Intention of breastfeeding and association with sociodemographic, obstetric characteristics and experience with breastfeeding among pregnant women

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Abstract

Objectives: to estimate the intention of breastfeeding (IBF) duration and its association with sociodemographic, obstetric characteristics and experience with breastfeeding among pregnant women undergoing prenatal care.

Methods: cross-sectional study, with pregnant women undergoing prenatal care in public health services in Colombo, Paraná, Brazil. The duration of IBF was questioned to pregnant women. Negative binomial Poisson regression with robust variance adjustment allowed estimating crude and adjusted prevalence ratios (PR), and 95% confidence intervals (CI95%) of the association between IBF duration and exposure variables.

Results: among the participating pregnant women (n = 604), 7.9% reported having IBF for less than six months, 28.0% from six to 11 months, 38.3% from 12 to 23 and 25.9% for 24 months or more. The mean IBF time was 13.5 ± 8.4 and median of 12 months. Pregnant women with moderate food insecurity (PR=1.34; CI95%=1.04-1.73), multiparous women (PR=1.13; CI95%=1.00-1.26), and who reported having been breastfed as babies (PR=1.19; CI95%=1.02-1.40) had a longer IBF time.

Conclusions: food security situation, primiparity and exposure to breastfeeding in childhood are determinants of IBF during pregnancy.

Key words *Breastfeeding, Intention, Cross-sectional studies, Pregnancy*

Introduction

Breast milk is considered the most appropriate food for a child in the first months of life,[1] due to its nutritional, economic, immunological, cognitive and social benefits, besides having a protective effect against overweight and malnutrition.[2,3] Thus, the World Health Organization (WHO) and the Brazilian Ministry of Health recommend the adoption of exclusive breastfeeding in free demand in the first six months of life, and breastfeeding for at least the first 24 months of the child's life.[4,5]

Despite the scientific evidence and the efforts of several national and international organizations, the prevalence of breastfeeding in Brazil is below the recommendation.[5] Data from the II Breastfeeding Prevalence Survey in Brazilian Capitals and the Federal District, conducted in 2009, indicate that the prevalence of breastfeeding was 58.7%, despite the significant improvement when these values are compared to the period from 1999 to 2008 in Brazil.[6] In the National Study of Infant Feeding and Nutrition (ENANI), the prevalence of exclusive breastfeeding in children under 6 months of age was 45.8%, ranging from 40.3% in the North to 54.3% in the Southern region of the country.[7]

Breastfeeding is a factor of extreme relevance for the mother-baby binomial,[1] and it is very important to understand and understand the point of view of women in the breastfeeding process.[8] The decision to breastfeed or not is made by the woman before or during pregnancy, and is directly related to the duration of breastfeeding, besides being considered a strong predictor of breastfeeding when investigated during pregnancy.[9]

The intention to breastfeeding (IBF) is a behavior constructed throughout the woman's life and precedes the practice of breastfeeding, being considered one of the best indicators of the effective success of breastfeeding.[10] Several factors are associated and may interfere with this event, such as: primiparity, higher age and maternal education, previous experience with breastfeeding, absence of cigarette use and living with a partner,[11] previous experience of positive breastfeeding, guidance during prenatal examinations and other factors.[12]

Thus, identifying IBF during pregnancy represents an important strategy to support actions for groups with greater vulnerability of early weaning. Despite the relevance of knowing IBF and its associated factors, few studies have evaluated it in the Brazilian context.[11-14] Thus, this study aimed to estimate the intention of breastfeeding (IBF) duration and its association with sociodemographic, obstetric characteristics and experience with breastfeeding among pregnant women undergoing prenatal care.

Methods

This is a cross-sectional study, an integral part of the longitudinal research "Study of Living Conditions and Health of Pregnant Women and Puerperium", with data collection in the period from 2018 to 2019.

