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Baby-Friendly Hospital: prevalence of exclusive breastfeeding at 6 months and intervening factors*

HOSPITAL AMIGO DA CRIANÇA: PREVALÊNCIA DE ALEITAMENTO MATERNO EXCLUSIVO AOS SEIS MESES E FATORES INTERVENIENTES

HOSPITAL AMIGO DEL NIÑO: LA PREVALENCIA DE LACTANCIA MATERNA EXCLUSIVA HASTA LOS SEIS MESES Y LOS FACTORES QUE INTERVIENEN

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ABSTRACT

The objective of this research was to identify the pattern of exclusive breastfeeding (EBF) in the first 6 months of infants born in a Baby-Friendly Hospital and the factors that contribute to early weaning. This was a prospective cohort study with 261 mothers and children. The data were analyzed via the construction of a Kaplan-Meier survival curve, and the log-rank test was used for the univariate analysis. A multivariate analysis was performed using the Cox proportional-hazards regression model. During the 6 months, the percentage of mothers who practiced EBF for 30, 90, 120, 150 and 180 days was 75%, 52%, 33%, 19% and 5.7%, respectively. In the multivariate analysis, the variables that conferred a risk for early weaning were the hospital and the occurrence of a follow-up visit due to mammary complication, improper positioning and the association of both of these factors. The Baby-Friendly Hospital Initiative favored EBF.

DESCRIPTORS

Breast feeding
Health promotion
Health Policy
Program evaluation
Maternal-child nursing

RESUMO

O objetivo da pesquisa foi identificar o padrão de aleitamento materno exclusivo nos primeiros seis meses de vida de crianças nascidas em um Hospital Amigo da Criança e os fatores que contribuíram para o desmame precoce. Estudo de coorte prospectivo com 261 mães e crianças. Os dados foram avaliados utilizando-se a análise de sobrevivência através da construção da curva de Kaplan-Meier e teste de Log-Rank para a análise univariada. Foi realizada análise multivariada utilizando-se o modelo de Regressão de Cox com riscos proporcionais. Ao longo dos seis meses, o aleitamento materno exclusivo praticado com 30, 90, 120, 150 e 180 dias foi 75%, 52%, 33%, 19% e 5,7%, respectivamente. Na análise multivariada, as variáveis que mostraram risco para o desmame precoce foram a intercorrência mamária hospitalar e, na consulta de retorno, a posição inadequada e a associação das duas anteriores. A Iniciativa Hospital Amigo da Criança favoreceu o aleitamento materno exclusivo.

DESCRITORES

Aleitamento materno
Promoção da saúde
Política de Saúde
Avaliação de Programas e Projetos de Saúde
Enfermagem materno-infantil

RESUMEN

El objetivo de la investigación fue identificar el patrón de lactancia materna exclusiva en los primeros seis meses de vida de niños nacidos en un Hospital Amigo del Niño y los factores que contribuyeron para el destete precoz. Estudio de cohorte prospectivo realizado con 261 madres y niños. Fue utilizado el análisis de sobrevivencia a través de la construcción de la curva de Kaplan-Meier y el test de Log-Rank para el análisis univariado. Para el análisis multivariado se usó el modelo de Regresión de Cox con riesgos proporcionales. Durante seis meses, la lactancia materna exclusiva practicada con 30, 90, 120, 150 y 180 días fue del 75%, 52%, 33%, 19% y 5,7%, respectivamente. En el análisis multivariado, las variables que mostraron riesgo para el destete precoz fueron por algún tipo de problema mamario en el hospital y, en la consulta de retorno, la posición inadecuada y la asociación de las dos anteriores. La Iniciativa Hospital Amigo del Niño favoreció la lactancia materna exclusiva.

DESCRIPTORES

Lactancia materna
Promoción de la salud
Política de Salud
Evaluación de Programas y Proyectos de Salud
Enfermería materno-infantil

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INTRODUCTION

Breastfeeding (BF) is the most appropriate way to provide food and immunological protection to a child and to facilitate the affective bonding of the mother and child. However, in the last 100 years, there was a worldwide decline of BF. Beginning in the 1970s, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) began efforts to raise awareness regarding the advantages of BF and, in 1991, launched the Baby-Friendly Hospital Initiative (BFHI) to support, protect and promote BF. The BFHI was a way to mobilize health professionals and hospital staff to change routines and procedures with the aim of decreasing early weaning. The set of measures to achieve the targets was called *Ten Steps to Successful Breastfeeding*[1].

