfeeding in the health sector and in the community.

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Introduction

Exclusive breastfeeding for 6 months has revealed itself a key strategy for reducing infant mortality.¹⁻⁵ Despite the knowledge of the innumerable advantages of using human milk for infant nutrition, essential to the survival of poor

children in underdeveloped countries, the practice of breastfeeding is still far from being practiced by all.⁶

In 1990, the Baby Friendly Hospital Initiative (BFHI) was created. It is a program that sets out changes to the routines and conduct adopted at maternity units, aimed at the promotion, protection and support of breastfeeding. Two years later, the program was adopted by Brazil as a strategy for increasing breastfeeding rates, promoting the training of maternity unit professionals in fulfilling the ten steps for successful breastfeeding.⁷

Several different studies demonstrate that it is possible to improve the practices that stimulate breastfeeding at maternity units with an 18-hour BFHI training course, based on the 10 steps to successful breastfeeding.⁸⁻¹⁴

Research performed by the Health Ministry, in 1999,¹⁵ in Brazilian state capitals and the *Distrito Federal*, revealed

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an impressive increase in the prevalence of breastfeeding, probably resulting from the efforts of the breastfeeding encouragement programs. Nevertheless, the practice of exclusive breastfeeding is still little practiced in Brazil. The median duration observed was 23.4 days, varying in the state capitals of the Northeast from 6.8 days in Recife to 63.6 days in Fortaleza.¹⁵ The change in median breastfeeding observed in the urban areas of large cities was not observed in provincial urban areas or rural areas.¹⁶

A cohort study undertaken in 1998 in the *Zona da Mata Meridional* in Pernambuco revealed that the median duration of exclusive breastfeeding was zero days. In that region, the habit of giving water, teas and other foods is begun in the maternity units or during the first week of life.¹⁷ After the results of that study, it was felt that there was a need for an intervention project in the area, offering the professionals working in maternity units training in breastfeeding management based on the BFHI.

The present study was therefore carried out with the objective of assessing the impact of that training on the practices for breastfeeding promotion that equate to steps 4 to 10 of the BFHI and also to investigate frequency rates for breastfeeding and exclusive breastfeeding during the first 6 first months of life.

Methods

The study was undertaken at two maternity units in the town of Palmares, which handle approximately 90% of deliveries of the children of women resident in the towns within the study area (Palmares, Catende, Água Preta and Joaquim Nabuco, located in the *Zona da Mata Meridional* in Pernambuco). The majority of patients are on the Brazilian National Health Service (*Sistema Único de Saúde* - SUS). At these maternity units vaginal deliveries are dealt with by midwives or nursing auxiliaries and only surgical deliveries or those requiring forceps are performed by doctors. Even though rooming-in was available, at the start of the study, no activities were performed to encourage and support breastfeeding.

An intervention was implemented that aimed to capacitate the health professionals at these maternity units by means of training based on the UNICEF/WHO¹⁸ 18-hour course on "Breastfeeding Management in a Baby Friendly Hospital", with an additional 2 hours focusing on "Breastfeeding Counseling".¹⁹ Forty-two professionals from the two maternity units were trained simultaneously (90% of the midwives and nursing auxiliaries), split into two courses, given by the same teaching team in January and February 2001. Doctors did not take part in the course, claiming "No spare time". The knowledge acquired by participants was investigated with before-and-after testing. The professionals who were trained were unaware of the objectives of the present study. One nursing auxiliary was selected at each institution to act as a consultant on breastfeeding-related problems and were given extra training. UNICEF educational materials, standards and routines were made available.

The sample size calculation was based on the prevalence of exclusive breastfeeding during the first 48 hours of life (21.2%), obtained by means of a cohort study undertaken in the area in 1998.¹⁷ It was estimated that the intervention would increase this prevalence by at least 30%. Assuming a power of 80% and a significance level of 5%, a minimum of 315 children was estimated as necessary, to which figure were added a further 35 children to account for possible losses. The final sample was set at 350 mother-child pairs.

