Factors associated with early weaning in the human milk bank of a university hospital

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Abstract

Objectives: to identify the sociodemographic, obstetric, and breastfeeding factors associated with early weaning in a human milk bank.

Methods: data from maternal and child evaluation forms of women assisted at the human milk bank of the Federal University of Maranhão university hospital in 2016, 2017 and 2018 were compiled.

Results: of the 1,276 forms evaluated, 1,275 (99.9%) had information about early weaning (outcome variable), which was identified in 30.6% of assisted pairs. The frequency of early weaning was higher among mothers who had already breastfed (169-31%) [p=0.0235, OR=4.03; CI95%=1.21-13.46] and among mothers who had "household" occupation (204-36%) [p<0.0001, OR=1.58, CI95%=1.24-2.00]. The other independent variables evaluated did not show significant association (p>0.05).

Conclusions: among the evaluated characteristics, only maternal occupation and previous breastfeeding experience were associated with early weaning.

Key words *Breastfeeding, Weaning, Patient care continuity, Milk Bank, Health promotion*

http://dx.doi.org/10.1590/1806-9304202300000450

Introduction

Breastfeeding is a wise natural strategy for bonding, affection, protection and nutrition for the child, generating great impact on the promotion of integral health of the mother-child binomial and, consequently, reducing child and maternal morbidity and mortality.[1] In the history of science, there has never been so much knowledge available about the complex importance of breastfeeding for mothers and infants, which allows stating that breastfeeding can change the course of human life.[2] Breastfeeding is much more than nourishing the child, it is a process that involves deep interaction between mother and child, with repercussions on the nutritional status of the infant,[3] on the ability to defend against infectious diseases,[4] on cognitive and emotional development and on long-term health,[5] on the prevention of otitis media[6] and dental caries,[7] in addition to having positive implications for the physical and mental health of the mother.[1]

Early weaning is defined when the interruption of exclusive breastfeeding (EBF) is identified before the infant reaches the sixth month of life, with the introduction of other foods to complement breast milk.[8]

In the United States of America, four out of five live births (83.2%) start breastfeeding; however, only 25% of these are exclusively breastfed during the first six months of life, which is far below the at least 50% suggested by the World Health Organization (WHO).[9] In the European Union, there are marked differences between countries with regard to EBF practices, corresponding to an average of 13% EBF up to six months of life, with lower prevalences in Greece (0.7%), Finland (1%) and the United Kingdom (1%); and higher in Slovakia (49.3%), Hungary (43.9%) and Georgia (54.8%).[10] In low- and middle-income countries, only 37% of children under six months old are exclusively breastfed. With few exceptions, breastfeeding duration is shorter in high-income countries than in low- and middle-income ones.[2]

According to the National Child Food and Nutrition Study (ENANI),[11] the prevalence of EBF in Brazil is 45.7%, and 38% for the Northeastern region. In Brazil, this prevalence characterizes early weaning as an important public health problem.[2] It may occur because, among other factors, many mothers are unaware and/or have difficulties using the correct breastfeeding technique, leading to difficulties in sucking, nipple trauma and pain, emptying the breast with consequent reduction in milk production, culminating in the introduction of other foods earlier.[12] There are also reports of early weaning due to insufficient milk and the return to work/study,[13] little encouragement from health professionals, in addition to "maternal knowledge deficit", "food beliefs and taboos", "use of pacifiers or bottles" and "influence of family members and friends" are classified as factors that are often not clearly seen by mothers, but which lead to early weaning.[14]

In order to maintain breastfeeding, the mother needs to receive support and help centered on her difficulties, with relevant information to provide peace of mind and make her feel more confident and good about herself and her child during breastfeeding.[15] Thus, the importance of guidelines relevant to the breastfeeding process should still occur in the maternity ward, preventing early weaning and strengthening the affective bond of the mother-child binomial,[16] with the support frombreastfeeding specialists, such as the team that makes up the human milk bank (HMB) of maternity wards.[17]