Numerous studies have shown the positive impact of the BFHI on the practice of and on the increase in the duration of BF, bringing new knowledge concerning these goals[1,2]. International research on the BFHI indicates that after its implementation there were increases in the initiation of BF (EBF) [3], the BF rates during hospitalization[4], EBF at the time of hospital discharge[5], the duration of EBF [5-7] and total BF[6,8], as well as decreases in gastric tract infections and atopic eczema[6]. Likewise, national studies conducted to date reveal an increased duration of EBF[9-13] and BF[10] and increased rates of EBF and total BF in children admitted to the Intensive Care Unit[14].

Although the practice of breastfeeding is rising, the rates are still far below the level recommended by WHO, which is EBF up to 6 months and supplemented with other foods up to 2 years or more.

Although the practice of BF is rising, the rates are still far below the level recommended by WHO, which is EBF up to 6 months and supplemented with other foods up to 2 years or more. This recommendation stems from the numerous advantages that this practice brings both for the woman and the child[15].

In Brazil, the implementation of the BFHI began in 1992. Currently, there are 333 accredited hospitals: 38 in the Western region, 23 hospitals in the North, 137 in the Northeast, 82 in the Southeast and 53 in the Southern region[16]. In São Paulo, we have 41 Baby-Friendly Hospitals (BFHs)[16]. The Leonor Mendes de Barros Maternity Hospital received this title in 2000, and since then, no study has been conducted to assess the impact of this policy on the practice and duration of BF in women treated at this institution.

This research aimed to identify the pattern of EBF in the first 6 months of life of infants born in a BFH and the factors that contribute to early weaning.

METHOD

A prospective cohort study was conducted with mothers and infants, whose labor and birth occurred in the Leonor Mendes de Barros Maternity Hospital. The hospital is located in the southeast of the city of São Paulo and is recognized for its work with high risk mothers in need of assistance and BF encouragement.

The study included rooming-in mothers who attended the return consultation, were BF their children and had a telephone. The exclusion criteria included the following: children born outside the institution, mothers who lived outside the city of São Paulo and foreign mothers.

The study was approved by the Ethics Committees of the Federal University of São Paulo (No. 0827/07) and of the Leonor Mendes de Barros Maternity Hospital (No. 005/07). All the ethical guidelines were followed, and the participants signed a free and clear consent form after being informed about the aims of the research and the data confidentiality.

The data collection began in July 2007 and was completed in July 2008; the variables studied were the following:

- *maternal:* age, education, marital status, work outside the home, maternity leave, family income, number of pregnancies, parity, previous BF experience, location of prenatal care, BF guidance during the prenatal period, delivery type, anesthesia type, mammary complications during hospitalization and follow-up visit;
- *neonatal:* gestational age, sex, birth weight and discharge weight;
- *regarding the BFHI:* Step 4 (skin-to-skin contact, BF in the delivery room); step 5 (BF orientation during hospitalization, BF assistance provided, how to breastfeed, how to position the baby to the breast and latch guidance, milk production, breast massage, milking); step 6 (supply of other foods); step 7 (rooming-in); step 8 (free demand); step 9 (supply of pacifiers); and step 10 (support after hospital discharge).

The BF variable was assessed according to the WHO classification[12] as follows: EBF when the infant received only breast milk; predominant, when fed breast milk, water or water-based drinks, such as sugar water, tea or juice; mixed, when fed breast milk and other milk; and artificial, when fed artificial milk only.

The data collection was performed in 2 steps. The first occurred at the ambulatory return to the hospital. Each day, the puerperal mothers who were awaiting the follow-up visit that was scheduled approximately 7-10 days after discharge filled out a survey, and those who met the inclusion criteria were selected. The second step was conducted through telephone interviews during the child's first 6 months or until full weaning. Six phone calls were scheduled: the 1st occurred approximately 30 days after initial data collection, and the 2nd, 3rd, 4th, 5th and 6th phone calls were at approximately 60, 90, 120, 150 and 180 days, respectively.

The number of children hospitalized in the Birth Center and in rooming-in care between the years 2005 and 2006 was used to calculate the sample size. The average was 5,481 children. A total of 234 children was obtained using a sampling error of 4%. An increase of 20% in the sample size was chosen to account for losses during the research, which is typical in cohort studies. Thus, the calculated sample size was 278 mother-child pairs in the ambulatory return consultation. Three dyads were excluded because the follow-up visit occurred after 20 days, and 14 were excluded because it was not possible to continue the telephone interviews. Thus, the final sample was of 261 dyads.