During recruitment informed consent was obtained from the mothers. The following inclusion criterion was applied: mothers resident in the urban areas of Palmares, Água Preta, Catende or Joaquim Nabuco, with no intention of leaving town in the subsequent 6 months. Exclusion criteria were: mothers suffering from severe or mental illnesses, twins or higher multiple births, severe neonatal diseases, congenital malformations and chromosomal anomalies. Thirty-four of the 384 mothers eligible during the period March to August 2001 refused to take part. The remaining 350 women were interviewed during the first 48 hours postpartum. There were no differences between the 34 recently delivered mothers who did not wish to participate and the 350 who did in terms of sociodemographic characteristics (age, schooling, parity and birth weight). In order to make it possible to compare the results with those of Marques *et al.*,¹⁷ all newborn infants with weights below 2,500 g were excluded, leaving 334 mothers.

A structured, pre-coded questionnaire was applied at the first interview at the maternity unit in order to obtain demographic and socioeconomic data in addition to information on, maternal reproductive history and data on the newborn infant.

Breastfeeding support and encouragement activities related to steps 4 to 10 of the BFHI were assessed against information obtained from mothers during home visits 10 days after delivery. Steps 1 to 3 were not investigated because the maternity units did not have written standards on breastfeeding, did not provide prenatal care and because the doctors had refused to participate in training.

A subset of 166 recently delivered mothers was selected by randomized lots to assess breastfeeding frequency over the first 6 months by means of seven home visits on days 10, 30, 60, 90, 120, 150 and 180. There were 14 losses (8.4%) during the 6 months' follow-up period, 13 because they moved to rural areas or other towns not in the study. One child suffered sudden death.

A historic control group from a cohort study performed in 1998, by the same research team in the same area and using comparable methodology to the present study, was used for comparative analysis of breastfeeding-related activities and practices at the maternity units and the frequencies of breastfeeding and exclusive breastfeeding during the first 6 months.¹⁷

Data was collected by a nutritionist and a nurse, responsible for the recruitment phase at the maternity units, one fieldwork supervisor and four research assistants who made the home visits.

The definitions of exclusive breastfeeding and breastfeeding used for this study are those adopted by the WHO:²⁰ exclusive breastfeeding is defined as the consumption of human milk, direct from the breast or extracted, with no intake of any other liquid, such as water, teas, juices or solids, with the exception of drops or syrups for administering vitamins, minerals or medication; breastfeeding is defined as when the child receives human milk, direct from the breast or extracted, irrespective of whether they are given other foods or liquids, including non-human milk, or other milk, defined as milk other than the mother's.

The questionnaires were reviewed daily and double-input onto an Epi-Info, version 6.04 database and then validated. The chi-square test (with Yates' correction for binary variables) was used to assess associations between categorical variables and Student's t test was used for continuous variables, with the level of significance set at 5%.

If problems with breastfeeding were identified during home visits, mothers were instructed to seek the health service. The same procedure had been adopted in the cohort study from 1998.¹⁷ This study was approved by the Committee for Ethics in Research at the *Universidade Federal de Pernambuco* (hearing 005/2001-CEP/CCS).

Results

The total sample (334 mothers) included 32.6% of mothers under 20 years old, 37.7% who were primiparous, 31.4% had never attended school or had up to 4 years' schooling and 83.8% were living with the baby's father. More than half of the families (59.3%) had incomes of less than one minimum monthly wage *per capita* and just 6% of the women had not received prenatal care. Twenty-eight point four percent of the babies were delivered by caesarian and the mean birth weight was 3,246 g (DP = 402) (Table 1).

The only statistically significant difference observed between the two maternities was in number of previous pregnancies, with maternity unit B having a larger percentage of primiparous mothers (45.3%) than maternity unit A (27.5%) (Table 1).

When the current sample was compared with the 1998 cohort¹⁷(Table 1), the current sample was observed to contain more families with *per capita* income below the minimum wage, a larger percentage of women who had received prenatal care and a higher prevalence caesarian deliveries.