In addition, HMBs are sources of guidance regarding breast preparation for donation or breastfeeding, correct posture and grip, collection, sorting, classification, processing and distribution of lactic production by the donor lactating mother.[18]

The human milk bank of the maternal and child unit of the Federal University of Maranhão university hospital (BLH-HUUFMA) provides health services to infant and mother via the Unified Health System (SUS), on demand. Among other activities, BLH encourages EBF until the sixth month of life, guiding and helping mothers who have difficulties breastfeeding, in addition to encouraging mothers of premature infants to store their own milk during the hospitalization period in order to offer it pasteurized to her child. It also supplies pasteurized human milk to the neonatal intensive care unit of HUUFMA and, in this logic, there is an incentive to extend the breastfeeding period in lactating mothers who donate milk and have recently given birth at HUUFMA.

So far, no study characterizing the prevalence of breastfeeding and its determinants in São Luís-MA has been identified. In this context, the present study sought to evaluate the association of sociodemographic, obstetric and breastfeeding variables with the occurrence of early weaning in the HMB ofthis location.

Methods

This is an observational study of retrospective cohort type with quantitative approach carried out through the collection of data obtained from HMB registration spreadsheets of the HUUFMA maternal and child unit. The HMB was inaugurated in December 1999 and works to receiveindividuals who seek guidance and comfort about breastfeeding, in addition to providing pasteurized human milk to the neonatal intensive care unit of HUUFMA.

The study evaluated mother-infant binomials attended at the BLH-HUUFMA between January 2016 and December 2018 through the analysis of data from mother-infant registration forms of the Exclusive Breastfeeding Incentive Program. The forms are filled in at the first appointment; subsequently, the infant is monthly monitored for routine appointments until six months of

life. Breastfeeding observation and the necessary corrections are performed in the first and subsequent appointments.

Forms that presented incomplete information regarding the records of evaluations of maternal body posture and newborn sucking were excluded, as well as forms with inaccurate, incorrect and pencil-marked data on spreadsheets, as they compromised data validity.

The study variables were grouped according to data referring to: a) maternal sociodemographic characteristics (age at the time of delivery, marital status, schooling, occupation, income, smoking habits and alcohol use); b) newborn characteristics (gender, breastfeeding in the delivery room, anthropometric measurements at birth); c) maternal obstetric and breastfeeding history (how many pregnancies, number of births, number of abortions, place and number of prenatal consultations, vaccination, intercurrence in pregnancy, guidance on breastfeeding during prenatal care, breastfeeding other children, receivingfamily support for breastfeeding, type of delivery); and d) breastfeeding observation regarding body posture and newborn sucking.

Categorical variables were described with absolute and relative frequencies. Quantitative variables were described as mean, standard deviation, median, minimum and maximum values. Subsequently, simple and multiple logistic regression models were used to analyze the association between independent variables and the outcome (early weaning). All variables with $p<0.20$ in the simple (raw) analyses were considered in the multiple regression model, and those with $p\leq0.05$ remained in the final model, after adjustments for the other variables. The fit of the model was evaluated using the Akaike Information Criterion (AIC). Using regression models, crude and adjusted odds ratios with 95% confidence intervals were estimated. Analyses were performed using the R software, with 5%significance level.

The study project was submitted to the Ethics Research Committee (CEP) of HUUFMA, obtaining the respective opinion consubstantiated according to CAAE: 29667120.9.0000.5086.

Results

Between 2016 and 2018, 1,276 binomials (mothers-infant) were monitored, among which 1,275 (99.9%) mother-infant registration forms were included in the study as they met the inclusion and exclusion criteria defined in the study.

