BREASTFEEDING, COMPLEMENTARY FEEDING AND HEALTH

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Factors associated with breastfeeding in the first hour of life in Rio Branco, Acre, Brazil

Fatores associados à amamentação na primeira hora de vida em Rio Branco, Acre

Abstract

Objective: To determine the prevalence and to analyze factors associated with breastfeeding in the first hour of life in Rio Branco, Acre. *Methods*: To determine the prevalence and to analyze factors associated with breastfeeding in the first hour of life in Rio Branco, Acre. *Results*: The prevalence of breastfeeding in the first hour of life in Rio Branco was 58.2% (95% CI: 55.2% - 61.2%). At distal and intermediate levels were associated with the outcome: maternal schooling, socioeconomic class, number of residents at home, maternal work and hypertension during pregnancy. In the proximal model, breastfeeding in the first hour of life was inversely associated with gestational hypertension (OR: 0.68, 95% CI: 0.47-0.98), cesarean section (OR: 0.15, 95% CI: 0.11-0.20) and low birth weight (OR: 0.32, 95% CI: 0.19 - 0.55). *Conclusion*: The main obstacles to breastfeeding in the first hour of life in Rio Branco are cesarean delivery and low birth weight.

Keywords: Breast feeding. Infant. Newborn. Postpartum Period. Maternal and Child Health. Logistic Models.

Resumo

Objetivo: Determinar a prevalência e analisar os fatores associados à amamentação na primeira hora de vida em Rio Branco, Acre. *Métodos:* Realizou-se estudo transversal de base populacional, com 1144 binômios mãe/recém-nascido pertencentes a uma coorte materno-infantil em Rio Branco, capital do Estado do Acre, Brasil. A coleta de dados ocorreu nas duas únicas maternidades da capital. A variável dependente "amamentação na primeira hora de vida" foi construída por meio da categorização do tempo até a primeira amamentação coletada em minutos, e seus fatores associados foram identificados por meio de regressão logística múltipla e hierarquizada. *Resultados:* A prevalência de amamentação na primeira hora de vida em Rio Branco foi 58,2% (IC95%: 55,2% - 61,2%). Nos níveis distais e intermediários, estiveram associados ao desfecho: escolaridade materna, classe socioeconômica, número de moradores no domicílio, trabalho materno e hipertensão na gestação. No modelo proximal, a amamentação na primeira hora de vida esteve inversamente associada à hipertensão gestacional (RC: 0,68; IC 95%: 0,47 – 0,98), parto cesáreo (RC: 0,15; IC 95%: 0,11 – 0,20) e baixo peso ao nascer (RC: 0,32; IC 95%: 0,19 – 0,55). *Conclusão:* Os principais empecilhos para a amamentação na primeira hora de vida em Rio Branco são o parto cesáreo e o baixo peso ao nascer.

Palavras-chave: Aleitamento materno. Recém-Nascido. Período Pós-Parto. Saúde materno-infantil. Modelos Logísticos.

INTRODUCTION

The practice of breastfeeding is of fundamental importance for the child's physical and psychological growth and development,[1] being considered a protective practice to child morbidity and mortality, due to its inverse relationship with perinatal diseases, especially infectious ones.[2–6]

Studies suggest that breastfed infants have better neurodevelopment[7,8] and lower risk for atopic disorders, episodes of otitis media, gastrointestinal disorders and childhood obesity. [5,6,9–11]

Early skin-to-skin contact between newborn and mother has positive physiological effects on the mother[12,13] and the newborn,[14] besides promoting the strengthening of the mother-child bond,[1,12] increase the likelihood of their child receiving colostrum,[12,15] increase the duration of breastfeeding[16] and reduce neonatal mortality.[17]

The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommend placing newborns in contact with their mothers immediately after birth for at least one hour and encouraging them to recognize when they are ready to breastfeed, offering help if needed,[15] because in the immediate postpartum period, the newborn is better able to establish breastfeeding,[18] having the ability to crawl toward the nipple-areolar region and spontaneously suck in the first 60 minutes.[19] After this period, many newborns enter the sleep phase,[20] harming breastfeeding.