Colombo, a municipality in the metropolitan region of Curitiba, Paraná (PR) had a population of approximately 246,540 inhabitants and a municipal human development index (HDI-M) 0.733 in 2010, with an average household income of R$ 667.21 and an illiteracy rate of 27.7% (2010). The estimated female population in 2010 was 107,957 (44.8%) with gross birth rate (2017) 15.57/1000, infant mortality rate (2017) 12.44/1000 live births and maternal mortality (2017) 27.05/100,000 live births.[15]

The research was conducted with pregnant women, of all levels of prenatal care (habitual, moderate, and high risk), who underwent prenatal care at the Unified Health System (SUS) in Colombo, except for those who performed exclusively in the maternity hospital located in the municipality.

The sample calculations were estimated from the number of registrations of the SisPrenatal (System of Monitoring of Pregnant Women) 2016 (n = 3807), considering prevalence of 50% of the outcome, margin of error of four percentage points, and confidence level of 95%, totaling 520 pregnant women to be evaluated. Added, the percentage of 30% for losses and refusals in longitudinal studies resulted in 676 pregnant women being invited to participate in the study. During the consolidation of the fieldwork, missing data were observed for some variables in study, and to increase the power of the study, 58 (11.3%) pregnant women were evaluated (n=734). Estimates were made in the OpenEpi application.

The sample was proportionally distributed according to the number of pregnant women registered in each health unit, and all pregnant women were consecutively invited at the prenatal appointment. The following inclusion criteria were adopted: being pregnant and undergoing prenatal care in the municipality's SUS. The interviews took place in the waiting room of the prenatal consultation.

The research instrument was built based on a review of the literature on outcomes of interest to maternal and child health, and associated variables. Previously, to data collection, a pre-test was carried out with the application of the instrument to pregnant women in a health unit in the municipality (February 2018). At this stage, adjustments were made in the order of the questions and in the length of the instrument to improve the fluidity of the interview. Subsequently, in the test stage, the instrument was applied to another group of ten pregnant women. The pilot study,

in turn, comprised all stages of the research. The pregnant women who participated in the pre-test, test and pilot study phases did not make up the research sample.

The interviewers received theoretical and supervised field training. The fieldwork team read each question of the instrument and the options of response to the participants. The instrument was composed for sociodemographic variables, health-related behaviors, obstetric characteristics, and previous experience with breastfeeding. The interviewees were asked about IBF (yes or no) and, if positive, it was indicated time that intended to offer breast milk to the child. Time in months was used as a discrete variable in the analyses, and only for descriptive purposes categorized: up to six months, 6-11 months, 12 to 23 months, and 24 months or more.

Exposure variables were: 1) sociodemographic variables such as: age group (up to 19 years; 20-29; 30 or more), food insecurity (no risk, mild, moderate or severe risk), paid work (yes, no), pregnant woman's schooling (0-7 years; 8-10; 11 years or more complete study), *per capita* household income (tercis, R$ 0-475; R$ 476-750; R$ 751-3,000), living with a partner (yes; no) were investigated. 2) health-related behavior -current smoking (yes; no) -3) obstetric characteristics -trimester of pregnancy (0-13 weeks; 14-26; 27 or more), if she was breastfed as a child (yes; no) planned pregnancy (yes; no), parity (first pregnancy; second; third pregnancy or more) – and 4) previous experience with breastfeeding (yes; no).

Food insecurity was investigated through the Brazilian Food Insecurity Scale (EBIA). Households were classified as food security, mild, moderate, and severe food insecurity.[16]

Quality control of the information collected in the questionnaires was performed through telephone contact with 11.6% (n = 64) of the women interviewed, which consisted of checking data reported by pregnant women during the interviews (full name, date of birth, address, and schooling). Small divergences were observed in relation to the study time (1 year difference in 3 cases), and the intraclass correlation coefficient obtained for the variable was 0.99 (CI95%=0.98 -1.00). The other items reported in the questionnaire coincided in both moments.

The data were double typed in a spreadsheet with controls for data entry and validation, and later compared, and the information detected as different was checked in the questionnaire.

