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Feeding Practices in Children Aged 0 to 6 Months Attended in Primary Care in a Brazilian Northeastern Capital

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Marcia Cristina Monteiro de Jesus Aguiar[1], Márcia Rodrigues Veras Batista[1], José Newton Lacet Vieira[2], Adriana Sousa Rêgo[1], Janaina Maiana Abreu Barbosa[3], Maria Raimunda Chagas Silva[4], Wellyson da Cunha Araújo Firmo[5*], Flor de Maria Araujo Mendonça Silva[1]

[1] Postgraduate Program in Management of Health Programs and Services. Ceuma University, São Luís, Maranhão, Brazil.
[2] Teacher of the Physiotherapy Course at Ceuma University, São Luís, Maranhão, Brazil.
[3] Teacher of the Nutrition Course at Ceuma University, São Luís, Maranhão, Brazil.
4 Postgraduate Program in Environment at the Ceuma University, São Luís, Maranhão, Brazil
[5] Teacher of the Biomedicine Course at the Ceuma University and the Postgraduate Program in Health and Environment at the Federal University of Maranhão, São Luís, Maranhão, Brazil.

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ABSTRACT

The present study aims to assess the factors that interfere with the feeding of children from zero to six months of age attended in primary care. This is an analytical cross-sectional study. The convenience sample comprised children who resided and were attended at three health centers in São Luís, Maranhão state, Brazil. The data were analyzed using the software STATA 14.0. The results were age in relation to weight: 53 (56.38%), age in relation to height 56-82 cm: 64 (100%) (this variable prevailed), age in relation to absence of diseases: 93 (98.94%), age feeding on breast milk: 92 (97.87%), age not feeding on porridge: 90 (95.74%), age not drinking water/tea: 73 (77.66%), age not feeding on infant formula: 78 (82.98%), height in relation to age: 64 (41.56%), height in relation to weight 6.301 to 7.500 g: 61 (39.61%), height in relation to absence of disability/complications: 146 (94.81%), height in relation to not feeding on porridge: 119 (77.27%), height in relation to not drinking water/tea: 85 (55.19%), height in relation to not feeding on formula: 108 (70.13%), weight between 2.900 to 5.000 g: 35 (57.38%), weight in relation to the absence of disability/complications: 62 (95.38%), and weight in relation to not drinking water/tea: 49 (80.33%). There was a statistical significance of $p \leq 0.01$ for gender, weight, height, age, cow milk, water/tea and infant formula, and of $p=0.04$ for porridge. Biological, psychological, social and cultural factors often interfere with the breastfeeding process. For exclusive breastfeeding to be successful, more efficient health education work, a more active multi-professional team and improved assistance and guidance during the prenatal are needed.

INTRODUCTION

Exclusive breastfeeding (EBF) is defined as the process by which the infant drinks breast milk from his/her mother or nursing mother or removed breast milk for at least six months without drinking or eating any other liquid or solid [1].

Due to its rich composition in nutrients, breast milk, in an adequate quantity, meets the nutritional deficiencies of the infant until the sixth month of life. The supply of other foods is disadvantageous [2].

The child's nutritional characteristic in childcare is the main health indicator of this population as it reflects the environmental situations to which they are subjected, such as type of food, illnesses, housing conditions, and basic sanitation [3].

The purpose of the National Food and Nutrition Policy [4] is to improve the situation of food, nutrition and health of Brazilian citizens. The Food and Nutrition Surveillance System (SISVAN) has the fundamental objective of controlling the nutritional status and the particularities of food consumption of people attended by the Unified Health System.

Inadequate procedures regarding eating habits or nutritional deficiencies may increase child morbidity and mortality rates since they have direct and immediate consequences on the child's health, as well as other future implications, favoring the development of chronic non-communicable morbidities [3].

The Child Health Policy in Brazil has favored actions to promote, protect and support breastfeeding, which is a fundamental tactic to reduce child mortality and improve the health of Brazilian children [5].

In São Luís do Maranhão [6] 70.2% of newborns are breastfed within the first hour of life. However, over the months that number drops; in the sixth month, it reaches only 12.5% of children. These values do not meet the parameter proposed by the World Health Organization (WHO) [6], for a healthy eating during the first years of life. This parameter considers values between 12-49% as reasonable.

Aiming to contribute socially to both mothers with children and professionals who work in the Family Health Strategy, especially with regard to the prescription of complimentary food

and also the introduction of food in a timely and correct way, we sought to evaluate the factors that interfere with the feeding of infants from zero to six months of age.

METHODS

This is an analytical cross-sectional study carried out with 221 children from zero to six months of age of both genders attended at three health centers in the Cohab Sanitary District in the municipality of São Luís, MA, Brazil, from January to September 2018.

For data collection, an instrument was used that corresponds to the Food Consumption Markers Form for children, which is proposed for registration at the SISVAN.

Data were entered and analyzed using the software STATA 14.0 (Stata Corp., College Station, Texas, USA). Descriptive statistics included calculation of absolute and relative frequencies (percentages) and qualitative variables were presented using absolute and percent frequencies.

In this study, the causal model was used to verify the association between the explanatory or predictive variable (feeding of children aged zero to six months) and the response variable (nutritional status of children aged zero to six months), which was calculated using the Chi-square test. In the classification of the nutritional status of children adopted in this study, macrosomia means a weight greater than 7,501 g, risk of overweight greater than 7,500 g, normal weight of 2,900 to 5,000 g, low weight less than 2,500, and very low weight less than 1,500 g. Logistic regression analysis was used to determine the influence of explanatory variables on the response variable. In the univariate analysis, associated factors were tested between the explanatory variable and the response variable with their respective prevalence ratios (PR), 95% confidence intervals (CI95%), statistical significance ($p \leq 0.05$), and the number of exposed in the sample.

The multivariate analysis was performed using the Poisson regression model with robust adjustment of variance because its data analysis considers the total number of children on exclusive breastfeeding and its association with levels of introduction of other foods for events that presented, in the univariate analysis, a prevalence of $p \leq 0.20$. In the final multivariate model, only the variables that had $p \leq 0.10$ remained.

The results of the final model (individual and contextual covariates) were interpreted at a statistical significance level of $p \leq 0.05$ and remained in the final model for performance of the Parm Test for non-binary variables.