Thus, breastfeeding in the first hour of life is one of the priority strategies for the promotion, protection and support of breastfeeding. However, in most countries this practice still lags behind WHO recommendations.[21]

The Second Breastfeeding Prevalence Survey estimated that, in 2008, the frequency of breastfeeding in the first hour of life in the capitals of Brazil was 67.7%.[22] Between 2011 and 2012, the survey "Born in Brazil" estimated prevalence of breastfeeding in the first hour of life in the Northern Region at 57.9%.[23]

The most widespread factors associated with non-breastfeeding in the first hour of life are cesarean section, prematurity, low family income, maternal age below 25 years, low maternal education, absence of prenatal consultations, lack of guidance on breastfeeding and childbirth out of hospital; and in developing countries commonly present in a hierarchical manner, with distal factors influencing outcome directly or mediated by intermediate and proximal factors.[16,24–27]

Among the studies that investigated factors associated with breastfeeding in the first hour of life in Brazil, none were conducted in the northern region of the country. Thus, the aim of this study was to determine the prevalence and analyze factors associated with breastfeeding in the first hour of life in a maternal and child cohort in Rio Branco, state of Acre.

METHODS

Population-based cross-sectional study conducted in a maternal and child cohort in Rio Branco, Acre. The capital of Acre concentrates 47.32% of the total population of the state, and 89.42% of the population are in the urban area. The total area of the municipality comprises 8,835,541 km². In Rio Branco, in 2015, 9,638 children were born alive, and 27.7% of the mothers lived in another municipality. Of the 6,965 live births whose mothers lived in the capital, only 0.11% occurred in an out-of-hospital setting.

For the determination of the minimum sample size, the expected prevalence of 50% was adopted, with the precision set for a sampling error of 0.05, 95% confidence level, 80% power and 2% odds ratio. The estimated minimum sample size was 964 live births. To minimize non-response effects, 10% were added, resulting in an estimated 1,060 live births.

This study included newborns from in-hospital delivery in Rio Branco, Acre, whose mothers lived in the urban area of the capital and were hospitalized for delivery between April and June 2015. Newborns from multiple pregnancies and the children of women who could not inform about the time for the first breastfeeding were excluded. Of the 1,205 eligible mothers, 11 were excluded due to twin pregnancies and four because they were positively diagnosed with HIV during prenatal care. 43 mothers were lost because they did not have information about the time for the first breastfeeding.

Data collection took place in the two maternity hospitals of Rio Branco, by copying the hospital records, the pregnant woman's card and interviewing the mothers using a semi-structured instrument designed to obtain socioeconomic, demographic, maternal habits, prenatal care and childbirth. The data collection instrument was pre-tested and applied by health science academics. The interviews were conducted inside maternity wards, with mothers approached about 12 hours after delivery. The research assistants worked on a rotational and work schedule to cover full time every day. The interviewers were trained in order to obtain standardization and uniformity of procedures in data collection.

The independent variables were socioeconomic conditions (home and personal characteristics of the mother), prenatal care, gestational maternal characteristics, hospital care

and characteristics of the newborn (Figure 1). Household variables were presence of open sewage in the peridomestic environment, bathroom with running water at home, number of residents at home, family income, receiving Bolsa Familia, socioeconomic class and number of goods. The variable "number of residents in the household" was presented in two categories: One or two residents and three or more residents. Family income was transformed into minimum wages (MW), considering the current salary in 2015 (R $ 788.00) and presented as "less than 1.5 MW" and "equal to or greater than 1.5 MW". The variable "socioeconomic class" was defined by the criteria of the 2014 Brazilian Association of Research Companies (Brazil Economic Classification Criteria. http://www.abep.org/criterio-brasil, accessed 10/15/2015), in classes A, B, C, D and E. For data analysis, these criteria were grouped into upper (A and B) and low (C, D and E) classes. The variable "number of goods" was obtained by the argument of the presence of 13 consumer and household goods and presented in two categories "less than seven goods" and "seven or more".

The mother's personal characteristics were: maternal age, mother's color, maternal education, maternal work, mother's marital status, first-born mother. Schooling was dichotomized into "less than eight years of schooling" and "eight years or more". The variable "marital status of the mother" consisted of the categories "without a partner (single, separated or widowed)" and "with a partner (married or in a consensual union)".