The statistical analysis was initially performed by exploiting the different characteristics evaluated through a descriptive analysis. The quantitative variables were expressed as the mean and standard deviation when the variable was normally distributed or in median terms. Survival analysis techniques via the construction of a Kaplan-Meier curve[17] were used to determine the time at which non-exclusive BF occurred. The log-rank test[17] was used for the univariate analysis, and the Cox regression model[14] was used for the multivariate analysis. Statistical tests were 2-tailed, and a p-value less than 0.05 was considered statistically significant.

The SPSS 16.0 statistical software for Windows (SPSS Inc.) was used for the statistical analyses, except for the Generalization of Fisher's exact test, which was performed by STATA 8.2 (INTERCOOLED STATA 8.2 for Windows) and stored in an Excel spreadsheet.

RESULTS

Regarding the characteristics of the population studied, the age of the 261 women included in the study ranged from 14 to 44 years, with a mean educational level of 9 years. Most of the women lived with their partners and did not work outside the home. Among the 91 women who worked outside the home, approximately 87% were on maternity leave. The majority (73.9%) had an income between 1 and 3 times the minimum wage. Regarding the obstetric history, more than half of the surveyed women were primiparous (55.2%) and had a vaginal delivery (67.4%). Among the multiparous women, 88% had previously breastfed for a median time of 12 months.

Regarding the neonatal characteristics, the median gestational age was 39 weeks, the female gender was the most frequent, and the mean birth weight was 3,345 grams.

Of the 7 steps from the BFHI that were evaluated, 3 did not reach 80% of completion (steps 4, 5 and 8), which determines non-compliance. The other steps ranged from 87 to 100% of achievement.

Figure 1 shows the BF pattern that occurred at the hospital discharge, on the follow-up visits and over the following 6 months.

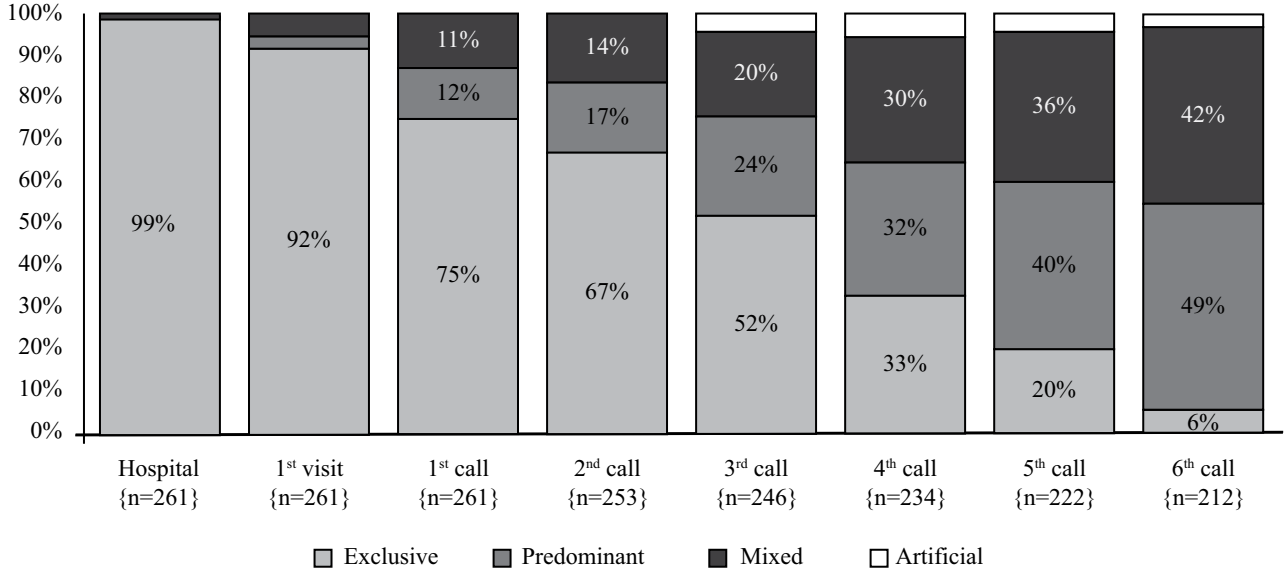

Figure 1 – Distribution of BF type during the follow-up. São Paulo, Brazil, 2009.