The study was submitted to the Ethics Committee on Research with Human Beings of the CEUMA University (approved under opinion no. 743.094) and followed the Resolution no. 466/2012 of the National Health Council.

RESULTS

Table 1 shows the results collected in a convenience sample consisting of 221 children aged zero to six months. The results obtained for the variable **age in relation to weight** had statistical significance ($p \leq 0.01$), with a prevalence of 53 (56.38%) at the age of 0-2 months for a weight between 2,900 and 5,000 g. The variable **age in relation to height** had statistical significance ($p \leq 0.01$), with a prevalence of the 56-82 cm height (64, 100%) for the age of 5-6 months. The variable **age in relation to diseases** had a higher prevalence for absence of diseases (93, 98.94%) in the 0-2-month age group, with a statistical significance of $p=0.04$.

The variable **age at feeding on breast milk** had statistical significance ($p=0.01$) with a higher prevalence of children (92, 97.87%) who fed on breast milk in the 0-2-month age group. The variable **age at feeding on porridge** had statistical significance ($p \leq 0.01$) with a higher prevalence for children not feeding on porridge (90, 95.74%) in the 0-2-month age group.

The variable **age at drinking water/tea** had a higher prevalence for not drinking water/tea (73, 77.66%) in the 0-2-month age group. This variable was statistically significant ($p \leq 0.01$). The variable **age at feeding on infant formula** had statistical significance ($p=0.01$) with a higher prevalence (78, 82.98%) for children not feeding on infant formula in the 0-2-month age group.

Table No. 1: Characteristics of the association of food in relation to age with the demographic and health variables of children aged zero to six months attended by primary care, São Luís, MA, 2018

Variable	Age (months)			p-value
	0-2	3-4	5-6	
Gender				0.78
Female	51(54.26)	31(49.21)	32(50.00)	
Male	43(45.74)	32(50.79)	32(50.00)	
Weight				**≤ 0.01**
1,840 to 2,899 g	2(2.13)	-	-	
2,900 to 5,000 g	53(56.38)	6(9.52)	2(3.12)	
5,001 to 6,300 g	30(31.91)	17(26.98)	6(9.38)	
6,301 to 7,500 g	9(9.57)	32(50.79)	24(37.50)	
> 7,501 g	-	8(12.70)	32(50.00)	
Height (cm)				**≤ 0.01**
40-46	2(2.13)	1(1.59)	-	
47-55	59(62.77)	5(7.94)	-	
56-82	33(35.11)	57(90.48)	64(100.00)	
Diseases				**0.04**
Present	1(1.06)	6(9.52)	4(6.25)	
Absent	93(98.94)	57(90.48)	60(93.75)	
Disability/complications				0.86
Present	6(6.38)	3(4.76)	3(4.69)	
Absent	88(93.62)	60(95.24)	61(95.31)	
Breast milk				**0.01**
Yes	92(97.87)	59(93.65)	55(85.94)	
No	2(2.13)	4(6.35)	9(14.06)	
Cow milk				0.10
Yes	2(2.13)	1(1.59)	5(7.81)	
No	92(97.87)	62(98.41)	59(92.19)	
Porridge				**≤ 0.01**
Yes	4(4.26)	10(15.87)	23(35.94)	
No	90(95.74)	53(84.13)	41(64.06)	
Water/tea				**≤ 0.01**
Yes	21(22.34)	28(44.44)	50(78.12)	
No	73(77.66)	35(55.56)	14(21.88)	
Infant formula				**0.01**
Yes	16(17.02)	15(23.81)	24(37.50)	
No	78(82.98)	48(76.19)	40(62.50)	

p-value≤ ***0.05***

In the results obtained and described in Table 2, the variable **height in relation to age** had statistical significance **(p≤0.01)** with a prevalence for the age 5-6 months (64, 41.56%) at a height of 56-82 cm. The variable **height in relation to weight** had statistical significance

(p≤0.01) for 6,301 to 7,500 g (61, 39.61%) for the height 56-82 cm. The variable **height in relation to absence of diseases** had statistical significance **(p = 0.05)** (143, 92.81%) for absence of diseases at the height 56-82 cm. The variable **height in relation to absence of disability/complications** had statistical significance **(p = 0.05)** (146, 94.81%) for absence of disability/complications at the height 56-82 cm. The variable **height in relation to feeding on porridge** had statistical significance **(p≤0.01);** 119 children (77.27%) did not feed on porridge at the height of 56-82 cm. The variable **height in relation to drinking water/tea** had statistical significance **(p≤0.01)**(85, 55.19%) for children who drank water/tea at the height of 56-82 cm. The variable **height in relation to feeding on infant formula** had statistical significance **(p≤0.01)** (108, 70.13%) for children who did not feed on infant formula at the height 56-82 cm.

Table No. 2: Characteristics of the association of food in relation to height with the demographic and health variables of children aged zero to six months attended by primary care, São Luís, MA, 2018

Variable	Height (cm)			p-value
	40-46	47-55	56-82	
Gender				0.81
Female	1(33.33)	33(51.56)	80(51.95)	
Male	2(66.67)	31(48.44)	74(48.05)	
Age (months)				**≤ 0.01**
0-2	2(66.67)	59(92.19)	33(21.43)	
3-4	1(33.33)	5(7.81)	57(37.01)	
5-6	-	-	64(41.56)	
Weight				**≤ 0.01**
1,840 to 2,899 g	1(33.33)	1(1.56)	-	
2,900 to 5,000 g	1(33.33)	45(70.31)	15(9.14)	
5,001 to 6,300 g	1(33.33)	14(21.88)	38(24.68)	
6,301 to 7,500 g	-	4(6.25)	61(39.61)	
> 7,501 g	-	-	40(25.97)	
Diseases				**0.05**
Present	-	-	11(7.14)	
Absent	3(100.00)	64(100.00)	143(92.86)	
Disability/complications				**0.05**
Present	1(33.33)	3(4.69)	8(5.19)	
Absent	2(66.67)	61(95.31)	146(94.81)	
Breast milk				0.11
Yes	3(100.00)	63(98.44)	140(90.91)	
No	-	1(1.56)	14(9.09)	
Cow milk				0.53
Yes	-	1(1.56)	7(4.55)	
No	3(100.00)	63(98.44)	147(95.45)	
Porridge				**≤ 0.01**
Yes	-	2(3.12)	35(22.73)	
No	3(100.00)	62(96.88)	119(77.27)	
Water/tea				**≤ 0.01**
Yes	1(33.33)	13(20.31)	85(55.19)	
No	2(66.67)	51(79.69)	69(44.81)	
Infant formula				**≤ 0.01**
Yes	2(66.67)	7(10.94)	46(29.87)	
No	1(33.33)	57(89.06)	108(70.13)	

