

## ORIGINAL ARTICLE

## HUMAN MILK BANK: WOMEN WITH LACTATION DIFFICULTIES

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### ABSTRACT

**Objective:** To investigate the difficulties experienced by women who seek care at the Human Milk Bank.

**Method:** This is a documentary, retrospective, and quantitative study with a sample of 292 forms from postpartum women who sought specialized care at the Human Milk Bank of a university hospital in Northeastern Brazil. The present study was conducted from January to August 2017. Chi-square tests and odds ratio values were used.

**Results:** The study population consisted mainly of women with a complete higher education degree (118; 40.4%). Additionally, 198 (67.81%) of the childbirths took place in private health facilities, and 209 (71.58%) were by Cesarean section. Moreover, 118 (40.41%) mothers did not receive information on breastfeeding at any time. The most common breastfeeding difficulties were latch-on (167; 57.19%), nipple fissure (96; 32.88%), nipple confusion (69; 23.63%), maternal insecurity (65; 22.26%), and breast engorgement (61; 20.89%).

**Conclusion:** Professional guidance on breastfeeding and proper maternal follow-up during pregnancy and postpartum result in successful breastfeeding.


**DESCRIPTORS:** Nursing; Breastfeeding; Human Milk Bank; Women's Health; Postpartum Period.


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## BANCO DE LEITE HUMANO: MULHERES COM DIFICULDADES NA LACTAÇÃO

### RESUMO

*Objetivo:* conhecer as dificuldades das mulheres que procuram atendimento no Banco de Leite Humano.

*Método:* trata-se de um estudo documental, retrospectivo, utilizando amostra de 292 formulários de puérperas que buscaram o serviço especializado do Banco de Leite Humano em Hospital Universitário no Nordeste do Brasil. Realizado de janeiro a agosto de 2017. Foram utilizados testes de Qui quadrado e medidas de Odds Ratio.

*Resultados:* amostra composta por mulheres com Ensino Superior Completo 118 (40,4%), 198 (67,81%) realizaram partos em serviço de saúde privado, por cirurgia cesariana 209 (71,58%) e 118 (40,41%) não recebeu informações sobre amamentação em nenhum momento. Dificuldades de amamentação: pega 167 (57,19%), fissura mamilar 96 (32,88%), confusão de bicos 69 (23,63%), insegurança materna 65 (22,26%) e ingurgitamento mamário 61 (20,89%). *Conclusão:* orientações realizadas pelos profissionais voltadas para a prática do aleitamento materno e acompanhamento adequado à mulher no período gravídico puerperal resultam no sucesso da amamentação.

*DESCRITORES:* Enfermagem; Aleitamento Materno; Banco de Leite Humano; Saúde da Mulher; Período Pós-Parto.

## BANCO DE LECHE HUMANA: MUJERES CON DIFICULTADES EN LA LACTANCIA

### RESUMEN:

*Objetivo:* conocer las dificultades de las mujeres que procuran atención en el Banco de Leche Humana.

*Método:* se trata de un estudio documental y retrospectivo con una muestra de 292 formularios de puérperas que se acercaron al servicio especializado del Banco de Leche Humana de un Hospital Universitario en el nordeste de Brasil. Se realizó en el período de enero a agosto de 2017. Se utilizaron pruebas de Chi-cuadrado y medidas de Odds Ratio.

*Resultados:* la muestra estuvo compuesta por 118 (40,4%) mujeres con Enseñanza Superior Completa, 198 (67,81%) tuvieron sus partos en servicios privados de salud, 209 (71,58%) por cirugía cesárea, y 118 (40,41%) no recibieron información alguna sobre lactancia en ningún momento. Dificultades de lactancia: agarre 167 (57,19%), fisura mamilar 96 (32,88%), confusión de pezones 69 (23,63%), inseguridad materna 65 (22,26%), y congestión mamaria 61 (20,89%).

*Conclusión:* las pautas orientadoras proporcionadas por los profesionales dirigidas a la práctica de la lactancia materna y al adecuado acompañamiento de la mujer en el período de embarazo puerperal derivan en una lactancia exitosa.