The survival analysis indicated that the probability of EBF was 95% at 30 days, 74% at 60 days, 63% at 90 days, 45% at 120 days, 26% at 150 days and 15% at 180 days. In the univariate analysis, the statistically significant variables for the time until non-exclusive BF were as follows: primiparity [p=0.04; hazard ratio (HR)=1.3], prior BF (p=0.023; HR=1.7), mammary complications during hospitalization (p=0.001; HR=1.6), mammary complications in the

follow-up visit (p<0.001; HR=1.7), BF difficulty (p=0.003; HR=1.5), inadequate positioning (p=0.030; HR=1.5) and inadequate latching (p=0.05; HR=1.4). The variables of working outside the home (p=0.07; HR=1.3) and proper guidance for latching and positioning (p=0.09; HR=1.8) had marginal significance.

The final model from the multivariate analysis is provided by the data in Table 1, in which the independent variables associated with the time until the occurrence of non-exclusive BF were: mammary complications during hospitalization, mammary complications in the return consultations, positioning and the interaction between mammary complications in the return visits and positioning.

Table 1: Multivariate analysis' final model for the non-exclusive BF' risk – São Paulo, Brazil, 2009.

	Hazard Ratio	95% CI	p-value
Hospital mammary complications			0.032
(Yes vs. No)	1.374	[1.027-1.838]	
Follow-up visit mammary complications			0.173
(Yes vs. No)	1.271	[0.901-1.793]	
Positioning			0.676
(Inadequate x Proper)	1.100	[0.703-1.723]	
Return mammary complications and positioning	2.446	[1.182-5.061]	0.016

DISCUSSION

At the hospital discharge, EBF was practiced by nearly 99% of the women in this study (Figure 1). In a BFH, women receive guidance and support, activities that are part of the encouragement for BF policy. Similar results were found in a study conducted in the Czech Republic that evaluated the type of BF at discharge between BFHs and other hospitals without this title. The average for EBF was 90.3% in the BFHs and 87.6% in the other hospitals [5].

There was a downward trend in EBF and an increase in other types of feeding in subsequent months. The prevalence of EBF at 1, 2, 3, 4, 5 and 6 months was 75%, 67%, 52%, 33%, 19% and 6%, respectively. However, similar cohort studies have obtained different results.

A study in Turkey with 297 children born in a BFH revealed slightly better EBF rates of 97.4%, 76.1%, 53.7% and 9.3% at 15 days, 2, 4 and 6 months, respectively[7]. A study in Itaúna (MG), Brazil identified lower EBF rates of 62.6% at 1 month, 19.5% at 4 and 5.3% at 6 months[18]. A study in São Paulo showed that only 13.8% of infants were exclusively breastfed at 3 months, and only 1.6% were exclusively breastfed at 6 months[19].

The probability of a child being exclusively breastfed in the months assessed decreases as the child's age increases. These results are expected because other practices that interfere with EBF, such as the use of water, teas, juices and artificial milk, are common. The introduction of other liquids is more pronounced after 30 days of the child's life.

A survey conducted by the Ministry of Health (MH) regarding the prevalence of BF in the Brazilian capitals revealed the introduction of water in 13.6%, of teas in 15.3% and of other types of milk in 17.8% of children in the first month. These percentages varied according to the different regions in the country and tended to increase with a child's age[20].

Regarding the BFHI steps, the assessment was performed according to the criteria established by the MH[21]. WHO recommends at least 80% achievement of each step to consider the hospital compliant. The unfulfilled steps did not have statistical significance.

The results obtained in step 4 (skin-to-skin contact) indicated that this practice was present in 72.4% of the women assessed. This step was not fulfilled despite the high percentage because it should have been at least 80%. Several studies have shown the numerous benefits of this step because early mother-baby contact immediately after birth facilitates correct suction, reduces infant crying, increases EBF as well as total BF rates and positively influences the mother-child relationship[1,2]. One study proved that the fulfillment of this step yields a 2 times higher probability that the woman will continue BF from 1 to 3 months after birth compared with the control group[22]. In another study, this early contact was not statistically significant[23].

Step 5 refers to the procedures related to the maintenance of lactation. Regarding the nursing assistance for BF, the latch guidance and BF positioning step was completed because 94.9% of the mothers reported receiving help for BF, and 96.9% reported latch and positioning guidance. Regarding milk production, only 30% reported receiving such guidance. Regarding breast massage and milk extraction, 72.8% and 54.1%, respectively, were guided. Just over half of the women were guided regarding milk removal. Because only a few items were met, this step was considered not fulfilled because the mean of 80% was not reached. Guidance regarding BF technique to mothers favors the success of BF[1,2].