p ≤ 0.01

Table 3 shows that the variable **weight in relation to gender** had statistical significance **(p≤0.01)** for females, with a prevailing weight between 2,900 to 5,000 g (35, 57.38%). The variable **weight in relation to age** had statistical significance **(p≤0.01)** for weight between 2,900 to 5,000 g (53, 86.89%) in the 0-2-month age group. The variable **weight in relation to**

absence of disability/complications had statistical significance **(p≤0.01)** for children who weighed between 6,301 to 7,500 g (62, 95.38%) in the absence of disability/complications. The variable **weight in relation to feeding on porridge** had statistical significance **(p≤0.01)** for children who weighed between 2,900 to 5,000 g (60, 98.36%) and who did not feed on porridge. The variable **weight in relation to drinking water/tea** had statistical significance **(p≤0.01)** for the weight 2,900 to 5,000 g (49, 80.33%) for children who did not drink water/tea.

Table No. 3: Characteristics of the association of food in relation to weight with the demographic and health variables of children aged zero to six months attended by primary care, São Luís, MA, 2018

Variable	Weight					p-
	1,840 to 2,899g	2,900 to 5,000g	5,001 to 6,300g	6,301 to 7,500g	> 7,501g	
Gender						**≤ 0.01**
Female	1(50.00)	35(57.38)	34(64.15)	34(52.31)	10(25.00)	
Male	1(50.00)	26(42.62)	19(35.85)	31(47.69)	30(75.00)	
Age (months)						**≤ 0.01**
0-2	2(100.00)	53(86.89)	30(56.60)	9(13.85)	-	
3-4	-	6(9.84)	17(32.08)	32(49.23)	8(20.00)	
5-6	-	2(3.28)	6(11.32)	24(36.92)	32(80.00)	
Diseases						**0.67**
Present	-	1(1.64)	3(5.66)	4(6.15)	3(7.50)	
Absent	2(100.00)	60(98.36)	50(94.34)	61(93.85)	37(92.50)	
Disability/complications						**≤ 0.01**
Present	2(100.00)	2(3.28)	3(5.66)	3(4.62)	2(5.00)	
Absent	-	59(96.72)	50(94.34)	62(95.38)	38(95.00)	
Breast milk						0.35
Yes	2(100.00)	59(96.72)	51(96.23)	58(89.23)	36(90.00)	
No	-	2(3.28)	2(3.77)	7(10.77)	4(10.00)	
Cow milk						**0.02**
Yes	-	1(1.64)	1(1.89)	1(1.54)	5(12.50)	
No	2(100.00)	60(98.36)	52(98.11)	64(98.46)	35(87.50)	
Porridge						**≤ 0.01**
Yes	-	1(1.64)	7(13.21)	15(23.08)	14(35.00)	
No	2(100.00)	60(98.36)	46(86.79)	50(76.92)	26(65.00)	
Water/tea						**≤ 0.01**
Yes	1(50.00)	12(19.67)	17(32.08)	37(56.92)	32(80.00)	
No	1(50.00)	49(80.33)	36(67.92)	28(43.08)	8(20.00)	
Infant formula						**0.84**
Yes	1(50.00)	13(21.31)	13(24.53)	18(27.69)	10(25.00)	
No	1(50.00)	48(78.69)	40(75.47)	47(72.31)	30(75.00)	

p-value ≤ 0.05

The unadjusted analysis of the variables that showed a **p≤0.20** for the variable **age** are shown in Table 4.

The variable **age in months in relation to weight** had statistical significance for children weighting 2,900 to 5,000 g (p≤0.01;PR = 1.16; CI = 1.05-1.28), for children weighing between 5,001 and 6,300 g (p≤0.01;PR = 1.54; CI = 1.37-1.74), for children weighting 6,301 to 7,500 g (p≤0.01;PR = 2.23; CI = 2.07-2.40); and for children weighting> 7,501 g (p≤0.01;PR = 2.8; CI = 2.67-2.92).

The variable **age in relation to height** had statistical significance (p≤0.01;PR = 0.80; CI = 0.53-1.21) for the height 47-55 cm and (p≤0.01;PR = 1.65; CI = 1.10-2.47) for the height 56-82 cm. The variable **age in relation to feeding onbreast milk** had statistical significance(p≤0.01;PR= 1.35; CI = 1.15-1.59) for feeding on breast milk. For children who **drank cow milk**, there was also statistical significance (p = 0.05; PR = 0.77; CI = 0.60-1.00).

The variable **porridge** hadstatistical significance (p≤0.01; PR = 0.68; CI = 0.61-0.77) for children that **did not fed on porridge.** The variable **water/tea** had statistical significance (p≤0.01);for **children who did notdrink water/tea**, there was statistical significance (p≤0.01;PR = 0.66; CI = 0.59-0.73). The variable **infant formula** had statistical significance (p≤0.01); for children who did not feed on infant formula, there was statistical significance (p≤0.01;PR = 0.82; CI = 0.72-0.93).

In the adjusted analysis of the variable age, to verify the strength of association, it presented a**p≤0.10** in the final model. The variables are shown in Table 4.

The variable **weight** had statistical significance **(p≤0.01)**. For the weight 6,301 to 7,500 g,it had statistical significance (p≤0.01**;** PR = 1.79; CI = 1.18-2.73) and for the weight > 7,500 g, it had statistical significance (p≤0.01**;** PR = 2.14; CI = 1.41-3.29).

Height showed statistical significance **(p≤0.01)**; for the height 47-55 cm, it had statistical significance (p≤0.01;PR = 0.76; CI = 0.49-1.18) and for the height 56-82 cm, it had significance (p≤0.01; PR = 1.11; CI = 0.71-1.74).