The variables related to prenatal care were: prenatal care, type of care (public or private), number of consultations and guidance on breastfeeding. The variable "number of consultations" was dichotomized into "less than six consultations" and "six or more". Prenatal breastfeeding guidelines refer to the health professional's general guidelines on breastfeeding, correct handling, sucking and milk production stimulus, manual milking, not feeding the baby, and duration of exclusive breastfeeding.

The variables of gestational maternal characteristics were: planned pregnancy, smoking during pregnancy, alcohol consumption during pregnancy, frequency of food intake, morbidity during pregnancy and some hospitalization during pregnancy. The frequency of food consumption was obtained by the variables of regular consumption "five times or more per week" of fruits and vegetables, beans, meat, chicken or meat with excess fat and milk. The morbidity variables during pregnancy were: hypertension, anemia, diabetes, urinary tract infection and depression.

The hospital care variables were: unit of delivery, type of delivery service, presence of companion in the delivery room, type of delivery, received oxytocin, guidance on immediate postpartum breastfeeding and professional breastfeeding assistance. For the variable "birth

unit", public maternity was called Unit A and maternity with private administration, but with provision of both types of care (public and private), such as Unit B. The variable "type of service at birth "Was dichotomized into "public" and " private".

The characteristics of the newborns were composed by the variables: baby's gender, low birth weight and prematurity. The cut-off point for the definition of low birth weight was "birth weight less than 2,500g" and for prematurity it was "birth with gestational age below 37 weeks".

The dependent variable "breastfeeding in the first hour of life" was constructed by categorizing the time to first breastfeeding collected in minutes.

Data was analyzed using R software version 3.3 (The R Foundation for Statistical Computing). The prevalence of the outcome was calculated with the respective confidence interval. Independent variable distributions were identified using Student's t-test for comparison of means and Chi-square test for comparison of frequencies or proportions with critical level $\alpha = 0.05$.

To analyze the factors associated with the outcome of this study, a hierarchical conceptual model was adopted (Figure 1). The analysis of the associated variables was initially made by simple and hierarchical logistic regression, selecting for multiple models those independent variables that presented associations with p-value below 0.20, by level of proximity to the outcome and in groups: distal (home and personal characteristics - model 1); intermediate (characteristics of prenatal and gestational maternal care - model 2); and proximal (hospital care and characteristics of the newborn - model 3). The next step involved multiple and hierarchical logistic regression and associations with p-values below 0.05 remained in the models. The hierarchization of the variables allowed us to evaluate the effect of the groups of variables according to their proximity to the outcome.

Figure 1. Hierarchical conceptual model for breastfeeding in the first hour of life.

Distal
Household Characteristics
Open sewage in the peridomestic environment
Bathroom with running water
Number of residents in the household
Family income
Family bag
Socioeconomic class
Number of Goods
Personal characteristics
Mother's age
Mother's race
Mother's education level
Mother's work
Mother's marital status
First Mother
Intermediary
Prenatal care
Did prenatal care
Service Type
Number of Queries
Breastfeeding Guidelines
Gestational maternal characteristics
Planned Pregnancy
Smoking during pregnancy
Alcoholic beverage in pregnancy
Frequency of food intake
Morbidities in pregnancy
Hospitalization in pregnancy
Proximal
Hospital care
Birthing unit
Type of delivery service
Escort in the delivery room
Type of delivery
Received oxytocin

Figure 1. Hierarchical conceptual model for breastfeeding in the first hour of life. (continues)

Hospital care
Advice on immediate postpartum breastfeeding
Professional breastfeeding aid
Characteristics of the newborn
Baby sex
Low weight at birth
Prematurity
Adapted from Boccolini [24]

In this study, the ethical principles were observed, according to Resolution No. 466/2012 of the National Health Council. The researchers were authorized by the two institutions where data collection was performed. The parent project was approved by the Research Ethics Committee of the Federal University of Acre (CAAE: 40584115.0.0000.5010) and the National School of Public Health (ENSP / Fiocruz, CAAE: 57135516.8.0000.5240). All interviewees were guaranteed the right not to participate in the study, as well as the confidentiality of the information collected.