*DESCRIPTORES:* Enfermería; Lactancia materna; Banco de Leche Humana; Salud de la mujer; Período post-parto.

## INTRODUCTION

Breastfeeding (BF) is a learning act in which the mother/child dyad is required to make adjustments and mothers are required to learn how to deal both with difficulties that the infant may face and their own insecurity and inexperience in BF<sup>(1)</sup>.

Over the past 30 years, Brazil has been developing actions to promote, protect and support BF, such as training health care professionals and approving laws that protect BF and control the marketing of infant formulas, in order to increase BF rates in the country<sup>(2-3)</sup>.

However, some factors influence BF and food introduction, particularly socioeconomic issues, cultural issues, family support network, psychological aspects, and breast problems, along with the quality of information provided to the mothers by the health care professionals who treat them during pregnancy and postpartum<sup>(4)</sup>.

Therefore, the management of lactation should be guided by health care professionals who favor skilled listening, observation, and detection of problems; moreover, it should aim to provide practical solutions, thus promoting the woman's self-confidence and self-esteem<sup>(1)</sup>.

Guidance is extremely important for mothers to gain autonomy as early as in the prenatal period, in order to increase BF rates and hence contribute to maternal and child health. The information provided to women during this period is essential for a more peaceful pregnancy and for the maintenance of BF, especially during the infant's first days of life, which are usually the most difficult due to milk letdown, the possible onset of fissures, and other management difficulties. These difficulties, along with the lack of BF promotion, may become an aggravating factor for early weaning and thus interfere with the infant's nutritional status<sup>(5)</sup>.

BF is the most effective isolated strategy to promote nutrition, to reduce infant morbidity and mortality, and to prevent chronic diseases. It is estimated that BF could prevent 13% of the global deaths from preventable causes in children under 5 years of age. No other isolated strategy attains the same impact as BF on reducing deaths in children under 5 years of age<sup>(4)</sup>.

Despite efforts to prioritize BF, a study aiming to investigate BF indicators trends in Brazil for the past three decades showed that the prevalence of exclusive BF in children under 6 months of age has increased from 1986 to 2006, with statistically significant increases in each decade until 2006, but there was an stabilization in 2013. A similar trend was observed for BF prevalence, which represents a warning sign regarding the lack of improvement in BF prevalence<sup>(6)</sup>. Given this scenario, Human Milk Banks (HMBs), regulated by the National Health Surveillance Agency (Agência Nacional de Vigilância Sanitária, ANVISA) in 2006, have gained space not only because of their role in collecting, storing and distributing human milk, but also because they constitute an important strategy to promote, protect and support BF practice, being a place where nursing mothers find support to overcome difficulties encountered in the lactation process<sup>(7)</sup>.

This context, in which many postpartum women experience lactation difficulties, stimulated the interest in investigating the socioeconomic and obstetric profile of women with BF difficulties and which these difficulties are. Thus, the present study aimed to characterize postpartum women seeking care at a HMB and to identify the difficulties arising from the BF process.

## METHOD

This is a documentary, retrospective, and quantitative study.

The study population consisted of breastfeeding women who spontaneously sought the HMB of a university hospital in Northeastern Brazil reporting BF difficulties from January to August 2017. Women who sought the HMB to achieve lactation suppression due to fetal death or to other causes were excluded from the study.

The sample size was determined using the formula for the calculation of finite populations, where:  $n$  = sample size;  $Z$  = degree of confidence (1.96);  $d$  = sample error (5%);  $\sigma$  = standard deviation (0.5);  $N$  = population size (1,197 consultations)<sup>(8)</sup>.

The population size was estimated based on statistical data from the specialized consultations of women with lactation difficulties conducted in 2016 at the HMB, totaling 1,197 consultations, with a mean of 99.75 consultations per month. Thus, the sample size was defined at 292 forms.

Data was collected via documentary research by means of an instrument used in the HMB to record the specialized care provided to the women with lactation difficulties and covering women's socioeconomic and gestational profiles, lactation difficulties, and previous guidance on BF.