It can be assumed that because of the short hospital stay (48 hours) for the women, the professionals' priorities may be focused on more effective guidance related to latching, the baby's positioning and breast massage. Milk production

and extraction are not a priority because the problem is not identified early and appears only after discharge. The women's hospital stay times could be expanded to minimize complications and allow the women to learn and experience the care required for herself and her child.

Step 8 recommends free-demand BF, which means that the mother must recognize the child's hunger signs. In this step, 79.1% reported receiving guidance. Because the desired rate is 80%, this step was considered not completed. Free-demand BF increases milk production[1,2].

The univariate analysis revealed that working outside the home was among the factors that contributed to early weaning. This finding corroborates the results of the 2009 national survey, in which women that did not work outside the home had a higher percentage of EBF than those who worked outside the home and had no maternity leave (43.9% and 26.8%, respectively)[17]. A study in Uberlândia, Brazil, during a vaccination campaign of children younger than 6 months, showed that working outside the home had a 2.7 times higher risk of weaning[24].

The lack of latch and positioning guidance during prenatal care represents a risk for the non-exclusive BF of children whose mothers received orientation. This issue was assessed in a study with an experimental group that received guidance during prenatal care and a control group that did not receive latch and positioning guidance. Women in the intervention group had higher latching and positioning scores compared to the control group. The duration of BF during the first 6 weeks was 92% (intervention) versus 29% (control)[25].

An intervention study was conducted in England with the participation of 60 women in the control group and 62 in the intervention group who received latch and effective BF positioning guidance from a team member. The results indicated that 60.4% of the control group and 70% in the intervention group were BF at day 7. However, the difference found was not statistically significant. In the 6-week analysis, 30.8% of the control group and 36.2% of the intervention group were BF, but the difference was also not significant. The pain at day 7 was slightly lower in the intervention group compared with the control, but this result was without statistical significance[26].

The primiparous had a higher risk of non-exclusive BF compared to secundiparous or multiparous. A study conducted in Feira de Santana (BA), Brazil indicated that multiparous women were more likely to provide BF and EBF compared to primiparous women[27].

Regarding prior BF, inexperienced mothers had a higher risk for weaning in relation to others. A similar result was found in a study conducted in Mexico with 265 working women who had children between 3 and 6 months old, in which the main weaning factors were inadequate BF knowledge, the lack of previous BF experience, a plan to BF less than 3 months and not being easy to breastfeed at work[28].

A mammary complication during hospitalization or in the follow-up visit represented a risk of early weaning. A study with 951 mothers conducted in Pelotas, Brazil showed that 37% had mammary problems, and nipple trauma was the most common. The risk of not being in EBF was 31% higher for these mothers than those who did not have mammary problems[9]. A difficulty with BF, when present, resulted in a risk for the discontinuation of EBF compared to children whose mothers had no difficulty. The difficulty mentioned by the greatest number of women (72.3%) was pain during BF, which had nipple trauma as the main cause.

The inappropriate positioning and latching at BF represented a risk when compared to those children whose positioning and latching were correct. While BF, inadequate positioning and latching can trigger the onset of nipple trauma, which leads to a reduced BF time. A case-control study with postpartum women showed that those whose child was improperly positioned had twice the chance of having nipple trauma. When the latching was improper, the chances of the occurrence of nipple trauma were 3 to 4 times higher[29].

The BFH has an important role in EBF, but over time, there is a loss of the protective factor. It can be asserted that even women who receive guidance during prenatal care require ongoing support from the healthcare team, family and BF-encouraging centers during hospitalization and in the months that follow. A woman must be seen in her real-life situation, within the family context, taking into account her wishes, desires, fears and expectations.

CONCLUSION

The study concluded that the BFHI favored EBF practiced by the women whose children were born in the Leonor Mendes de Barros Maternity Hospital. The EBF standard at the Hospital was high at the beginning and declined throughout the monitoring. The factors that contributed to early weaning were the working outside the home, the lack of latching and positioning guidance, primiparity, mothers with no previous BF experience, mammary complications during hospitalization and the follow-up visit, BF difficulty and inappropriate latching and positioning during BF.

The BFHI has an important role in BF encouragement, promotion and support; however, there is a need for continued support from basic health units for EBF continuity until 6 months after birth.

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