RESULTS

The average age of 1,144 mothers was 25.2 years (SD = 6.95), with 25.9% under 20 years of age; 63.7% between 20 and 34 years old; and 10.4% were 35 years of age or older. Of the total women, 10.5% reported being white and 20.4% belonged to socioeconomic classes A or B. As for education, 6.6% had even elementary school I; 19.5%, elementary school II; 51.4%, high school; and 22.5%, higher education. Observing the characteristics of birth, 51.7% of the deliveries were vaginal; 51.8% of newborns were female; 9.7% were born preterm; and 7.9% had low birth weight.

The prevalence of breastfeeding in the first hour of life was 58.2% (95% CI = 55.2% - 61.2%), and breastfeeding was more frequent in children whose families had lower socioeconomic conditions such as the largest number of residents in the household, absence of toilet with running water in the homes, lower number of consumer goods, beneficiaries of Bolsa Família, belonging to classes C, D and E (table 1). This prevalence was also higher when the mother was a teenager and had education up to eight years of schooling (Table 1).

Table 1. Percentage distribution of breastfed children in the first hour of life according to socioeconomic and demographic characteristics. Rio Branco-AC, 2015.

	Breastfeeding in the first hour of life				
Variable	No n (%)	Yes n (%)	OR	CI95%	P Value
Open sewage in the peridomestic environment (n= 1136)					
No	366 (41.6)	513 (58.4)	1.00		
Yes	109 (42.4)	148 (57.6)	0.97	0.73 - 1.28	0.825
Bathroom with running water (n= 1130)					
No	69 (34.2)	133 (65.8)	1.00		
Yes	403 (43.4)	525 (56.6)	0.68	0.49 - 0.93	0.016
Number of residents in the household (n= 1144)					
One or two inhabitants	155 (48.1)	167 (51.9)	1.00		
Three or more	323 (39.3)	499 (60.7)	1.43	1.11 - 1.86	0.007
Family income (n = 994)					
Up to 1,5 MW	154 (35.6)	279 (64.4)	1.00		
1,5 MW or more	261 (46.5)	300 (53.5)	0.63	0.49 - 0.82	< 0.001
Welfare(n = 1087)					
No	387 (44.1)	490 (55.9)	1.00		
Yes	68 (32.4)	142 (67.6)	1.65	1.2 - 2.27	0.002
Socioeconomic class (n= 1132)					
A and B	124 (53.7)	107 (46.3)	1.00		
C, D and E	350 (38.8)	551 (61.2)	1.82	1.36 - 2.44	< 0.001
Number of goods (n= 1132)					
Less than seven	202 (36.5)	351 (63.5)	1.00		
Seven or more	272 (47.0)	307 (53.0)	0.65	0.51 - 0.82	< 0.001
Mother's age (n = 1144)					
< 20 years	99 (33.4)	197 (66.6)	1.00		
20 - 34 years	322 (44.2)	407 (55.8)	0.64	0.48 - 0.84	0.002
≥ 35 years	57 (47.9)	62 (52.1)	0.55	0.35 - 0.84	0.006
Mother's race (n= 1143)					
White	52 (43.3)	68 (56.7)	1.00		
Not white	426 (41.6)	597 (58.4)	1.07	0.73 - 1.57	0.722
Mother's education (n= 1144)					
up to eight years of study	92 (30.8)	207 (69.2)	1.00		
eight years or more	386 (45.7)	459 (54.3)	0.53	0.40 - 0.70	< 0.001
Mother's work (n = 1094)					
No	255 (36.4)	446 (63.6)	1.00		
Yes	201 (51.1)	192 (48.9)	0.55	0.43 - 0.70	< 0.001
Mother's marital status (n= 1143)					
Without partner	79 (42.2)	108 (57.8)	1.00		
With partner	398 (41.6)	558 (58.4)	1.03	0.75 - 1.41	0.876
First mother (n= 1144)					
No	276 (39.8)	417 (60.2)	1.00		
Yes	202 (44.8)	249 (55.2)	0.82	0.64 - 1.04	0.096

There was a significant difference in the percentage of children breastfed in the first hour of life according to the type of prenatal care, being more frequent in women who did so in public

care. This difference was also observed according to regular food intake during pregnancy, being less frequent in women who regularly consumed fruits and vegetables, and more frequent in women who regularly consumed meat and chicken (Table 2).