In Table 1, the maternal sociodemographic characteristics of evaluated forms are described. It was observed that, on average, mothers were 27.4 (6.9) years old, and the majority were in a consensual union, had "domestic" occupation, complete high school and received from one to three minimum wages. Regarding previous breastfeeding experience, most were primiparous, but of those who were not primiparous, most received family support to breastfeed their previous child.

Table 2 presents the characteristics of newborns monitored during the study period, in which it was observed that the average birth weight was 3,216.6 (501.4) kilos and that most were breastfed in the delivery room.

In the descriptive analyses of the characteristics of maternal obstetric and breastfeeding history, it was observed that 1,268 (99.4%) mothers received prenatal care, with 568 (44.6%) receiving prenatal care at the HUUFMA's maternal and child unit. Still on the breastfeeding history, 635 (49.8%) and 1,065 (83.5%) of mothers reported they had received guidance on breastfeeding during prenatal care and in the maternity ward,respectively. As for obstetric history, it was observed that 654 (51.3%) deliveries were vaginal; and, on average, mothers had 7.2 prenatal consultations, ranging from zero to 20 (Table 3).

In the descriptive analysis of the breastfeeding observation regarding body posture and newborn sucking, it was observed that 390 (30.6%) newborns were weaned early. As for posture and grip, the most frequently observed distributions of posture variables were 901 (70.7%) observations of "slow and deep sucking, episodes and pauses", 916 (71.8%) "swallowing could be heard", 935 (73.3%) "round cheeks" and 1,002 (78.6%) "chin touching the breast". The least frequent postures were 553 (43.4%) "head and body aligned" and 600 (47.1%) "infant close, facing the breast" (Table 4).

From the results of simple and multiple logistic regression models used to analyze the association between independent variables and the outcome (early weaning), it was observed that the frequency of early weaning was higher among mothers who had already breastfed (169- 31%) [p=0.0235, OR=4.03; CI95%=1.21-13.46] and among mothers who were housewives (204-36%) [p=<0.0001, OR=1.58, CI95%=1.24-2.00]. The other independent variables evaluated did not present significant association (p>0.05) (Table 5).

Discussion

The frequency of early weaning found in the present study shows that the proportion of exclusively breastfed children (69.4%) is above the perspectives of breastfeeding for the 21st century in low- and middle-income countries,[2] and weaning was only associated to maternal characteristics and antecedents among binomials monitored at HMB.

According to ENANI,[11] the prevalence of EBF in Brazil, in 2019, was 45.7%, with prevalence of 38% for the Northeastern region. In the present study, this value was significantly higher, probably because it was carried out in an important HMB which, through the Exclusive Breastfeeding Incentive Program, encourages exclusive breastfeeding up to the sixth month of

Table 1

Sociodemographic characteristics of mothers followed at the human milk bank. São Luís (MA), 2016-2018.

Variable	N	%
Marital status		
Married	353	27.7
Single	388	30.4
Widowed	1	0.08
Consensual union	530	41.6
No information	3	0.2
Schooling		
Illiterate	1	0.08
Incomplete elementary school	70	5.5
Complete elementary school	79	6.2
Incomplete High-school	174	13.6
Complete High-school	638	50.0
Incomplete higher education	145	11.4
Complete higher education	163	12.8
No information	5	0.4
Occupation		
Housewife	567	44.5
Formal job	410	32.2
Self-employed	130	10.2
Student	168	13.2
Income (minimum wage)		
No income	157	12.3
<1	375	29.4
1	146	11.4
1-3	462	36.2
3-5	95	7.7
5-7	15	1.2
>7	10	0.8
No information	12	0.9
Age (years)		
$\bar{x}$±SD	27.4±6.9	
Median (minimum and maximum)	27.0 (13.0-47.0)	

*Current minimum wage = BRL 998,00.

Table 2

Characteristics of newborns followed at the human milk bank. São Luís (MA), 2016-2018.