Table No. 4. Unadjusted and adjusted analysis of the variable age in relation to the demographic and health variables of children aged zero to six months attended in primary care, São Luís, MA, 2018

Variable	Unadjusted analysis Age			Adjusted analysis Age p ≤ 0.01		
	PR	CI	p-value	PR	CI	p-
Gender			0.57			
Female	1	1	-	-	-	-
Male	1.03	1.68-	0.57	-	-	-
Weight			**≤ 0.01**			**≤ 0.01**
1,840 to 2,899 g	1	1	-	1	1	-
2,900 to 5,000 g	1.16	1.05-	**≤ 0.01**	1.26	0.84-1.89	0.25
5,001 to 6,300 g	1.54	1.37-	**≤ 0.01**	1.38	0.91-2.09	0.12
6,301 to 7,500 g	2.23	2.07-	**≤ 0.01**	1.79	1.18-2.73	**≤ 0.01**
> 7,501 g	2.8	2.67-	**≤ 0.01**	2.14	1.41-3.29	**≤ 0.01**
Height			**≤ 0.01**			**≤ 0.01**
40-46	1	1	-	1	1	-
47-55	0.80	0.53-	0.30	0.76	0.49-1.18	0.23
56-82	1.65	1.10-	0.01	1.11	0.71-1.74	0.62
Disease			**0.01**			
Present	1	1	-	1	1	-
Absent	0.81	0.68-	0.01	0.96	0.82-1.13	0.66
Disability/complications			0.63			
Present	1	1	-	-	-	-
Absent	1.06	0.81-	0.63	-	-	-
Breast milk			**≤ 0.01**			
Yes	1	1	-	1	1	-
No	1.35	1.15-	**≤ 0.01**	1.06	0.92-1.21	0.37
Cow milk			**0.05**			
Yes	1	1	-	1	1	-
No	0.77	0.60-	**0.05**	1.05	0.91-1.22	0.46
Porridge			**≤ 0.01**			
Yes	1	1		1	1	-
No	0.68	0.61-	**≤ 0.01**	0.96	0.86-1.08	0.55
Water/tea			**≤ 0.01**			
Yes	1	1	-	1	1	-
No	0.66	0.59-	**≤ 0.01**	0.89	0.81-0.98	0.02
Infant formula			**≤ 0.01**			
Yes	1	1	-	1	1	-
No	0.82	0.72-	**≤ 0.01**	0.95	0.85-1.07	0.46

PR = prevalence ratio; CI = confidence interval; p-value ≤ 0.05

The unadjusted analysis of the associated factors, referring to the variables that comprised the final model and that presented a**p≤0.10**, is shown in Table 5.

The variable **height in relation to age** had statistical significance for the age of 3-4 months (p=0.02; PR = 1.42; CI = 1.29-1.55) and for the age of 5-6 months (p=0.02; PR = 1.50; CI = 1.39-1.62). The variable **height in relation to weight** had statistical significance for the weight 2,900-5,000 g (p≤0.01; PR = 2.45; CI = 0.61-9.89), for the weight 5.001-6.300 g (p≤0.01; PR = 3.39; CI = 0.84-13.65), for the weight 6.301-7.500 g (p≤0.01; PR = 3.78; CI = 0.96-15.55), and for the weight > 7.501 g (p≤0.01; PR = 3.99; CI = 0.99 -16.04).

The variable **height in relation to disease** had statistical significance for height (p≤0.01; PR = 0.83; CI = 0.80-0.86) for the absence of diseases. The variable breast milk in relation to height had statistical significance (p≤0.01; PR = 1.16; CI = 1.07-1.25) for drinking breast milk. The variable **height in relation to feeding on porridge** had statistical significance **(p≤0.01**; PR=0.83; CI=0.78-0.78-0.88) for not feeding on porridge. The **water/tea variable in relation to height** was statistically significant (p≤ 0.01; PR = 0.83; CI = 0.77-0.90) for not drinking water/tea. The variable **infant formula in relation to height** had statistical significance (p≤ 0.01; PR = 0.82; CI = 0.72-0.93) for not feeding on infant formula.

The adjusted analysis of the age variable, upon verifying the strength of association of variables that comprised the final model and that presented a**p≤0.10**, is shown in Table 5.

The variable **age** showed statistical significance for 3-4 months (p≤ 0.01; PR = 1.20; CI = 1.07-1.35) and for 5-6 months (p≤ 0.01; PR = 1.25; CI = 1.12-1.39).

The variable **height** had statistical significance for the weight 2,900-5,000 g (p≤0.01; PR = 2.39; CI = 0.59-9.68), for the weight 5.001-6.300 g (p≤0.01; PR = 3.08; CI = 0.76-12.51), for the weight 6.301-7.500 g (p≤0.01; PR = 3.21; CI = 0.79-13.03), and for the weight > 7.501 g (p≤0.01; PR = 3.18; CI = 0.78-12.90).

Table No. 5: Unadjusted and adjusted analysis of the variable height in relation to the demographic and health variables and types of feeding of children aged zero to six months attended in primary care, São Luís, MA, 2018