The HMB of the University Hospital of the Federal University of Maranhão (Hospital Universitário da Universidade Federal do Maranhão, HUUFMA) is accredited with the gold standard of excellence in the activities it develops, including care to mothers and infants born in the Maternal and Child Unit, specialized care to infants and mothers who spontaneously seek the service due to BF problems, pediatric consultations, and home visits, among others, related to the processing and distribution of breast milk.

Data was analyzed with the SPSS software, version 17.0 (IBM, Chicago, IL, USA), and descriptive statistics was expressed using measures of absolute frequency, percentages, means, and standard deviation. The chi-square test was used to conduct a comparative analysis of the categorical variables. Odds Ratio (OR) values and their corresponding 95% confidence interval (95% CI) were used to estimate the association among the types of BF difficulties with attendance to a return consultation and with previous BF experience. The level of significance was set at 5%.

The project was approved by the Research Ethics Committee (REC) under opinion number: 2,447,476.

## RESULTS

The sample assessed in this study was made up of 292 forms from mothers seen at the HMB whose age ranged from 14 to 48 years old (mean  $29.3 \pm 6.3$ ). Table 1 shows the sociodemographic characteristics of the sample, revealing that most of the mothers came from the city of São Luís (255; 87.3%) and were married (183; 62.7%). The most frequent levels of schooling were complete higher education (118; 40.4%) and complete high school (67; 22.9%). As for their income, 73 (25%) of the women earned from 1 to 3 minimum wages, and 67 (22.9%) earned from 3 to 5 minimum wages.

Table 1 – Distribution of the socioeconomic variables in the study sample. São Luís, MA, Brazil, 2017

<b>Variables</b>	<b>N</b>	<b>%</b>
<b>Municipality of origin</b>		
São Luís	255	87.33
Other municipalities in the Island of São Luís	23	7.88
Municipalities in the inland of the state of Maranhão	5	1.71
Blank field	9	3.08
<b>Marital status</b>		
Married	183	62.67
Single	46	15.75
Divorced	3	1.03
Widow	4	1.37
Consensual union	51	17.47
Blank field	5	1.71
<b>Maternal schooling</b>		
Illiterate	3	1.03
Incomplete elementary school	7	2.40
Complete elementary school	8	2.74
Incomplete high school	16	5.48
Complete high school	67	22.95
Incomplete higher education	39	13.36
Complete higher education	118	40.41
Graduate course	29	9.93
Blank field	5	1.71
<b>Family income</b>		
No income	23	7.88
< 1 minimum wage	8	2.74
1 minimum wage	26	8.90
1 to 3 minimum wages	73	25
> 3 to 5 minimum wages	67	22.95
< 5 to 7 minimum wages	31	10.62
> 7 minimum wages	48	16.44
Blank field	16	5.48
Total	292	100

Table 2 shows the frequency distribution of obstetric history variables, revealing that most mothers were pregnant for the first time (187; 64.04%). Regarding previous breastfeeding experience, 69 (23.63%) had breastfed their previous children.

Table 2 – Distribution of the obstetric history variables. São Luís, MA, Brazil, 2017

<b>Variables</b>	<b>N</b>	<b>%</b>
Number of pregnancies		
First pregnancy	187	64.04
1 previous pregnancy	63	21.58
2 previous pregnancies	25	8.56
3 previous pregnancies	9	3.08
4 previous pregnancies	4	1.37
Blank field	4	1.37
Previous breastfeeding experience		
No	214	73.29
Yes	69	23.63
Blank field	9	3.08
Total	292	100

The prenatal, obstetric and postpartum data from the infant under study (Table 3) reveal that 198 (67.81%) of the childbirths took place in a private institution, and 209 (71.58%) were by cesarean section. It was found that three mothers (1.03%) did not receive prenatal care, and 184 (63.01%) mothers received prenatal care in private health facilities.