Variable	N	%
Gender		
Male	662	51.9
Female	609	47.8
No information	4	0.3
Breastfed in the delivery room		
Yes	831	65,2
No	424	33.2
No information	20	1.6
Birth weight (grams)		
$\bar{x}$±SD	3,216.6±501.4	
Median (minimum and maximum)	3,205.0 (1,730.0 - 6,630.0)	

life and seeks to extend the breastfeeding period in lactating mothers who are milk donors and who have recently given birth. The mother-infant binomial is monthly evaluated during the six months of EBF, with clinical evaluation, physical examination and breastfeeding observation during this period.

In this context, it could be inferred that the average EBF time in children was positively influenced in the population attended at BLH-HUUFMA. The Maternal and Child Unit of HUUFMA is a highly complex maternity hospital, a reference in the state of Maranhão, and BLH-HUUFMA is certified with a gold standard of excellence according to the Global Network of Human Milk Banks (RBLH-Fiocruz), in addition to offering important guidance that are valued and constitute one of the pillars of support of the Baby Friendly Hospital Initiative (BFHI).

Although the literature shows that early weaning may be associated with problems with the puerperal breast,[16] the binomial position and the sucking adequacy during breastfeeding,[9,20,21] in this study, no significant association was observed between breastfeeding characteristics and the occurrence of early weaning. The close monitoringof the binomial during the six months, in addition to helping maternal difficulties, may have contributed to this important finding, either by the prompt correction of breastfeeding complications or by the actions developed that had a positive impact on the maintenance of breastfeeding and, consequently, in promoting maternal and child health.[22]

Although prevalence of EBF higher than that recommended by WHO has been observed, it would be interesting to understand the reasons that lead to early weaning so that new interventions can be carried out in order to reduce this incidence. However, the reasons for early weaning is not part of the Clinical-Assistance

Table 3

Characteristics of maternal obstetric and breastfeeding history of binomials monitored in the human milk bank. São Luís (MA), 2016-2018.

Variable	N	%
Prenatal care		
Yes	1,268	99.4
No	7	0.6
Where		
HUUFMA	568	44.6
Other public services	536	42.0
Private services	135	10.6
No information	37	2.9
Received guidance on breastfeeding during prenatal care		
Yes	635	49.8
No	621	48.7
No information	19	1.5
Received guidance on breastfeeding in the maternity ward		
Yes	1,065	83.5
No	205	16.1
No information	5	0.4
Where the infant was born		
HUUFMA	1,067	83.7
Other public services	128	10.0
Private services	68	5.3
Outros	5	0.4
No information	7	0.6
Type of delivery		
Vaginal	654	51.3
Cesarean session	617	48.4
Forceps	1	0.08
No information	3	0.2
Breastfed other children		
Yes	546	42.8
No	30	2.4
Not applicable (1st pregnancy)	677	53.1
No information	22	1.7
Family support for breastfeeding the previous child		
Yes	495	38.8
No	62	4.9
Not applicable (1st pregnancy)	685	53.7
No information	33	2.6
How many pregnancies		
$\bar{x}$±SD	2.1±1.4	
Median (minimum and maximum)	2.0 (0.0-12.0)	
How many deliveries		
$\bar{x}$±SD	1.8±1.1	
Median (minimum and maximum)	1.0 (0.0-10.0)	
How many abortions		
$\bar{x}$±SD	0.4±0.8	
Median (minimum and maximum)	0.0 (0.0-6.0)	
Number of prenatal consultations		
$\bar{x}$±SD	7.2±2.4	
Median (minimum and maximum)	7.0 (0.0-20.0)	

HUUFMA = University Hospital of the Federal University of Maranhão.

Protocol of the Exclusive Breastfeeding Incentive Program, and, therefore, there is lack of specific data in this regard, representing a limitation of the present study. In addition, the current protocol has a passive perspective on the issue of guidance and education on breastfeeding, as it only guides mothers who seek the milk bank service; therefore, new approaches with a perspective of active search for these mothers, especially in prenatal care, can help to improve these limitations, since, as seen in this study, only 49% of mothers received breastfeeding guidelines during prenatal care.