Variable	Unadjusted analysis Height			Adjusted analysis Height p ≤ 0.01		
	PR	CI	p-value	PR	CI	p-value
Gender			0.76			
Female	1	1	-	-	-	-
Male	0.98	0.91-1.06	0.76	-	-	-
Age			**0.02**			**≤ 0.01**
0-2	1	1	-	1	1	-
3-4	1.42	1.29-1.55	**≤ 0.01**	1.20	1.07-1.35	**≤ 0.01**
5-6	1.50	1.39-1.62	**≤ 0.01**	1.25	1.12-1.39	**≤ 0.01**
Weight			**≤ 0.01**			**≤ 0.01**
1,840 to 2,899 g	1	1	-	1	1	-
2,900 to 5,000 g	2.45	0.61-9.89	0.20	2.39	0.59-9.68	0.22
5,001 to 6,300 g	3.39	0.84-	0.08	3.08	0.76-	0.11
6,301 to 7,500 g	3.87	0.96-	0.05	3.21	0.79-	0.10
> 7.501 g	3.99	0.99-	0.05	3.18	0.78-	0.10
Disease			**≤ 0.01**			
Present	1	1	-	1	1	-
Absent	0.83	0.80-0.86	**≤ 0.01**	0.93	0.87-0.99	0.04
Disability/complications			0.58	-	-	-
Present	1	1	-	-	-	-
Absent	1.06	0.84-1.34	0.58	-	-	-
Breast milk			**≤ 0.01**			
Yes	1	1	-	1	1	-
No	1.16	1.07-1.25	**≤ 0.01**	1.03	0.94-1.13	0.43
Cow milk			**0.08**			
Yes	1	1	-	-	-	-
No	0.89	0.78-1.01	**0.08**	-	-	-
Porridge			**≤ 0.01**			
Yes	1	1	-	1	1	-
No	0.83	0.78-0.88	**≤ 0.01**	1.00	0.94-1.06	0.93
Water/tea			**≤ 0.01**			
Yes	1	1	-	1	1	-
No	0.83	0.77-0.90	**≤ 0.01**	0.98	0.92-1.05	0.75
Infant formula			**0.03**			
Yes	1	1	-	1	1	-
No	0.82	0.72-0.93	**0.03**	0.94	0.87-1.02	0.19

PR = prevalence ratio; CI = confidence interval; p-value ≤ 0.05

The unadjusted analysis of the associated factors, referring to the variables that comprised the final model and that presented a**p≤0.10**, is shown in Table 6.

The variable **weight in relation to gender** had statistical significance (p≤ 0.01; PR = 1.20; CI = 1.06-1.35) for males. The variable **weight in relation to age** had statistical significance for the age 3-4 months (p≤ 0.01; PR = 1.79; CI = 1.58-2.02) and for the age 5-6 months (p≤ 0.01; PR = 2.24; CI = 2.01-2.50). The variable **weight in relation to height** had statistical significance for the height 47-55 cm (p≤ 0.01; PR = 1.32; CI = 0.52-3.37) and for the height 56-82 cm (p≤ 0.01; PR = 2.81; CI = 1.11 - 7.12).

The variable **weight in relation to drinking breast milk** had statistical significance (p≤ 0.01; PR = 1.23; CI = 1.02-1.47) for drinking breast milk. The variable **weight in relation to the drinking cow milk** had statistical significance for drinking cow milk (p≤ 0.01; PR = 0.71; CI = 0.56-0.91). The variable **weight in relation to feeding on porridge** had statistical significance **(p≤0.01**; PR=0.70; CI=0.63-0.78) for feeding on porridge. The variable weight **in relation to drinking water/tea** was statistically significant (p ≤ 0.01; PR = 0.67; CI = 0.60-0.75) for not drinking water/tea.

The unadjusted analysis of the associated factors, referring to the variables that comprised the final model and that presented a**p≤0.10**, is shown in Table 6.

The variable gender had statistical significance for males (p ≤ 0.01; PR = 1.19; CI = 1.10-1.28). The variable **age** had statistical significance for the age 3-4 months (p≤ 0.01; PR = 1.41; CI = 1.24-1.60) and for the age 5-6 months (p≤ 0.01; PR = 2.24; CI = 1.44-1.87). The variable **cow milk** had statistical significance (p≤ 0.01; PR = 0.85; CI = 0.77-0.94) for not drinking cow milk. The variable **porridge** had statistical significance (p=0.04; PR=0.90; CI=0.81-0.97) for not feeding on porridge. The variable **water/tea** was statistically significant (p≤ 0.01; PR = 0.89; CI = 0.81-0.87) for not drinking water/tea. The variable **infant formula** had statistical significance (p≤ 0.01; PR = 1.18; CI = 1.05-1.32) for not feeding on infant formula.

Table No. 6. Unadjusted and adjusted analysis of the variable weight in relation to the demographic and health variables and types of feeding of children aged zero to six months attended in primary care, São Luís, MA, 2018

Variable	Unadjusted analysis Weight			Adjusted analysis Weight p ≤ 0.01		
	PR	CI	p-value	PR	CI	p-value
Gender			**≤ 0.01**			**≤ 0.01**
Female	1	1	-	1	1	-
Male	1.20	1.06-	**≤ 0.01**	1.19	1.10-	**≤ 0.01**
Age			**≤ 0.01**			**≤ 0.01**
0-2	1	1	-	1	1	-
3-4	1.79	1.58-	**≤ 0.01**	1.41	1.24-	**≤ 0.01**
5-6	2.24	2.01-	**≤ 0.01**	2.24	1.44-	**≤ 0.01**
Height			**≤ 0.01**			**≤ 0.01**
40-46	1	1	-	1	1	-
47-55	1.32	0.52-	0.55	1.52	0.72-	0.26
56-82	2.81	1.11-	0.02	2.26	1.08-	0.03
Disease			0.07			
Present	1	1	-	1	1	-
Absent	0.82	0.67-	0.07	1.04	0.87-	0.64
Disability/complications			0.47	-	-	-
Present	1	1	-	-	-	-
Absent	1.14	0.79-	0.47	-	-	-
Breast milk			**0.02**			
Yes	1	1	-	1	1	-
No	1.23	1.02-	**0.02**	0.99	0.86-	0.89
Cow milk			**≤ 0.01**			
Yes	1	1	-	1	1	-
No	0.71	0.56-	**≤ 0.01**	0.85	0.77-	**≤ 0.01**
Porridge			**≤ 0.01**			
Yes	1	1		1	1	-
No	0.70	0.63-	**≤ 0.01**	0.90	0.81-	0.04
Water/tea			**≤ 0.01**			
Yes	1	1	-	1	1	-
No	0.67	0.60-	**≤ 0.01**	0.89	0.81-	**≤ 0.01**
Infantile formula			0.65			
Yes	1	1	-	1	-	-
No	0.96	0.84-	0.65	1.18	1.05-	**≤ 0.01**

PR = prevalence ratio; CI = confidence interval; p-value = 0.05

DISCUSSION

In the present study, 221 children between zero and six months of age were studied. The study was carried out in public health institutions. The results evidence the feeding of

children from zero to six months of age. Among the circumstances that influence child's vitality, feeding practices are very well known. The WHO recommends exclusive breastfeeding until six months of age and, from this age up to two years, the progressive introduction of other foods along with breastfeeding [7].