Table 3 – Distribution of prenatal, intrapartum and postpartum data from the infant under study. São Luís, MA, Brazil, 2017 (continues)

<b>Variables</b>	<b>N</b>	<b>%</b>
Place of birth		
HUUFMA	32	10.96
Public institution	54	18.49
Private institution	198	67.81
Blank field	8	2.74
Type of delivery		
Vaginal delivery at home	5	1.71
Vaginal delivery in health institutions	45	15.41
Cesarean section	209	71.58
Blank field	33	11.30
Received prenatal care		
Yes	280	95.89
No	3	1.03
Blank field	9	3.08

Where prenatal care was received		
HUUFMA	19	6.51
Public institution	54	18.49
Private institution	184	63.01
Did not receive	3	1.03
Blank field	32	10.96
Number of prenatal consultations		
None	3	1.03
1 to 5	30	10.27
6 or more	228	78.08
Blank field	31	10.62
Received information on breastfeeding		
Only before childbirth	22	7.53
Only at the time of childbirth	91	31.16
Both before and at the time of childbirth	45	15.41
Did not receive information	118	40.41
Blank field	16	5.48
Postpartum week when the mother sought the HMB service		
1 <sup>st</sup> week	103	36.92
2 <sup>nd</sup> week	59	21.15
3 <sup>rd</sup> or 4 <sup>th</sup> week	51	18.28
After the 4 <sup>th</sup> week	66	23.66
Attendance to return consultation		
Yes	125	42.81
No	165	56.51
Blank field	2	0.68
Total	292	100

Among the women studied, 228 (78.08%) attended six or more prenatal consultations, which is in accordance with the recommendations by the World Health Organization (WHO). Conversely, it was observed that 118 (40.41%) of the mothers did not receive information on pre-natal care and childbirth. With regard to the period when women sought the specialized service, 103 (36.92%) of the consultations took place within the first week after childbirth, and only 125 (42.81%) attended a return consultation at the time of data collection.

The most prevalent types of BF difficulties were the following: latch-on difficulties (167; 57.19%), nipple fissure (96; 32.88%), nipple confusion (69; 23.63%), maternal insecurity (65; 22.26%), and breast engorgement (61; 20.89%); the remaining types had frequencies below 20% (Table 4).

Table 4 – Frequency and association between the type of breastfeeding difficulty and attendance to a return consultation and previous breastfeeding experience. São Luís, MA, Brazil, 2017

Detected difficulties	N	%	Attendance to return consultation	Previous breastfeeding experience
			OR (95% CI) p-value	OR (95% CI) p-value
Latch-on/Positioning difficulty	167	57.19	1.10 (0.68-1.77) P = 0.776	0.80 (0.46-1.40) P = 0.539
Nipple fissure	96	32.88	<b>2.14 (1.30-3.53)</b> <b>P = 0.003*</b>	0.88 (0.49-1.60) P = 0.804
Nipple confusion	69	23.63	0.89 (0.51-1.54) P = 0.786	0.65 (0.32-1.31) P = 0.302
Maternal insecurity	65	22.26	1.10 (0.63-1.92) P = 0.833	0.90 (0.46-1.76) P = 0.895
Breast engorgement	61	20.89	1.73 (0.98-3.08) P = 0.078	0.77 (0.38-1.56) P = 0.585
Hypolactation	39	13.36	1.68 (0.85-3.31) P = 0.180	0.43 (0.16-1.17) P = 0.138
Difficulty in gaining weight	35	11.99	1.14 (0.56-2.33) P = 0.840	1.88 (0.87-4.04) P = 0.153
Mastitis	28	9.59	0.85 (0.38-1.89) P = 0.853	<b>2.82 (1.25-6.39)</b> <b>P = 0.018*</b>
Flat, semi-flat, or inverted nipples	27	9.25	1.77 (0.79-3.93) P = 0.225	0.24 (0.05-1.04) P = 0.071
Ductal obstruction	14	4.79	1.00 (0.34-2.97) P = 1.000	2.50 (0.83-7.50) P = 0.108
Total	292	100.0		

OR = Odds Ratio. 95% CI = 95% Confidence Interval. P-value calculated using the chi-square test. \*Significant difference.

The association test revealed that mothers with nipple fissure were nearly twice more likely to have a return consultation (OR = 2.14; 95% CI = 1.30-3.53; P = 0.003). It was also observed that mastitis was associated with previous BF experience in the study sample (OR = 2.82; 95% CI = 1.25-6.39; P = 0.018). No other significant associations were found.