Table 2 contains the results of the assessment of practices related to BFHI steps 4 to 10. Maternity unit B

Table 1 - Sociodemographic characteristics of gestation and newborns delivered at two maternities and historic cohort

Variables	Maternities											
	1998*		Total					2001		B		p
	n = 364	%	n = 334	%	p	n = 142	%	n = 192	%			
Mothers' age (years)												
< 20	130	35.7	109	32.6	0.62	39	27.5	70	36.4	0.15		
20-24	125	34.4	125	37.5		54	38.0	71	37.0			
≥ 25	109	29.9	100	29.9		49	34.5	51	26.6			
Number of gestations												
1	136	37.4	126	37.7	0.65	39	27.5	87	45.3	0.003		
2	101	27.7	83	24.9		39	27.5	44	22.9			
≥ 3	127	34.9	125	37.4		64	45.0	61	31.8			
Per capita income												
< 0.5 minimum wage	171*	49.9	198	59.3	0.02	80	56.3	118	61.5	0.41		
Mothers' schooling												
0-4	137	37.6	105	31.4	0.22	40	28.2	65	33.9	0.18		
5-8	142	39.0	140	41.9		57	40.1	83	43.2			
≥ 9	85	23.4	89	26.7		45	31.7	44	22.9			
Live with the baby's father	291	79.9	280	83.8	0.22	123	86.6	157	81.8	0.30		
Followed prenatal care												
No	66	18.1	20	6.0	< 0.001	6	4.2	14	7.3	0.35		
Yes	298	81.9	314	94.0		136	95.8	178	92.7			
Type of delivery												
Surgical	66	18.1	95	28.4	0.001	47	33.1	48	25.0	0.13		
Mean weight at term g (DP)	3,184	(410)	3,246	(402)	0.27	3,264	(410)	3,234	(400)	0.50		

* Not informed (21 cases = 5.8%).

performed better than maternity unit A in terms of breastfeeding encouragement activities (a statistically significant difference). The lower level of usage of water, tea and formula at maternity unit B helped it to a higher percentage of exclusive breastfeeding than maternity unit A ($p < 0.001$). At maternity unit B, some modifications were made with relation to supporting breastfeeding, with management support: the selection of a nursing auxiliary to be responsible for daily individual visits to recently delivered mothers, for guidance and support with lactation management; reclining chairs were commissioned for the wards, offering increased comfort while breastfeeding; scaled-down copies of the Health Ministry's serial album on breastfeeding; posters on breastfeeding in the wards; educational pamphlets on breastfeeding distributed to recently delivered mothers at hospital discharge; and refusing permission to use pacifiers and bottles.

Table 3 compares the data from the historic cohort,¹⁷ with relation to activities for the encouragement and support of breastfeeding at the maternity units, with data from the current study (2001), after the professionals had been trained. Performance is better in 2001 and exclusive breastfeeding rates are up.

The comparison of exclusive breastfeeding rates over the 6 first months of life for the two studies demonstrated an increase in the practice among the mothers in the second study. The differences were statistically significant with the exception of at days 30 and 180. There was no statistically significant difference between the two studies for overall breastfeeding. Over the 6 first months of life, both breastfeeding rates and exclusive breastfeeding rates were similar for mothers recently delivered at each maternity unit (Table 4).

Discussion

It was possible to improve some hospital practices for the support of breastfeeding by means of the training given.