Descriptive analyses were performed by calculating the absolute (n), and relative (%) frequencies and respective confidence interval (CI) of 95%. The probability and CI95% of IBF for each month of life was estimated using life table approach.

Associations between IBF time and exposure variables were investigated through prevalence ratios (PR) by Poisson Negative Binomial Regression with robust adjustment. For adjusted analysis, the variables with $p<0.20$ value in the crude analysis were considered, and significant when $p<0.05$. The order of entry of the variables in the analysis followed a hierarchical model, starting with sociodemographic variables, health-related behavior and obstetric characteristics and previous experience with breastfeeding. We kept all information with available data in descriptive analysis and informed the number of valid data in each table. For associations of IBF time and variables, only those observation with data for the outcome were considered. The analyses were performed in Stata 14 software.

The research project was approved by the Ethics Committee on Research in Human Beings of the Health Sciences Sector of UFPR, under protocol N 2405347, from November 29, 2017.

Results

Among 734 pregnant women invited to participate in the study, 604 agreed to participate with age between 13 and 43 years – mean of 26.0 years (CI95%=25.5-26.4 years), whose age did not differ with refusals to participate (PR=26.6; CI95%=25.7-27.5 years).

Among the participants, 74.5% were between 20 and 34 years old, 36.4% had mild IBF, 43.9% 11 years or more of study, 79.5% lived with a partner, and 58.8% were pregnant with the second child or more and 54.8% had previous experience with breastfeeding (Table 1).

The mean IBF time was 13.5 ± 8.4 months, with a median of 12 months, and 97.4% of the pregnant women reported IBF at the time of the interview. Of this group, 7.9% reported having IBF for less than six months, 28.0% from six to 11 months, 38.3% from 12 to 23 and 25.9% for 24 months or more. Figure 1 shows the probability of IBF per month of life. The IBF at the 6th month was 71.5%, declining to 29.4% at 12 months, and falling to 4.2% at 25 months of life.

Table 2 presents information on the associations between IBF duration and characteristics of pregnant women. Women living in households with moderate food insecurity had a longer IBF time (PR=1.33; CI95%=1.03-1.71), as well as multiparous (PR=1.13; CI95%=1.02-1.26) and those who reported having been breastfed as children (PR=1.20; CI95%=1.03-1.41), or previous experience with breastfeeding (PR=1.12; CI95%=1.01-1.24). After adjusted analysis, the association between IBF time and moderate food insecurity (PR=1.34; CI95%=1.04-1.73),

Table 1

Characteristics of pregnant women in prenatal monitoring in Unified Health System, Colombo -PR, 2018-2019.

| Variables	N	%	CI95%
Age (years) (n=604)			
Up to 19	99	16.4	13.4-19.4
20-34	450	74.5	71.0-78.0
35 or more	55	9.1	6.8-11.4
Live with partner (n=591)			
No	121	20.5	17.2-23.7
Yes	470	79.5	76.3-82.8
Schooling (years) (n=601)			
0-7	108	18.0	14.9-21.0
8-10	229	38.1	34.2-42.0
11 or more	264	43.9	39.9-47.9
***Per capita* household income (tercis) (n=546)**			
R$ 0-475	182	33.3	29.4-37.3
R$ 476-750	183	33.5	29.5-37.5
R$ 751-3000	181	33.2	29.2-37.1
Food insecurity (n=604)			
Food security	345	57.1	53.2-61.1
Mild food insecurity	220	36.4	32.6-40.3
Moderate food insecurity	25	4.2	2.5-5.7
Severe food insecurity	14	2.3	1.1-3.5
Current smoking (n=591)			
No	545	92.2	90.1-94.4
Yes	46	7.8	5.6-9.9
Paid work (n=602)			
No	358	59.5	55.5-63.4
Yes	244	40.5	36.6-44.5
Trimester of pregnancy (weeks) (n=603)			
0-13	97	16.1	13.1-19.0
14-26	206	34.1	30.4-38.0
27 or more	300	49.8	45.7-53.8
Planned pregnancy (n=595)			
No	395	66.4	62.6-70.2
Yes	200	33.6	29.8-37.4
Parity (n=583)			
First pregnancy	240	41.2	37.2-45.2
Second pregnancy or more	343	58.8	54.8-62.8
Pregnant woman breastfed as a child (n=559)			
No	77	13.8	10.9-16.6
Yes	482	86.2	83.3-89.1
Previous brestfeeding experience (n=604)			
No	273	45.2	9.6-16.6
Yes	331	54.8	83.4-90.4