Table 2. Percentage distribution of breastfed children in the first hour of life according to prenatal care and maternal habits and morbidity during pregnancy. Rio Branco-AC, 2015.

	Breastfeeding in the first hour of life				
Variable	No n (%)	Yes n (%)	OR	CI95%	P Value
Had prenatal care (n = 1144)					
No	4 (50.0)	4 (50.0)	1.00		
Yes	474 (41.7)	662 (58.3)	1.40	0.35 - 5.61	0.639
Type of service (n = 1110)					
Public	370 (39.2)	573 (60.8)	1.00		
Private	94 (56.3)	73 (43.7)	0.50	0.36 - 0.70	< 0.001
Number of consultations (n = 1120)					
Less than six	114 (25.7)	205 (64.3)	1.00		
Six or more	354 (44.2)	447 (55.8)	0.70	0.54 - 0.92	0.01
During prenatal care she received professional guidance on...					
...breastfeeding (n = 926)					
No	149 (39.6)	227 (60.4)	1.00		
Yes	231 (42.0)	319 (58.0)	0.91	0.69 - 1.18	0.471
...correct grip (n = 897)					
No	199 (40.0)	299 (60.0)	1.00		
Yes	171 (42.9)	228 (57.1)	0.89	0.68 - 1.16	0.381
... suction and milk production stimulus (n = 914)					
No	164 (42.4)	223 (57.6)	1.00		
Yes	213 (40.4)	314 (59.6)	1.08	0.83 - 1.41	0.552
... manual milking (n = 914)					
No	267 (40.4)	394 (59.6)	1.00		
Yes	110 (43.5)	143 (56.5)	0.88	0.66 - 1.18	0.397
... not giving baby a bottle (n = 905)					
No	188 (40.0)	282 (60.0)	1.00		
Yes	185 (42.5)	250 (57.5)	0.90	0.69 - 1.17	0.44
... duration of exclusive breastfeeding (n = 910)					
No	156 (41.2)	223 (58.8)	1.00		
Yes	221 (41.6)	310 (58.4)	0.98	0.75 - 1.28	0.89
Planned pregnancy (n = 1139)					
No	297 (41.2)	424 (58.8)	1.00		
Yes	180 (43.1)	238 (56.9)	0.93	0.73 - 1.18	0.538
Smoking during pregnancy (n = 1144)					
No	440 (42.6)	592 (57.4)	1.00		
Yes	38 (33.9)	74 (66.1)	1.45	0.96 - 2.18	0.077
Drinking during pregnancy (n = 1134)					
No	423 (42.2)	574 (57.6)	1.00		
Yes	52 (38.0)	85 (62.0)	1.20	0.83 - 1.74	0.32

Table 2. Percentage distribution of breastfed children in the first hour of life according to prenatal care and maternal habits and morbidity during pregnancy. Rio Branco-AC, 2015. (continues)