As for maternal obstetric and breastfeeding history, only previous breastfeeding experience was associated with early weaning. Although primiparous women usually report greater breastfeeding difficulty in the postpartum period, which indicates deficiencies in the mother's guidance regarding breast preparation during pregnancy and early intervention in the postpartum period,[23] the

Table 4

Descriptive analysis of the characteristics of breastfeeding observation in terms of body posture and sucking of newborns monitored at the human milk bank. (N=1275). São Luís (MA), 2016-2018.

Variable	N	%
Early weaning		
Yes	390	30.6
No	885	69.4
Posture was observed		
Yes	1.220	95.7
No	42	3.3
No information	13	1.0
Mother relaxed and comfortable		
Yes	749	58.8
No	473	37.1
No information	53	4.2
Infant close, facing the breast		
Yes	600	47.1
No	623	48.9
No information	52	4.1
Infant's head and body aligned		
Yes	553	43.4
No	659	51.7
No information	63	4.9
Infant's chin touching the breast		
Yes	1.002	78.6
No	211	16.6
No information	62	4.9
Infant's buttocks supported		
Yes	646	50.7
No	561	44.0
No information	68	5.3
Mouth wide open		
Yes	690	54.1
No	524	41.1
No information	61	4.8
Bottom lip turned out		
Yes	724	56.8
No	490	38.4
No information	61	4.8
Tongue attached around the breast		
Yes	670	52.6
No	532	41.7
No information	73	
Round cheeks		5.7
Yes	935	73.3
No	273	21.4
No information	67	5.2
More areola around the infant's mouth		
Yes	782	61.3
No	421	33.0
No information	72	5.6
Slow and deep sucks, episodes and pauses		
Yes	901	70.7
No	313	24.6
No information	61	4.8
Swallowing can be heard		
Yes	916	71.8
No	274	21.5
No information	85	6.7

Table 5

Analyses (crude and adjusted) of associations with early weaning (N=1,275). São Luís (MA), 2016-2018.

Variable	N	%	Early weaning				$Crude OR (#CI95%)	*p*	$Adjusted OR (#IC95%)	*p*
			*Yes		No					
			n	%	n	%				
Maternal characteristics										
Age (years)										
&Up to 27	628	49.2	192	30.6	436	39.4	0.96 (0.75-1.22)	0.7198	-	
Above 27	606	47.5	191	31,5	415	68.5	Ref			
No information	41	3.2	7	17,1	34	82.9	-			
Marital status										
Partner	883	69.2	258	29.2	625	70.8	Ref		-	
No partner	389	30.5	131	33.7	258	66.3	1.23 (0.95-1.59)	0.1122		
No information	3	0.2	1	33.3	2	66.7	-			
Schooling										
&Up to complete high school	962	75.4	299	31.1	663	68.9	1.09 (0.82-1.45)	0.5377	-	
Above complete high school	308	24.2	90	29.2	218	70.8	Ref			
No information	5	0.4	1	0.3	4	0.4	-			
Occupation										
Housewife	567	44.5	204	36.0	363	64.0	1.58 (1.24-2.00)	0.0002	1.64 (1,28-2.09)	<0.001
Others	708	55.5	186	26.3	522	73.7	Ref		Ref	
Income (MW)										
&Up to one	678	53.2	212	32.3	466	68.7	1.06 (0.83-1.34)	0.6498	-	
Above one MW	585	45.9	176	30.1	409	69.9	Ref			
No information	12	0.9	2	16.7	10	83.3	-			
Maternal obstetric and breastfeeding history										
Amamentou outros Filhos										
Yes	546	42.8	169	31.0	1377	69.0	4.03 (1.21-13.46)	0.0235	4.04 (1.21-13.55)	0.0236
No	30	2.4	3	10.0	27	90.0	Ref		Ref	
Not applicable (1st pregnancy)	677	53.1	209	30,9	468	69.1	4.01 (1.20-13.37)	0.0236	4.32 (1.29-14.44)	0.0176
No information	22	1.7	9	40.9	13	59.1	-			

Analyses (crude and adjusted) of associations with early weaning (N=1,275). São Luís (MA), 2016-2018.