## DISCUSSION

In the present study, the mean maternal age was 29.3 years old; in relation to their sociodemographic profile, most of the women were married, had a complete higher education degree, and earned from 1 to 3 minimum wages.

A number of studies on the theme show that the prevalent age group of women seeking a HMB is from 20 to 29 years old<sup>(5,9-10)</sup>; they are a population of young adult mothers with a higher education degree and a steady partner. These factors positively contribute to a successful BF, because women with higher age and socioeconomic status breastfeed for a longer time, the presence of a partner provides support and comfort, and the maternal high schooling level allows breastfeeding women to acknowledge the importance of BF



for the health of both mother and child, which leads them to make efforts to solve the problems resulting from BF<sup>(10-11)</sup>.

With regard to their obstetric histories, most of the women in this study were primigravidas, a result similar to that found in other studies<sup>(5,11)</sup>. As for their previous BF experience, only 69 (23.63%) reported to have previously breastfed, thus corroborating a study conducted in the state of Paraná, Brazil, with the purpose of analyzing the BF guidelines provided by the health care professionals to the women in the pre-natal period, at childbirth, and in the postpartum, which also found that 47.2% of the women in the study had breastfed their other children<sup>(11)</sup>.

The study population is mainly characterized by primigravidas with no BF experience and thus more likely to experience difficulties in BF, which, although being a natural act, is also a behavior that can be learned; therefore, it is important that guidance be provided during the prenatal and postpartum periods in order to ensure the effectiveness of the BF practice<sup>(11)</sup>.

In terms of prenatal, intrapartum, and postpartum data, this study found a predominance of Cesarean section and of women receiving prenatal care in private institutions. Previous studies found a predominance of vaginal delivery among women whose prenatal care and childbirth were conducted in public health institutions<sup>(5)</sup> and also observed that the number of Cesarean sections in private maternity hospitals was twice as high as that found in maternity hospitals affiliated with the Unified Health System (Sistema Único de Saúde, SUS)<sup>(12)</sup>.

The same situation was observed in the present study, in which most of the women were treated in private institutions and had a Cesarean section. This scenario has been repeated in Brazil since 2009, when the proportion of Cesarean sections surpassed that of vaginal deliveries for the first time, with a percentage of 52% in 2010. In 2014, this proportion was as high as 57%, and there was a slight improvement in 2015, when it reached 55%<sup>(13)</sup>.

A previous study revealed that women in private institutions are induced to decide for a Cesarean section in their first delivery, which becomes an indication for Cesarean section in a future pregnancy<sup>(14)</sup>. The cesarean section may have negatively influenced BF, because pain interferes with the ability of the mothers to breastfeed and makes it difficult for them to recover, thus delaying contact with their child. Furthermore, it is a barrier for the infant's proper positioning during breastfeeding, especially within the first hours after childbirth<sup>(15)</sup>.

As for the number of prenatal consultations, most women in the present study attended six or more consultations, a finding similar to that of other studies<sup>(12,16)</sup>, showing the progress of prenatal care provided in the country and in accordance with the recommendation of at least six consultations, as established by the World Health Organization<sup>(17)</sup>.

However, with regard to the provision of BF guidance, more than 40% of the mothers reported not receiving this type of guidance at any time during prenatal or postpartum periods, which corroborates studies showing that 31% to 42.4% of the women were not instructed on BF<sup>(9-10,16)</sup>.

Data from investigations conducted in Southern and Southeastern Brazil found more satisfactory results in terms of the guidance provided to women, such as a study to identify the mother's knowledge and the BF guidance provided by the health care professionals during prenatal care, at childbirth, and in the postpartum. This study reported better results, showing that 73.3% received BF guidance in prenatal consultations and 90% during hospitalization<sup>(18)</sup>. Similarly, a research conducted with postpartum women in the state of Paraná, Brazil, revealed that 58.3% received BF guidance during prenatal care, and 83.3% in the maternity hospital during the postpartum period<sup>(11)</sup>.