	Breastfeeding in the first hour of life				
Variable	No n (%)	Yes n (%)	OR	CI95%	P Value
Frequency of fruit and vegetable consumption during pregnancy (n = 1138)					
Less than five times a week	343 (38.8)	541 (61.2)	1.00		
Five times or more	133 (52.4)	121 (47.6)	0.58	0.44 - 0.76	< 0.001
Frequency of bean intake during pregnancy (n = 1143)					
Less than five times a week	190 (42.4)	258 (57.6)	1.00		
Five times or more	287 (41.3)	408 (58.7)	1.05	0.82 - 1.33	0.709
Frequency of meat consumption during pregnancy (n = 1142)					
Less than five times a week	300 (44.2)	378 (55.8)	1.00		
Five times or more	177 (38.1)	287 (61.9)	1.29	1.01 - 1.64	0.04
Frequency of chicken consumption during pregnancy (n = 1141)					
Less than five times a week	430 (43.0)	569 (57.0)	1.00		
Five times or more	47 (33.1)	95 (66.9)	1.53	1.05 - 2.21	0.025
Consumption of excess fat, meat or chicken (n = 1125)					
No	332 (42.9)	441 (57.1)	1.00		
Yes	139 (39.5)	213 (60.5)	1.15	0.89 - 1.49	0.275
Frequency of milk consumption during pregnancy (n = 1137)					
Less than five times a week	120 (41.4)	170 (58.6)	1.00		
Five times or more	353 (41.7)	494 (58.3)	0.99	0.75 - 1.29	0.929
Hypertension in pregnancy (n = 1143)					
No	373 (38.8)	589 (61.2)	1.00		
Yes	104 (57.5)	77 (42.5)	0.47	0.34 - 0.65	< 0.001
Anemia in pregnancy (n = 956)					
No	330 (40.0)	495 (60.0)	1.00		
Yes	53 (40.5)	78 (59.5)	0.98	0.67 - 1.43	0.921
Diabetes in pregnancy (n = 1136)					
No	427 (41.1)	611 (58.9)	1.00		
Yes	47 (48.0)	51 (52.0)	0.76	0.50 - 1.15	0.192
Urinary tract infection in pregnancy (n = 1132)					
No	329 (44.8)	406 (55.2)	1.00		
Yes	142 (35.8)	255 (64.2)	1.46	1.13 - 1.87	0.003
Depression in pregnancy (n = 1140)					
No	453 (41.8)	630 (58.2)	1.00		
Yes	24 (42.1)	33 (57.9)	0.99	0.58 - 1.70	0.967
Any hospitalization during pregnancy (n = 1109)					
No	385 (40.7)	560 (59.3)	1.00		
Yes	80 (48.8)	84 (51.2)	0.72	0.52 - 1.01	0.055

Regarding delivery care, the prevalence of breastfeeding in the first hour of life was similar in both hospitals, but the prevalence was higher in those who did not receive oxytocin; in deliveries by the public service; in deliveries with companions in the delivery room; and twice as much for vaginal deliveries when compared to cesarean sections (79.5% and 35.3%, respectively, table 3). Males, low birth weight and premature infants had lower prevalence of breastfeeding in the first hour of life (Table 3)

Table 3. Percentage distribution of breastfed children in the first hour of life according to hospital care, baby gender, low birth weight and prematurity. Rio Branco-AC, 2015.

	Breastfeeding in the first hour of life				
	No	Yes			
Variable	n (%)	n (%)	OR	IC95%	P value
Birthing unit (n = 1144)					
Unit A	313 (42.8)	418 (57.2)	1.00		
Unit B	165 (40.0)	248 (60.0)	1.13	0.88 - 1.44	0.345
Type of service during childbirth(n = 1140)					
Public	405 (39.6)	617 (60.4)	1.00		
Private	71 (60.2)	47 (39.8)	0.43	0.29 - 0.64	< 0.001
Companion in the delivery room (n = 1137)					
No	89 (50.9)	86 (49.1)	1.00		
Yes	386 (40.1)	576 (59.9)	1.54	1.12 - 2.13	0.008
Type of delivery(n = 1143)					
Vaginal	121 (20.5)	470 (79.5)	1.00		
Cesarean	357 (64.7)	195 (35.3)	0.14	0.11 - 0.18	< 0.001
Received oxytocin (n = 1144)					
No	30 (26.5)	83 (73.5)	1.00		
Yes	448 (43.5)	583 (56.5)	0.47	0.30 - 0.73	< 0.001
Advice on immediate postpartum breastfeeding (n = 1138)					
No	87 (39.4)	134 (60.6)	1.00		
Yes	387 (42.2)	530 (57.8)	0.89	0.66 - 1.20	0.443
Professional breastfeeding aid (n = 1134)					
No	210 (38.8)	331 (61.2)	1.00		
Yes	262 (44.2)	331 (55.8)	0.80	0.63 - 1.02	0.067
Baby's sex (n = 1144)					
Male	257 (46.6)	294 (53.4)	1.00		
Female	221 (37.3)	372 (62.7)	1.47	1.16 - 1.86	0.001
Low weight at birth (n = 1139)					
No	416 (39.7)	633 (60.3)	1.00		
Yes	59 (65.6)	31 (34.4)	0.34	0.22 - 0.53	< 0.001
Prematurity (n = 1138)					
No	405 (39.4)	623 (60.6)	1.00		
Yes	69 (62.7)	41 (37.3)	0.39	0.26 - 0.57	< 0.001