having been breastfed as a child (PR=1.19; CI95%=1.02-1.40) and multiparity (PR=1.13; CI95%=1.00-1.26) remained significant. However, the association of previous experience was no longer significant, after adjustment for other variables (Table 2).

Discussion

This study aimed to investigate IBF and associated factors among women undergoing prenatal follow-up in a municipality in the metropolitan region of Curitiba, PR.

Figure 1

Probability of breastfeeding intention by baby's lifetime, reported by pregnant women undergoing prenatal care in the Unified Health System, Colombo, PR, 2018-2019.
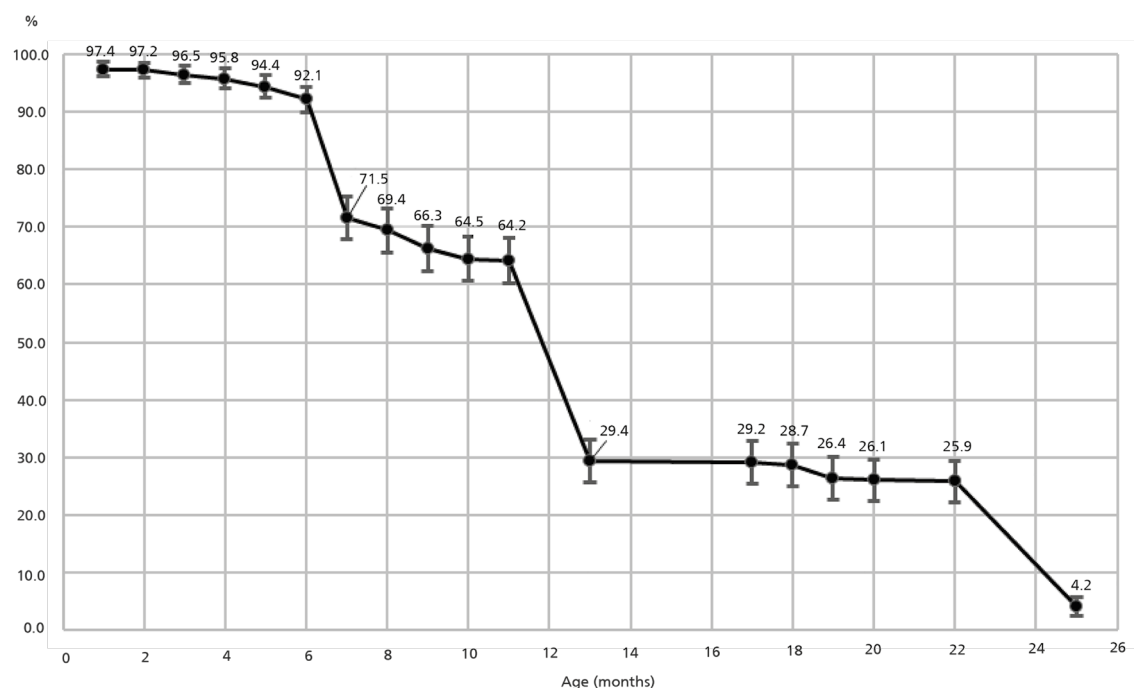
Probabilities estimated by the life table method. The rods represent the 95% confidence intervals.

The results indicated that most pregnant women reported IBF, especially those with a higher number of pregnancies, who reported having been breastfed and with moderate food insecurity.