The highest prevalence, in relation to the gender studied, was female. Similar results were found in a cross-sectional descriptive study in a primary health care service in the city of Porto Alegre/RS, with 45 (54.2%) children being female [8]. The data found related to the female gender, which prevailed in the research, is not common since the occurrence relationship between the birth of girls and boys has a higher prevalence for males [9].

In Brazil, 2.87 million births were registered in 2017: 1,473,166 males and 1,400,998 females. The System of Information on Live Births published in its last data collection in 2016 similar values of birth between males and females for the municipality of São Luís: live births (11,615) children for the period were predominantly male.

In this study, when evaluating the feeding practices of children according to the variable “age,”a higher prevalence was observed in children aged zero to two months weighing 2,900 to 5,000 g and a higher prevalence for the height 56-82 cm. A greater risk was found for weights 6,301 to > 7,501 g in the introduction of mixed breastfeeding. The study by Caldas et al. [10] revealed different results with respect to weight: 5,825 g and equal in relation to height, which was on average 66,858 cm. It was observed that 56.38% were eutrophic and 100% were of adequate height for their age.

A similar study by Schincaglia et al. [11] demonstrated that 47.1% of children in EBF at 30 days of life, and consequently the early initiation of mixed breastfeeding contributes to weight gain, being a risk factor. This decreasing prevalence with the increasing age of the child will increase the weaning percentages by the introduction of other foods.

The inclusion of other foods before six months of life causes health problems for infants, the most common are ineffective nutrition and infections caused by microbial agents present in poorly sanitized or poorly stored foods, in addition to causing greater risks for allergies due to physiological precocity and leading to greater financial expenses for the family [11].

Regarding the variable "presence of diseases at birth," the children did not present any morbidity at birth, thus favoring good breastfeeding and adherence to early breastfeeding. As

for the variable children who “were born with a disability or had some complications at the time of delivery,” there was no complications and/or disability at birth, favoring mothers' adherence to breastfeeding. In the study by Pinheiro et al. [12] the authors emphasized that there are several benefits of breast milk, among which the supply of necessary nutrients for the growth, the healthy evolution of the newborn, and the emotional affection for the mother stand out. However, a few factors intervene in the introduction and duration of this breastfeeding when the child is born with some disease and/or disability or has experienced some complications at the time of delivery.

The study by Georgen et al. [13] described that the average EBF was 0-2 months, a shorter time than the study by Freitas et al. [14], which presented an average breastfeeding time of four months. The Ministry of Health [15] recommends that exclusive breastfeeding should occur until six months of age. Different results were found in the study by Marques et al. [16]. The authors found that the average period of breastfeeding was two and a half months after the introduction of cow milk.

In the study by Moraes and Giugliano [17], it was demonstrated that the elongation of exclusive lactation is related to a lower prevalence of adiposity and to a lower BMI, and that weight gain in childhood is a decisive agent for the nutritional situation as an adult, which can cause metabolic syndromes.

In this study, "breast milk" had a higher prevalence for EBF. The risk factor was "not exclusively breastfeeding," which is in turn a protective factor to "breastfeeding maintained in the first six months." The descriptive cross-sectional study carried out by Almeida et al. [18] demonstrated similar results regarding the predominance of exclusive breastfeeding in the first six months of life in Brazil (41%). Similar results were found in the present study with the prevalence of exclusive breast milk. It is considered the ideal food for the newborn child with benefits that include decreased infant mortality and occurrence of multiple morbidities such as diarrhea, respiratory infections, allergies, hypertension, high cholesterol, diabetes, and obesity.

The study by Leal et al. [19] revealed different results from the present study in relation to exclusive breastfeeding for the first six months of life. The results indicate low breastfeeding practices compared with the prevalence of EBF until the sixth month (43.7%) in the city of Teresina [20].

In the study by Toryiama et al. [21], breastfeeding showed an increase in the prevalence and duration of breastfeeding performed in the last decade. A cross-sectional study carried out at the general pediatric outpatient clinic of the Santa Casa de Misericórdia do Pará, Brazil [22], showed that even with efforts to encourage government incentive campaigns to breastfeeding, breastfeeding rates are still decreasing and most mothers(77.5%) who maintained exclusive breastfeeding did not surpass the fourth month. The WHO and the United Nations Children's Fund [23; 24] published the Baby Friendly Hospital Initiative (BFHI) in 1992, determining the "ten steps to the result of breastfeeding." Among them, Step 6 consists of *"not offering newborns a drink or food other than breast milk unless there is a medical indication"*[25].

The variable “cow milk” showed protection against using cow milk. In the study by Marques et al. [16], the introduction of cow milk in the complementary nutrition of infants is happening more prematurely. According to this custom, serious consequences can happen due to the use of cow milk, which is a sovereign risk factor for the evolution of iron deficiency anemia. In a study by Lopes et al. [25] on the EBF phase, children already received water and cow milk and, when introducing complementary nutrition, the intake of sweets happened very early. These findings demonstrate the demand for government administration arguing that actions to promote healthy food in childhood exert influence on the health design of the population.

Regarding food consumption using porridge for the children investigated, 90 (95.74%) children did not eat this food before six months of age. These data were collected from the Food Consumption Markers in SISVAN. In the adjusted analysis, the variable "porridge in relation to both age and height" demonstrated a protective factor to the fact that porridge was not used before six months. Saldiva et al. [26] reported an increase in the prevalence of diarrhea especially in the Northeast region of Brazil, where the early intake of porridge is greater in relation to other regions, including the Federal District. In a cross-sectional study in the municipality of Mato Grosso do Sul, 20 (90.9%) children had similar results as those who did not feed on porridge before six months of age [7].

Different findings were found in the study by Freitas et al. [8], in which few children (28.9%) fed on porridge. The provision of sugar-enriched porridge is part of an instructive circumstance that these foods are nutritious and essential for the child throughout childhood. It is the responsibility of health teams to undo this idea through educational actions and didactic materials that demonstrate the true nutritional requirements for each age group.