Early skin-to-skin contact encourages early suction, an important indicator of successful breastfeeding.^{11,21} In the current study, after training had been given an improvement was observed in the professionals' performance at placing babies in contact with their mothers in the delivery room; an activity more often performed at maternity unit B. This improvement was detected by comparison with the results from the earlier study in 1998.¹⁷ Notwithstanding, few mothers were helped to

Table 2 - Prevalence of practices related to Baby Friendly Hospital Initiative steps 4 to 10 at maternities A and B

Maternity activities	Maternities				p
	A		B		
	n = 141	(%)	n = 192	(%)	
Step 4					
Early skin-to-skin contact	24	17.0	100	52.1	< 0.001
Help to breastfeed in the delivery room					
Yes	01	0.7	19	9.9	0.002
Step 5					
Guidance as to holding the baby and latch on	11	7.8	66	34.4	< 0.001
Guidance as to suction	7	5.0	30	15.6	0.005
Step 6					
Exclusive breastfeeding	80	56.7	153	79.7	
Human milk + water and/or tea	20	14.2	21	10.9	
Human milk + formula	2	1.4	-	-	
Only water and/or tea	39	27.7	18	9.4	< 0.001
Step 7					
Procedures after delivery					
Rooming-in	108	76.6	185	96.4	< 0.001
Separation after delivery					
No	91	64.5	173	90.1	< 0.001
Step 8					
Guidance as to free demand	7	5.0	28	14.6	0.008
Step 9					
Guidance about pacifiers					
Yes, not to use	13	9.2	82	42.7	< 0.001
Guidance as to milk bottles					
Yes, not to use	11	7.8	73	30.8	< 0.001
Step 10					
Guidance for support after discharge	0	0	10	5.2	0.02
Posters on breastfeeding					
Yes	25	17.7	103	56.6	< 0.001

Table 3 - Comparison of encouragement and support to breastfeeding and its prevalence within maternities in 1998 and 2001

Activities in maternities		1998 ¹⁷		2001		p
		n = 364	(%)	n = 333	(%)	
Early skin-to-skin contact	Yes	94	25.8	124	37.2	< 0.001
Help to breastfeed in the delivery room	Yes	21	5.8	20	6.0	0.98
Guidance as to holding the baby and latch on	Yes	35	9.6	70	21.0	< 0.001
Tea	Yes	262	72.0	51	15.3	< 0.001
Water	Yes	42	11.5	14	4.2	< 0.001
Formula	Yes	4	1.1	2	0.6	0.69
Pacifiers	Yes	172	47.2	81	24.3	< 0.001
Breastfeed		249	68.4	276	82.9	< 0.001
Exclusive breastfeeding	Yes	77	21.2	233	70.0	< 0.001

breastfeed soon after the birth, at either maternity or at either period. In São Paulo, this practice was not observed in any of the public or private hospitals.⁶

Studies have proven the importance of rooming-in to improving the mother-child relationship, to developing confidence in caring for the baby and the capacity to breastfeed, reducing the introduction of prelactation foods and increasing breastfeeding frequency and

duration.^{12,15,22} Rooming-in takes place at both maternity units, although the newborn infants at maternity unit A spend longer away from their mothers, probably due to the larger number of surgical deliveries. Separation deprives newborn infants of breastfeeding and makes it more likely that they will be offered other liquids, compromising the establishment of lactation and adequate maternal milk production.

Table 4 - Comparison of breastfeeding and exclusive breastfeeding during the 6 first months, in both studies

Exclusive breastfeeding (days)	1998 ¹⁷		2001 Maternities			
	n	%	Total	%	A (%)	B (%)
10	345	21.2	166	30.1*	32.4	28.3
30	345	10.7	159	15.7	13.7	17.4
60	341	7.0	158	17.7*	15.5	19.5
90	331	4.5	157	10.8*	8.5	12.8
120	321	2.8	155	9.7*	8.6	10.6
150	317	1.6	151	6.0*	4.4	7.2
180	314	0.6	152	3.3	2.9	3.6
Breastfeeding (days)						
10	345	94.8	166	94.6	94.6	94.6
30	345	87.8	159	85.5	83.6	87.2
60	341	72.4	158	70.3	76.1	65.5
90	341	56.8	157	58.6	62.0	55.8
120	321	47.0	155	48.4	52.9	44.7
150	317	42.3	151	38.4	41.2	36.1
180	314	35.4	152	38.8	42.6	35.7

* (2001 versus 1998) p < 0.05.