Variable	N	%	Early weaning				[$]Crude OR (#CI95%)	*p*	[$]Adjusted OR (#CI95%)	*p*
			*Yes		No					
			n	%	n	%				
Family support for breastfeeding the previous child										
Yes	495	38.8	159	32.1	336	67.9	Ref		-	
No	62	4.9	15	24.2	47	78.8	0.68 (0.37-1.24)	0.2066		
Not applicable (1st pregnancy)	685	53.7	210	30.7	475	69.3	0.93 (0.73-1.20)	0.5924		
No information	33	2.6	6	18.2	27	81.8	-			
How many pregnancies										
[&]Up to two	919	72.1	284	30.9	635	69.1	1.06 (0.81-1.38)	0.6963	-	
More than two	356	27.9	106	29.8	250	70.2	Ref			
Number of births										
[&]Up to one	681	53.4	211	31.0	470	69.0	1.04 (0.82-1.32)	0.7429	-	
More than one	594	46.6	179	30.1	415	69.9	Ref			
Number of abortions										
[&]None	950	74.5	296	31.2	654	68.8	Ref		-	
At least one	325	25.5	94	28.9	231	71.1	0.90 (0.68-1.18)	0.4505		
Prenatal care										
Yes	1.268	99.4	387	30.5	881	69.5	Ref		-	
No	7	0.6	3	42.9	4	57.1	1.71 (0.38-7.67)	0.4849		
Number of appointments										
[&]Less than seven	499	39.1	145	29.1	354	70.9	0.88 (0.69-1.13)	0.3276	-	
At least seven	742	58.2	235	31.7	507	68.3	Ref			
No information	34	2.7	10	29.4	24	70.6	-			
Where										
HUUFMA	568	44.6	176	31.0	392	69.0	1.44 (0.94-2.23)	0.0970	-	
Other public services	535	42.0	170	31.8	365	68.2	1.50 (0.97-2.32)	0.0691		
Private Services	135	10.6	32	23.7	103	76.3	Ref			
No information	37	2.9	12	32.4	25	67.6	-			

Analyses (crude and adjusted) of associations with early weaning (N=1,275). São Luís (MA), 2016-2018.

Variable	N	%	Early weaning				[5]Crude OR (#CI95%)	*p*	[5]Adjusted OR (#CI95%)	*p*
			*Yes		No					
			n	%	n	%				
Guidance on breastfeeding during prenatal care										
Yes	635	49.8	191	30.1	444	69.9	Ref		-	
No	621	48.7	193	31.1	428	68.9	1.05 (0.82-1.33)	0.7005		
No information	19	1.5	6	31.6	13	68.4	-			
Guidance on breastfeeding in the maternity ward										
Yes	1.065	83.5	324	30.4	741	69.6	Ref		-	
No	205	16.1	64	31.2	141	68.8	1.04 (0.75-1.43)	0.8197		
No information	5	0.4	2	40.0	3	60.0	-			
Where the infant was born										
HUUFMA	1.067	83.7	335	31.4	732	68.6	3.00 (1.47-6.12)	0.0025	-	
Other public services	128	10.0	43	33.6	85	66.4	3.32 (1.50-7.32)	0.0030		
Private Services	68	5.3	9	13.2	59	86.8	Ref			
Others	5	0.4	2	40	3	60.0	4.37 (0.64-29.86)	0,1326		
No information	7	0.6	1	14.3	6	85.7	-			
Type of delivery										
Vaginal	655	51.4	203	31.0	452	69.0	Ref		-	
Cesarean section	617	48,4	187	30.3	430	69.7	0.97 (0.76-1.23)	0.7914		
No information	3	0.2	0	-	3	100.0	-			
Characteristics of the newborn										
Gender										
Male	662	51.9	196	29.6	466	70.4	Ref		-	
Female	609	47.8	193	31.7	416	68.3	1.10 (0.87-1.40)	0.4207		
No information	4	0.3	1	25.0	3	75.0	-			
Birth weight (g)										
[8]Up to 3205	638	50.0	200	31.4	438	68.6	1.08 (0.85-1.38)	0.5038	-	
Above 3205	628	49.2	186	29.6	442	70.4	Ref			
No information	9	0.7	4	44.4	5	55.6	-			