In the study by Moreira et al. [27] on porridge consumption, the results show that the consumption occurred from the fourth month of life; however, the predominance of mothers of a low economic class who started giving children porridge was small, which could be related to the complementary expenditure of food. For the authors, porridge flour should not be given to children under six months of age in view of the benefits of breast milk.

Regarding the "water/tea" variable, the vast majority did not introduce these liquids into the children's diet before six months of age. Different findings were found in a study that showed, at three months of age, children drinking water/tea [24]. The researcher explains that the early use of water and tea is because the mother works outside the home, smoked during pregnancy, the paternal instruction is less than four years, and pacifiers are used. These factors are related to early weaning in the first month of life. In addition, mothers under 20 who did not live with a partner were found to be at greater risk of weaning their babies early.

Still in this study, the fact of not using "water/tea" was a protective factor. The study by Brazil[24] related the early introduction of water/tea with the practice of breastfeeding as a strong influence for weaning. Among the reasons that lead to the introduction of these liquids, the hot climate and the increase in the ambient temperature were mentioned; mothers understand that children feel thirst and consequently need to drink water. They informed that they offered tea to the baby in an attempt to minimize crying and discomfort caused by colic, informing that tea has therapeutic purposes. However, water and teas should be avoided in children under six months as their use may be associated with early weaning.

A similar study by Schincaglia et al. [11] pointed out that the predominance of tea supply in the baby's first month of life was higher compared to that of water supply, presumably clarified by the use of tea as a medication to cure colic.

Ingestion of fluids in addition to breast milk in children aged zero to six months is unnecessary and harmful, as they may lead to situations such as frequency and intensity of sucking, thus reducing the production of breast milk. Associated with this, certain foods can interfere with iron metabolism, causing a lack of this nutrient in the infant [1]. Supplementing breast milk with non-nutritive fluids, such as water and teas, is not a recommended practice before six months of age. In a study conducted in the Brazilian Southeast region, it was found that at 90 days of life, 23.6% of children were drinking water and tea [24].

The variable “infant formula” (78, 82.98%) had a higher prevalence in children who did not eat it before six months of age. The study by Ferreira et al. [7] reported that 19 (100%) children used the infant formula as a complementary food to breastfeeding before six months. In the study referred to above, the use of infant formula was performed inappropriately, and the intake of nutrients did not meet the recommendations for this age group.

The results showed that the use of infant formulas during the first year of life provides an increase in weight calculated for age. However, when used in a misleading manner, they do not favor a convenient nutrition, which may induce an increase in childhood obesity and bring concern to the future lives of these children. It is necessary for mothers to be guided and supported in relation to the child's eating practices both in breastfeeding and in the use of formulas that cause less impacts on the children's nutritional status in the future [7].

CONCLUSION

The results of this study evidence the devaluation of exclusive breastfeeding, which is revealed by the high rates of early weaning in the Cohab districts in the municipality of São Luís, MA, Brazil. These results may be due to the community's lack of knowledge about the importance of adequate eating practices. Another factor is that the traditional nuclear family is no longer effective in helping the growth and development of children, added to the fact that mothers need to be absent early to work outside home.

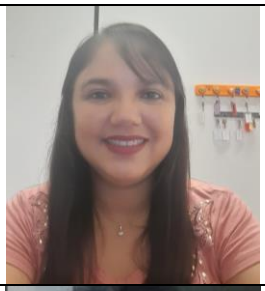
Another mitigating factor is the very low existence of human milk banks to support breastfeeding. This research points out that greater attention should be given to factors that are related to the increasing early weaning in relation to the prevalence of exclusive breastfeeding in the municipality. Among them, what most interfered in the mother's impetus to maintain the practice of exclusive breastfeeding is the conception that the concentration of milk produced is deficient.

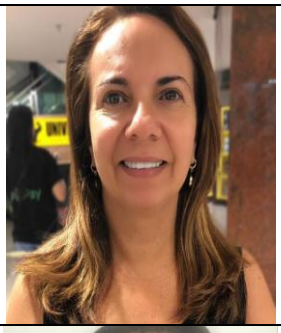
In this scenario, it is important to strengthen the need to create health policies that aim to offer more satisfactory and adequate assistance to mothers and family members and design plans to increase the duration of exclusive breastfeeding. More efficient health education work, a more active multi-professional team and improved prenatal care and guidance is of paramount importance for achieving effective results.