In the present study, there was a high percentage of women who reported not receiving any BF guidance, which directly leads to maternal insecurity and difficulty in

managing BF. The health care professionals need to be able to acknowledge the importance of promoting qualified guidance to women during pregnancy and postpartum, in order to favor their autonomy and thus a successful BF<sup>(19-20)</sup>. It is recommended to expand the practices to promote, protect and support BF in public and private maternity hospitals<sup>(11)</sup>.

Regarding the period when postpartum women sought the Human Milk Bank service due to BF difficulties, most of the consultations in this study took place within the first and second weeks after childbirth, i.e., the adaptation period for both the mother and the infant, which means that solving the difficulties experienced during this period is important for a successful BF.

In the present study, the most common types of BF difficulties were latch-on difficulty and nipple fissures, being therefore in line with two Brazilian studies aiming to identify the main maternal difficulties related to BF. The first of them, conducted in the state of Acre, revealed that 83.3% reported to have insufficient milk supply, and that 66.7% had difficulties in positioning and latch-on<sup>(9)</sup>. The second one, conducted in the state of Minas Gerais, showed that 33.3% of the women presented nipple fissures, and 16.7% nipple fissures associated with other breast problems<sup>(21)</sup>. Another research study found that the main BF difficulties were inadequate latch-on (25%) and breast disorders (28.3%)<sup>(5)</sup>.

Notably, in addition to being the most prevalent finding in the present study, difficulties in positioning and latch-on were also mentioned in other studies<sup>(5,9)</sup>. Despite the high educational attainment of most of the mothers in the present study, many of them did not have knowledge on BF techniques, such as correct latch-on, proper positioning, and care and preparation of the breasts for lactation, which implies maternal difficulties in dealing with technical situations and reflects lack of guidance during the prenatal and postpartum periods, when women should be prepared by the health care professionals to achieve a successful BF<sup>(21-22)</sup>.

The test of association among variables found a significant association between nipple fissure and return consultation, meaning that mothers with nipple fissure were nearly twice more likely to attend a return consultation. A systematic review aiming to identify characteristics associated with nipple trauma in nursing mothers revealed that infant's incorrect latch-on to the maternal breast and inadequate positioning between mother and child were associated with nipple trauma in a greater number of studies, followed by primiparity<sup>(23)</sup>. These findings corroborate with those of the present study, in which positioning and infant's latch-on were the most prevalent difficulties, and there was a predominance of primigravidas in the sample.

The test of association among variables also found a significant association between previous BF experience and mastitis. Mastitis is characterized by an inflammatory process of one or more breast segments, caused by any factor that favors the stagnation of breast milk, such as scheduled feedings, sudden decrease in the number of feedings, infant's long sleep period at night, use of pacifiers or bottles, failure to completely empty the breast, short frenulum, infant with a poor sucking action, excessive milk production, abrupt weaning, and maternal fatigue.

Women who have already had mastitis in the current lactation or in previous lactations are more susceptible to developing other mastites, due to the broken integrity of the junction between alveolar cells<sup>(2)</sup>. Thus, some issues arise, such as the recurrence of mastitis among these women and the fact that maternal previous BF experience may lead health care professionals to think that BF guidance is irrelevant. No studies have been identified which have shown a similar association.

The main limitation of this study was the scarcity of data on previous BF experience; thus, future investigations should be conducted in order to assess the correlation between previous experiences and BF.

## CONCLUSION

The main difficulties experienced during BF, such as positioning and latch-on difficulties and nipple fissure, result from inadequate management. Within this scenario, guidance on BF management need to be part of routine care in the public and private health services, especially in the latter, due to the great demand of women coming from private services who sought specialized care at the HMB.

Successful BF depends not only on the mother's willingness to breastfeed because, despite being an instinctive act, breastfeeding requires learning a technique and acquiring an ability. Therefore, it is important for the triad of postpartum women, health care professionals, and support network to make efforts so as to provide support and instruct women on appropriate BF management during pregnancy and postpartum, thus allowing them to understand and empower themselves in order to achieve a successful BF.

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