Analyses (crude and adjusted) of associations with early weaning (N=1,275). São Luís (MA), 2016-2018.

Variable	N	%	Early weaning				[$]Crude OR (#CI95%)	*p*	[$]Adjusted OR (#CI95%)	*p*
			*Yes		No					
			n	%	n	%				
Breastfed in the delivery room										
Yes	831	65.2	261	31.4	570	68.6	Ref		-	
No	424	33.2	125	29.5	299	70.5	0.91 (0.71-1.18)	0.4843		
No information	20	1.6	4	20.0	16	80.0	-			
Breastfeeding observation										
It was observed that										
Yes	1.220	95.7	377	30.9	843	69.1	Ref		-	
No	42	3.3	7	16.7	35	83.3	0.45 (0.20-1.02)	0.0546		
No information	13	1.0	6	46.2	7	53.8	-			
Mother relaxed and comfortable										
Yes	749	58.8	541	32.2	508	67.8	Ref		-	
No	473	37.1	140	29.6	333	70.4	0.89 (0.69-1.14)	0.3435		
No information	53	4.2	9	17.0	44	83	-			
Infant close										
Yes	600	47.1	187	31.2	413	68.8	Ref		-	
No	623	48.9	195	31.3	428	68.7	1.00 (0.79-1.28)	0.9598		
No information	52	4.1	8	15.4	44	84.6	-			
Head and body aligned										
Yes	553	43.4	170	30.7	383	69.3	Ref		-	
No	659	51.7	209	31.7	450	68.3	1.05 (0.82-1.34)	0.7160		
No information	63	4.9	11	17.5	52	82.5	-			
Chin touching breast										
Yes	1.002	78.6	318	31.7	684	68.3	Ref		-	
No	211	16.6	59	28.0	152	72.0	0.84 (0.60-1.16)	0.2821		
No information	62	4.9	13	21.0	49	79.0	-			
Supported buttocks										
Yes	646	50.7	206	31.9	440	68.1	Ref		-	

Analyses (crude and adjusted) of associations with early weaning (N=1,275). São Luís (MA), 2016-2018.