REFERENCES

1. Ministério da Saúde. *Política Nacional de Alimentação e Nutrição (PNAN).*Brasília. 2013.
2. Silva, E. B. O., Capinan, R. C., Gomes, D. R., Mattos, M. P., Gomes, D. R., Mendes, A. C. C. S. Benefícios do aleitamento materno no crescimento e desenvolvimento infantil: uma revisão sistemática. *Revista das Ciências da Saúde do Oeste Baiano,*2016;1.
3. Coelho, L. C., Asakura, L., Sachs, A., Erbert, I., Novaes, C. R. L., Gimeno, S. G. A. Sistema de Vigilância Alimentar e Nutricional/SISVAN: conhecendo as práticas alimentares de crianças menores de 24 meses. *Ciência & Saúde Coletiva,*2015;20:727-738.
4. Ministério da Saúde. *Guia alimentar para a população brasileira:* promovendo a alimentação saudável. Brasília. 2013. 46p.
5. Oms.Organização mundial da saúde. *Normas alimentares para crianças brasileiras menores de dois anos (basescientíficas).*Brasília. 2014.
6. Oms. Organização mundial da saúde.*Aconselhamento em alimentação de lactentes ecrianças de primeira infância:*um curso integrado. Geneva. 2005.
7. Ferreira, I. R., Iahnn, S. R., Santos, A. H. C., Hellmann, R. F., Gianlupi, K., Pinto, L. A., Negrão, F. J., Guedes, M. R. A. G., Soares, F. L. P. Práticas alimentares de crianças de 0 a 24 meses de idade em uso de fórmulas infantis. *Revista da Associação Brasileira de Nutrição,*2017;8:03-09.
8. Freitas, L. G., Escobar, R. S., Cortés, M. A. P., Faustino-Silva, D. D. Consumo alimentar de crianças com um ano de vida num serviço de atenção primária em saúde. *Revista Portuguesa de Saúde Pública,*2016;34:46-52.
9. Oms. Organização mundial da saúde. *Normas alimentares para crianças brasileiras menores de dois anos (basescientíficas).*Brasília. 2018.
10. Caldas, D. R. C., Oliveira, A. S. S. S., Cunha, E. A., Oliveira, M. R., Landim, L. A. S. R.Aleitamento materno e estado nutricional de crianças menores de um ano de um município do nordeste do Brasil. *Ensaios e ciência: Ciências biológicas, agrárias e da saúde,*2016;20:3-10.
11. Schincaglia, R. M., Oliveira, A. C., Sousa, L. M., Martins, K. A. Práticas alimentares e fatores associados à introdução precoce da alimentação complementar entre crianças menores de seis meses na região noroeste de Goiânia. *Epidemiol. Serv. Saúde,*2015;24:465-474.
12. Pinheiro, J. M. F., Menêzes, T. B., Brito, K. M. F., Melo, A. N. L., Queiroz, D. J. M., Sureira, T. M. Prevalência e fatores associados à prescrição/solicitação de suplementação alimentar em recém-nascidos. *Revista de Nutrição,*2016;29:367-375.
13. Georgen, I. B., Bosco, S. M. D., Adami, F. S. Relação entre o peso ao nascer e o tempo de aleitamento materno com o estado nutricional atual de crianças. *Revista Brasileira em Promoção da Saúde,* 2015;28:344-350.
14. Freitas, T. C. S. B., Silva, S. C., Chaves, R. G., Lamounier, J. A. Prevalência do aleitamento materno e fatores associados à interrupção da amamentação em mulheres militares. *Revista Paulista de Pediatria,* 2012;30:493-498.
15. Ministério da Saúde. *Guia alimentar para a população brasileira:* promovendo a alimentação saudável. Brasília, 2019, 46p.
16. Marques, R. F. S. V., Sarni, R. O. S., Santos, F. P. C., Brito, D. M. P. Práticas inadequadas da alimentação complementar em lactentes, residentes em Belém-PA. *Rev. Para. Med.,*2013;27.
17. Moraes, J. F. V. N., Giugliano, R. Aleitamento materno exclusivo e adiposidade. *Rev Paul Pediatr.,*2011;29:152-156.
18. Almeida, H., Venancio, S. I., Sanches, M. T. C., Onuki, D. Impacto do métodocangurunastaxas de aleitamentomaternoexclusivoemrecém-nascidos de baixo peso. *Jornal de Pediatria,* 2010;86:250-253.
19. Leal, A. B., Sousa, A. F., Florentino, E. C. L., Silva, L. R. B., Menezes, C.C. Perfil do aleitamento materno exclusivo e fatores determinantes do desmame precoce em município do semi-árido da região nordeste. *Revista Brasileira de Pesquisa em Saúde,*2014;16:84-91.
20. Ramos, C. V., Almeida, J. A. G., Saldiva, S. R. D. M., Pereira, L. M. R., Alberto, N. S. M.C., Teles, J. B. M., Pereira, T. G. Prevalência do aleitamento materno exclusivo e os fatores a ele associados em crianças nascidas nos hospitais amigos da criança de Teresina-Piauí**.** *Epidemiol. Serv. Saúde,*2010;19:115-124.

21. Toryiama, A. T. M., Fujimori, E., Palombo, C. N. T., Duarte, L. S., Borges, A. L. V., Chofakian, C. B. N. Aleitamento materno: o que mudou após uma década?. *Revista Latino-Americana de Enfermagem,*2017;25:1-10.
22. Brasil. Ministério da saúde. *Auto avaliação para melhoria do acesso e da qualidade de atenção básica*. Brasília. 2012.
23. Unicef. Fundo das nações unidas para a infância. *Manual de aleitamento materno.* Ed. Revista, Lisboa. 2008.
24. Brasil. Ministério da saúde. *Saúde da criança:*nutrição infantil, aleitamento materno e alimentação complementar. Caderno de Atenção Básica n. 23, Brasília. 2016.
25. Lopes, W. C., Marques, F. K. S., Oliveira, C. F., Rodrigues, J. A., Silveira, M. F., Calderia, A. P., Pinho, L. Alimentação de crianças nos primeiros dois anos de vida. *Revista Paulista de Pediatria,*2018;36:164-170.
26. Saldiva, S. R. D. M., Venancio, S. I., Gouveia, A. G. C., Castro, A. L. S., Escuder, M. M. L., Giugliani, E. R. J. Influência regional no consumo precoce de alimentos diferentes do leite materno em menores de seis meses residentes nas capitais brasileiras e Distrito Federal. *Cadernos de Saúde Pública,*2011;27:2253-2262.
27. Moreira, L. C. Q., Oliveira, E. B., Lopes, L. H. K., Bauleo, M. E., Sarno, F. Introdução de alimentares complementares em lactentes. *Einstein,*2019;17:1-6.

	***Marcia Cristina Monteiro de Jesus Aguiar*** *Postgraduate Program in Management of Health Programs and Services* *Ceuma University, São Luís, Maranhão, Brazil*
	***Márcia Rodrigues Veras Batista*** *Postgraduate Program in Management of Health Programs and Services* *Ceuma University, São Luís, Maranhão, Brazil*
	***José Newton Lacet Vieira*** *Teacher of the Physiotherapy* *Ceuma University, São Luís, Maranhão, Brazil*

	***Adriana Sousa Rêgo*** *Postgraduate Program in Management of Health Programs and Services* *Ceuma University, São Luís, Maranhão, Brazil*
	***Janaina Maiana Abreu Barbosa*** *Teacher of the Nutrition Course* *Ceuma University, São Luís, Maranhão, Brazil*
	***Maria Raimunda Chagas Silva*** *Postgraduate Program in Environment* *Ceuma University, São Luís, Maranhão, Brazil*
	***Wellyson da Cunha Araújo Firmo – Corresponding Author*** *Teacher of the Biomedicine Course* *Ceuma University, São Luís, Maranhão, Brazil*
	***Flor de Maria Araujo Mendonça Silva*** *Postgraduate Program in Management of Health Programs and Services* *Ceuma University, São Luís, Maranhão, Brazil*