The distribution of IBF time -13.5 ± 8.4 months -was close to previous study with pregnant women in the same municipality, in 2017 (13.5 months CI95%=12.5; 14.4),[14] which indicates certain stability in those behavior on last years. In the present study, most of the pregnant women interviewed (64.2%) reported IBF for at least 12 months and 25.9% for at least 24 months. In a prospective cohort study conducted in Pelotas (RS), 91.1% of women reported IBF up to at least 12 months, and the median effective breastfeeding was 10.8 months,[13] a value lower than the IBF found in this study. The results of the effective breastfeeding behavior identified in the ENANI indicated that the median exclusive breastfeeding was three months, and breastfeeding was 15.9 months in the country, while the prevalence of continued breastfeeding (12 to 23 months) was 43.6%.[7]

In our study, women with moderate food insecurity reported longer time of IBF. Most studies in different populations reported more positive indicators of breastfeed in groups with food insecurity,[17,18] including longer median duration of exclusive maternal breastfeeding,[17,18] and higher prevalence of breastfeeding.[17] Thus, the importance of breastfeeding as a survival strategy, low cost and that can help families in food insecurity, and its incentive is directly related to the decline in the prevalence of malnutrition observed over the decades.[19]

The relation of socioeconomic indicators with breastfeeding varies across different social and cultural contexts, with the direction of association changing along time.[20] Women with better socioeconomic status and lower risk of food insecurity tend to have greater financial access to infant formulas, and possibilities of maintaining their use for longer, in addition they can face barriers related to the maintenance of breastfeeding after returning to work activities.

The interviewees who were second-time pregnant indicated a higher IBF duration when compared to primiparous women. In the cohort study conducted in Pelotas (RS), the median duration of breastfeeding was higher among multiparous (12 months) compared to primiparous women (9.5 months).[13] Other studies that evaluated an association between IBF and effective breastfeeding also indicated multiparity as a protective factor for the effectiveness of breastfeeding.[12,21] In fact, parity and education attainment together can explain most of the association between maternal age and breastfeeding duration.[22]

We found a positive association between being breastfed as a child and duration of IBF. Prospective studies support intergenerational relation of breastfeeding practices, including longer exclusive breastfeeding.[23] A systematic review found a consistent correlation of having

Table 2

Association between time of intent to breastfeed and pregnant characteristics in prenatal follow-up in the Unified Health System, Colombo – PR, 2018-2019.

Variables	PR (CI95%)	*p**	PR adjusted (CI95%)	*p**
Age (years) (n=572)		0.336		0.326[a]
Up to 19	1.00		1.00	
20-34	1.08 (0.93-1.24)		1.08 (0.94-1.25)	
35 or more	1.09 (0.88-1.35)		1.11 (0.90-1.38)	
Lives with a partner (n=564)		0.278		
No	1.00			
Yes	1.07 (0.94-1.22)			
Education (years) (n=572)		0.558		
0-7	1.00			
8-10	0.95 (0.84-1.09)			
11 or older	0.96 (0.85-1.09)			
Household income per capita (tertiles) (n=521)		0.623		
R$ 0-475	1.00			
R$ 476-750	1.01 (0.87-1.17)			
R$ 751-3000	1.03 (0.89-1.19)			
Food Insecurity (n=572)		0.184		0.180[a]
Food security	1.00		1.00	
Mild food insecurity	1.04 (0.94-1.17)		1.04 (0.94-1.16)	
Moderate food insecurity	1.33 (1.03-1.71)		1.34 (1.04-1.73)	
Severe food insecurity	0.93 (0.66-1.32)		0.93 (0.65-1.31)	
Current smoking (n=567)		0.452		
No	1.00			
Yes	0.93 (0.77-1.12)			
Paid work (n=570)		0.477		
No	1.00			
Yes	0.96 (0.87-1.07)			
Trimester of pregnancy (weeks) (n=571)		0.572		
0-13	1.00			
14-26	1.07 (0.92-1.25)			
27 or older	0.99 (0.86-1.15)			
Planned pregnancy (n=569)		0.320		
No	1.00			
Yes	1.06 (0.95-1.18)			
Parity (n=556)		0.024		0.035[b]
First pregnancy	1.00		1.00	
Second pregnancy or more	1.13 (1.02-1.26)		1.13 (1.00-1.26)	
Pregnant woman breastfed as a child (n=539)		0.021		0.028[b]
No	1.00		1.00	
Yes	1.20 (1.03-1.41)		1.19 (1.02-1.40)	
Previous breastfeeding experience (n=523)		0.036		0.425[c]
No	1.00		1.00	
Yes	1.12 (1.01-1.24)		1.06 (0.91-1.24)	