Factors associated with breastfeeding in the first hour of life are shown in table 4. At distal and intermediate levels, the following factors were associated with the outcome: maternal education, socioeconomic status, number of household residents, maternal work, and hypertension during pregnancy. In the proximal model, the variables "maternal education", "socioeconomic class", "number of residents in the household" and "maternal work" lost statistical significance when added to the variables type of delivery, low birth weight and sex of the baby.

Table 4. Factors associated with breastfeeding in the first hour of life. Rio Branco-AC, 2015.

	Distal		Intermediary		Proximal	
	Model 1		Model 2		Model 3	
Variable	OR	CI95%	OR	CI95%	OR	CI95%
Education						
up to eight years of study	1.00		1.00		1.00	
Eight years or more	0.68	0.50 - 0.92	0.53	0.40 - 0.71	0.82	0.58 - 1.17
Socioeconomic class (ABEP)						
A and B	1.00		1.00		1.00	
C, D and E	1.48	1.08 - 2.04	1.86	1.38 - 2.50	1.13	0.79 - 1.62
Number of residents in the household						
1 or 2 inhabitants	1.00		1.00		1.00	
3 or more	1.39	1.06 - 1.83	1.44	1.10 - 1.88	1.42	0.98 - 1.90
Mother's work						
No	1.00		1.00		1.00	
Yes	0.64	0.49 - 0.84	0.54	0.42 - 0.70	0.73	0.53 - 1.01
Hypertension in pregnancy						
No	-	-	1.00		1.00	
Yes	-	-	0.47	0.34 - 0.65	0.68	0.47 - 0.98
Type of delivery						
Vaginal	-	-	-	-	1.00	
Cesarean	-	-	-	-	0.15	0.11 - 0.20
Low weight at birth						
No	-	-	-	-	1.00	
Yes	-	-	-	-	0.32	0.19 - 0.55
Baby's sex						
Male	-	-	-	-	1.00	
Female	-	-	-	-	1.62	1.22 - 2.14

There was an inverse association between breastfeeding in the first hour of life and gestational hypertension (OR: 0.68; 95% CI: 0.47 - 0.98), cesarean section (OR: 0.15; 95% CI: 0.11 - 0.20) and low birth weight (OR: 0.32; 95% CI: 0.19 - 0.55). The chance of breastfeeding in the first hour of life was higher in females (OR: 1.62; 95% CI: 1.22 - 2.14).

DISCUSSION

According to the II Breastfeeding Survey,[22] the average prevalence of breastfeeding in the first hour of life in the Brazilian capitals in 2008 was 67.7% (95% CI = 66.7% - 68.8%), and the Northern Region had the highest Brazilian prevalence. However, at the national level, Rio Branco is among the five capitals with the lowest frequency of breastfeeding in the first hour of life, and had the lowest prevalence in the Northern Region, which was 64.3% (95% CI = 58.4% - 69,8%). This frequency was higher than that observed in our research; however, analyzing the confidence intervals, there is no statistical evidence to affirm a significant difference.

Another most recent cross-sectional study,[28] with a national hospital-based sample, estimated that the prevalence of breastfeeding in the first hour of life was 56.0% (95% CI: 52.2% - 59.7%), similar to the average estimated by Takahashi et al. [29] studying 24 countries in Africa, Latin America and Asia.

In a recent systematic review, Esteves and collaborators[16] found that cesarean section was the most consistent risk factor for non-breastfeeding in the first hour of life and "low family income", "maternal age under 25", "low maternal education", "absence of prenatal consultations", "Home birth", "lack of guidance on prenatal breastfeeding" and "prematurity" were risk factors identified in at least two studies.