Guidance on breastfeeding management was scarce at both institutions; however, there is an evident difference among the professionals at maternity unit B, who had a nursing auxiliary dedicated to the daily guidance and support of recently delivered mothers, which was not offered at maternity unit A. This fact alone cannot explain the difference found when the variable was compared across the two studies. However, the number of women receiving guidance on breastfeeding is still unsatisfactory.

The early use of prelactation foods interferes with satisfactory milk production and makes the early introduction of formula more likely. In the previous study, in the same region, 80% of the mothers had started to give water and tea during the first week of life, and it is habitual in the region to take tea to the maternity unit.¹⁷ After training the practice was taking place on a smaller scale, particularly at maternity unit B, where these liquids were prohibited and a system of vigilance against them instigated. However, giving tea to “clean out the intestines and avoid cramps” and water to “slake thirst” are still cultural practices that are adopted by many mothers and grandmothers during the first days of life.

The frequency of pacifier and bottle usage is very high in our country. In Recife, 72% of children under one year use bottles and 60.3% pacifiers.¹⁵ Studies have demonstrated that the use of pacifiers affects the duration of breastfeeding.^{23,24} Howard *et al.*²⁴ suggested that the reduced length of breastfeeding among mothers who give pacifiers may be a consequence of the lower frequency of feeds among children with pacifiers. Pacifiers also seem to contribute to early weaning, in particular among mothers who are under confident about breastfeeding, and they may be a marker for breastfeeding problems.^{25,26} In the experience of the authors, the mothers of the *Zona da Mata* in Pernambuco offer pacifiers and bottles because they think it's pretty, that it's easier to console and feed children that way and consider them social status symbols that are essential items when preparing for a new child. They are unaware of the negative influence on breastfeeding and the damaging effects these devices may have on the health of their children. In the earlier study 91% of women took pacifiers and bottles to the maternity unit, and approximately half had already given them to their children before leaving the unit.¹⁷ Despite the cultural habit being extremely strong in this region, after training of their professionals, both maternity units reduced the practice.

Some changes did, therefore, take place in terms of hospital practices after training, particularly at maternity unit B, probably as a result of the administrative support that was reflected in the activities developed at that institution with management support. This did not take place at maternity unit A, which exhibited results to those found by the 1998 study.¹⁷ The fact that doctors were not trained together with the absence of a policy in favor of breastfeeding made it impossible to completely implement the practices contained in the BFHI ten steps.

At maternity units, success at establishing lactation can be influenced by hospital routines and by training

professionals in breastfeeding management. This study did not have the objective of transforming the two maternity units into “Baby Friendly Hospitals”, but of improving breastfeeding-related hospital practices. The prevalence rates of exclusive breastfeeding during the first 48 hours of life were higher at both maternity units (A = 56.7% and B = 79.7%) than what was observed in the earlier study (21.2%).¹⁷ There was also an improvement in exclusive breastfeeding rates among children assessed for 6 months postpartum in 2001, when compared with the data from 1998.¹⁷

The differences observed in sample characteristics between the two studies do not appear to be relevant to changes in breastfeeding practices. The increase in prenatal care in 2001 is probably related to stimulus to perform female sterilization during elective surgical delivery, and does not necessarily reflect an increased level of breastfeeding encouragement. The difference in *per capita* income might be influenced by a lack of observed information (5.8%) in the 1998 study and not by a change in the profile of those served by the maternity units.

In conclusion, the training carried out promoted partial changes in some practices favorable to breastfeeding at the maternity units when compared with the earlier study.¹⁷ Despite having the support of the administration of one of the maternity units, complete development of the BFHI 10 steps was not observed at this maternity unit and neither did it maintain the advantage it held in exclusive breastfeeding rates for the entire six months. These results bring the reflection that health professionals and management must provide more effective and continuous support to exclusive breastfeeding through the entire prenatal, perinatal and postnatal cycle.

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