Variable	N	%	Early weaning				[§]Crude OR (#CI95%)	*p*	[§]Adjusted OR (#CI95%)	*p*
			*Yes		No					
			n	%	n	%				
No	561	44.0	168	30.0	393	70.0	0.91 (0.72-1.17)	0.4669		
No information	68	5.3	16	23.5	52	76.5	-			
Mouth wide open										
Yes	690	54.1	218	31.6	472	68.4	Ref		-	
No	524	41.1	160	30.5	364	69.5	0.95 (0.74-1.22)	0.6932		
No information	61	4.8	12	19.7	49	80.3	-			
Bottom lip turned out										
Yes	724	56.8	228	31.5	496	68.5	Ref		-	
No	490	38.4	150	30.6	340	69.4	0.96 (0,.75-1.23)	0.7458		
No information	61	4.8	12	19.7	49	80.3	-			
Tongue attached around the breast										
Yes	670	52.6	218	32.5	452	67.5	Ref		-	
No	532	41.7	160	30.1	372	69.9	0.89 (0.70-1.14)	0.3613		
No information	73	5.7	12	16.4	61	83.6	-			
Round cheeks										
Yes	935	73.3	299	32.0	636	68.0	Ref		-	
No	273	21.4	79	28.9	194	71.1	0.87 (0.64-1.16)	0.3407		
No information	67	5.2	12	17.9	55	82.1	-			
More areola around the mouth										
Yes	782	61.3	246	31.5	536	68.5	Ref		-	
No	421	33.0	131	31.1	290	69.9	0.98 (0.76-1.27)	0.9032		
No information	72	5.6	13	18.1	59	81.9	-			
Deep slow sucks										
Yes	901	70.7	290	32.2	611	67.8	Ref		-	
No	313	24.6	89	28.4	224	71.6	0.84 (0.63-1.11)	0.2175		
No information	61	4.8	11	18	50	82.0	-			
Swallowing can be heard										
Yes	916	71.8	301	32.9	615	67.1	Ref		-	
No	274	21.5	73	26.6	201	73.4	0.74 (0.55-1.00)	0.0523		
No information	85	6.7	16	18.8	69	81.2	-			

*Event for the outcome variable. # Median of the sample. OR = Odds ratio; CI = Confidence Interval; AIC (empty model) =1541.37; AIC (final model) = 1524.45.

finding of the present study highlights the efforts of the HMB team in the sense that they encouraged primiparous women to overcome these difficulties by maintaining EBF. In contrast, the knowledge that mothers who had more than one child stated that, despite not offering powdered milk, porridge or cornstarch to the first child, they did so to the others.[24] In addition, this study points to an important aspect to be taken into account by the team in approaches to experienced mothers in order to encourage them to maintain EBF despite the difficulties found.

The relationship between type of delivery, prenatal care and EBF is clear in literature, with strong evidence that vaginal delivery favors[25] and prolongs it,[26] and positively influences the early initiation of breastfeeding in the first hour of life.[27] Adequate prenatal care also favors EBF.[25] In this study, 51.3% of deliveries were vaginal, and 99% of mothers received prenatal care; however, these findings were not associated with early weaning, probably due to the already discussed positive impact of the actions developed at the HMB in promoting maternal and child health.[22]

Among the sociodemographic factors evaluated, early weaning was significantly higher among housewives than among women with formal job, self-employed or students. Accordingly, Taveiro *et al*.,[28] pointed out that returning to work was not a determining factor for early weaning and discontinuing EBF. Other studies have also shown that there is higher prevalence of breastfeeding among working mothers,[29,30] pointing out that employment is not the main cause of weaning and that most workers use leave to breastfeed. In addition, other techniques are used to maintain breastfeeding when returning to work, such as, for example, the periodic breast milk collection during the working day,[30] which does not occur with "housewife" mothers who are submitted to an uninterrupted routine of care for the newborn and the house, often without adequate support.

Among evaluated characteristics, only mother's occupation and previous breastfeeding experience were associated with early weaning. The findings of the present study strengthen the importance of the HMB in supporting, protecting and encouraging EBF, given that many variables that could influence early weaning were nullified by the management and correct guidelines for breastfeeding by the established care protocol. Despite this, knowing the variables that influence early weaning under these controlled conditions of EBF management can lead to the rethinking of practices and approaches to mothers at home and those who have already breastfed other children, which, in this study, proved to be susceptible to early weaning.

Authors' contribution

Conceição FOVA: study design, data collection, analysis and interpretation, review of the manuscript. Zanin L, Neto APA, and Pinheiro FS: data interpretation and manuscript review. Flório FM: study conception and design, analysis and interpretation of data, review of the manuscript. The authors approved the final version of the article and declare that there is no conflict of interest.

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Received on January 14, 2022

Final version presented on September 22, 2022

Approved on October 4, 2022

Associated Editor: Lygia Vanderlei