In our study, cesarean section was also the factor with the highest strength of inverse association with breastfeeding in the first hour of life, corroborating other studies.[24–26,29] This type of delivery has been described as an important barrier to early breastfeeding, usually due to anesthesia[19,24] and postoperative care routines that delay or interrupt mother-child contact in the postpartum period.[30]

The WHO recommends that in Child Friendly Hospitals, at least 80% of mothers with normal birth and 50% of those undergoing cesarean section should be helped to put the baby in skin-to-skin contact to start breastfeeding, because in vaginal delivery, A woman's more active participation and the greater chances of the baby being naked in direct contact with her body in the first minutes after birth can help her to recognize signs of being ready to breastfeed in the child.[15]

The frequency of cesarean deliveries in this study (48.3%) was lower than that observed in Brazil in 2015 (55.5%), although it is still far above what the WHO considers acceptable.[31] Over the past 30 years, WHO has considered that the optimal cesarean section rate would be between 10% and 15% of all deliveries. This rate arose from a statement made by a group of reproductive health specialists during a WHO meeting in 1985 in Fortaleza, Brazil, which states: "There is no justification for any region in the world to have a higher cesarean section rate higher than 10-15%".[31] More recently, in 2015, a new WHO statement on abuse of cesarean section interventions took place today: "Efforts should focus on ensuring that cesarean sections are performed where they are needed, rather than targeting a specific cesarean section rate".[32] Although caesarean section increases the risk of maternal death and prematurity, the proportion of births via this route has increased and is of concern worldwide. It is still unclear what are the effects of cesarean section rates on outcomes other than mortality, such as maternal and perinatal morbidity, pediatric outcomes, and social or psychological well-being. Further studies are needed to understand the immediate and long-term health effects of caesarean section.[32,33]

Hypertension during pregnancy was inversely associated with breastfeeding in the first hour of life in the urban area of Rio Branco, corroborating Takahashi et al.,[29] while studying 24 countries in Africa, Latin America and Asia, also observed the same direction of association between outcome and maternal complications during pregnancy, including hypertension (OR = 0.76; 95% CI: 0.65–0.88).

In our study, newborns with low birth weight had significantly lower chances of breastfeeding in the first hour of life, compared to newborns with adequate weight. This association was also observed by other studies,[25,34] probably due to the need for special care. However, it is important to recognize and avoid unnecessary hospital practices to which this group is particularly vulnerable.[16]

Among the factors related to the child, being female increased by 62% the chance of breastfeeding in the first hour in Rio Branco, similar to that observed by Senarath et al.[34] in Sri Lanka. However, the scientific evidence between the studied outcome and the child's gender is still limited. In the systematic review of Esteves et al,[16] Twelve studies were identified that investigated the association between baby sex and breastfeeding in the first hour of life; of these, only the study by Senarath et al[34] in Sri Lanka identified significant association.

Some important information related to breastfeeding in the first hour was not collected. Knowledge of the results of the rapid HIV test by mothers and staff in the immediate postpartum period was not verified, and only the tests performed during the prenatal period were used.

Inadequate hospital procedures in healthy newborns such as airway and pharyngeal aspiration were not investigated. There is also the possibility of inaccuracy and potential misclassification in information about the time elapsed until the first breastfeeding, since this data was estimated by the mothers. However, this limitation was minimized by conducting interviews at the maternity ward, usually within the first 12 hours after delivery.

FINAL CONSIDERATIONS

The prevalence of breastfeeding in the first hour of life in Rio Branco was 58.2%, and in the distal and intermediate levels it was associated with maternal education, socioeconomic class, number of household residents, maternal work and hypertension during pregnancy. The results of this study suggest that the main impediments to breastfeeding in the first hour of life in proximal Rio Branco are cesarean section and low birth weight. The Child Friendly Hospital initiative already predicts these factors as hindering breastfeeding in the first hour of life and points out possible solutions to the problem. It is noteworthy that in the municipality of Rio Branco, the main maternity hospital is accredited in this initiative and the other unit is in the process of accreditation. Therefore, as the initiative itself suggests, it is necessary to promote periodic training of the multidisciplinary team.

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Contributors

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