PR = Prevalence Ratio; CI = Confidence Intervals *Wald's test, negative binomial regression; [a] Analysis adjusted for age and food insecurity (n=572); [b]Analysis adjusted for age, food insecurity, multiparity and pregnant woman breastfed as a child (n=523); [c]Analysis adjusted for age, food insecurity, multiparity, pregnant woman breastfed as a child and previous breastfeeding experience (n=523).

been breastfed as an infant and breastfeeding intention, initiation, and duration. Even men's infant-feeding status was related to later intentions to support or encourage a partner to breastfeed.[24]

In the present study, in the unadjusted analysis, the experience of the interviewee with breastfeeding in previous pregnancies was positively associated with IBF. However, when adjusted for other variables, previous

experience with breastfeeding was no longer significant. It is possible that the association between the two variables was confused because of multiparity, and that women in situations of food insecurity have other children and previous experience of breastfeeding.

A systematic review found a positive association between IBF and previous breastfeeding experience.[11] Furthermore, maternal and family experience with breastfeeding can influence the effect of variables such as income and schooling on breastfeeding practices on breastfeeding patterns.[25]

It is important to highlight that the findings of the present study refer to intention and may not correspond to the effective practice of breastfeeding. The duration of breastfeeding may be shorter than that reported during pregnancy.[13] These differences may be related to factors not directly controlled by the woman, considering the multiple determinants of breastfeeding,[13,26] including socioeconomic factors, such as the return to work/school by the mother,[13,21] or a decrease in family income, directly affecting the quantity and quality of the foods present in the routine.[27] A review with thematic analysis of qualitative studies showed that although women consider breastfeeding to be an intuitive practice, they might find it difficult to deal with the challenges of breastfeeding. The lack of partner and networks support, as well as counseling from health professionals play a critical role in the woman's decision to breastfeed. Thus, barriers of the individual, interpersonal and organizational levels should be considered.[25]

Despite advances in breastfeeding practices in Brazil in recent decades, there is still a need substantial improvement in terms of exclusivity of breastfeeding and duration of any type of breastfeeding. In both, clinical and community settings the previous counseling about breastfeeding during pregnancy[28,29] and the support about the lactation management in first days and weeks of life is fundamental for the success of breastfeeding in a long-term perspective.[20]

The environment of data collection, health units, may have influenced the answers about the intention and duration of breastfeeding, and other behaviors reported by pregnant women, such as a longer time of IBF than intended, for example. In addition, the socioeconomic diversity of the sample is lower, which may have influenced the results.

The results of this study provide support for the planning of public policies for the promotion and timely encouragement of the practice of breastfeeding, and that consider especially women who are in the first pregnancy to avoid the early interruption of exclusive breastfeeding,

with potential to impact on breastfeeding practices of future pregnancies. Furthermore, studies that relate the intention and effective practices of breastfeeding, as well as the factors associated with agreement between these practices are important. Policies, programs, and public actions to promote breastfeeding are important during pregnancy, focusing on women who are in their first pregnancy, who have not been breastfed as babies, or have lower levels of food insecurity.

Authors' contribution

Castilho BM: data curation; formal analysis, investigation; methodology, software; validation; writing original draft. Fernandes RC: conceptualization; data curation; formal analysis, investigation; methodology, software; validation; supervision; writing review & editing. Höfelmann DA: conceptualization; data curation; formal analysis; funding acquisition; methodology; project administration; supervision; writing original draft, review & editing. All authors approval the final version of the article and declare no conflict of the interest.

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