

Breastfeeding status in the first year of late preterm infants: a cohort study

Situação do aleitamento materno no primeiro ano de recém-nascidos prematuros tardios: estudo de coorte

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ABSTRACT

Breastfeeding is essential for child health, especially for children born prematurely. A prospective cohort study was conducted to compare breastfeeding rates in the first year of life of late preterm and term infants, and to investigate the associated factors. Mothers (n=581) were interviewed before one month, at two, three, four, six, nine and 12 months of age of the infants. The results were unfavorable for all the infants studied: 78.1% of the late preterm infants and 73.2% of the full-term infants were not exclusively breastfeeding at four months of age and only 7.6% and 23.5%, respectively, were breastfeeding at 12 months. Multivariate logistic regression analysis did not identify worse situations of exclusive breastfeeding and breastfeeding for late preterm infants after discharge from the maternity hospital. The urgent need to intensify actions to promote breastfeeding in the context studied is reinforced.

Descriptors: Breast Feeding; Premature Birth; Term Birth.

RESUMO

O aleitamento materno é essencial para a saúde infantil, especialmente, para crianças que tiveram nascimento precoce. Realizou-se estudo de coorte prospectiva objetivando comparar taxas de aleitamento materno no primeiro ano de vida de recém-nascidos prematuros tardios e a termo, e investigar os fatores associados. As mães (n=581) foram entrevistadas antes de um mês, aos dois, três, quatro, seis, nove e 12 meses de idade dos lactentes. Os resultados mostraram-se desfavoráveis para o conjunto dos lactentes estudados: 78,1% dos prematuros tardios e 73,2% dos nascidos a termo não se encontravam em aleitamento materno exclusivo aos quatro meses de idade e apenas 7,6% e 23,5%, respectivamente, estavam em aleitamento materno aos 12 meses. Análise de regressão logística multivariada não identificou piores situações de aleitamento materno exclusivo e de aleitamento materno para prematuros tardios após a alta da maternidade. Reforça-se a premência de intensificação de ações de promoção do aleitamento materno no contexto estudado.

Descritores: Aleitamento Materno; Nascimento Prematuro Tardio; Nascimento a Termo.

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INTRODUCTION

Currently, worldwide, there has been a significant increase in the rates of premature births occurring before the 37th week of gestation⁽¹⁾. A population-based study conducted between February 2011 and October 2012 revealed that Brazil had a prematurity rate of 11.5%, which was almost twice as high as that observed in European countries. Among these births, 74% occurred between the 34th and 36th week of incomplete gestational age, and these were considered as late preterm infants (LPIs)⁽²⁾.

There is evidence that, in comparison to term infants (TIs), LPIs have a higher risk of health complications in the short and long term⁽³⁾.

This indicates the need for adequate professional support, before and after discharge from the maternity ward, in addition to preparing families for home care, especially regarding breastfeeding⁽⁴⁾.

Regardless of the gestational age at birth, the practice of breastfeeding, exclusively during the first six months and complementary until two years or more of life, is considered essential for the health of the baby and the mother, as viewed by the socioeconomic and cultural context⁽⁵⁾.

Breastfeeding is especially important in late prematurity because, in this situation, newborns look like full-term newborns in size and weight, but have significant difficulties in bonding with the mother and feeding⁽⁶⁾. Their signs of hunger and satiety may be confusing or less active, as in the case of frequently falling asleep during feeding, which leads to low emptying of the breast milk and, as a consequence, diminishes milk production⁽⁷⁾.

Breastfeeding less than they need, LPIs become more vulnerable to complications such as respiratory infections, gastrointestinal diseases, otitis, among other problems that may make breastfeeding even more difficult, increasing the chances of these becoming spaced out, ineffective breast emptying, compromising the production and releasing of milk⁽⁷⁾. Consequently, it is proposed that these newborns should not be treated like other infants regarding the routines and actions of health professionals, requiring extra attention, especially in ensuring skin-to-skin contact, periodic milking and the supply of milk when necessary and feeding directly from the breast⁽⁶⁾. Special attention should be given to the preparation of discharge from the hospital and developing maternal support networks^(4,7).

For the successful initiation and maintenance of breastfeeding and its adoption by mothers, it is important that during prenatal care, qualified care is provided, with access to information and support for pregnant women and that this care occurs not only during this period, but also during childbirth, postpartum and the recommended period for breastfeeding⁽⁷⁾. However, the prevalence of this practice internationally and nationally is below what

is necessary, even with the implementation of officially proposed actions^(5,8), revealing that much more can be done to transform this situation.

This research was conducted admitting the relevance of the practice of breastfeeding for the promotion of the health of LPIs and through the incipency of national studies aimed at assessing the implications of late prematurity for infants, their families, society in general and, in particular, health services⁽⁹⁾.

Thus, the aim of the study was to compare late preterm and full-term infants as to the frequency of exclusive breastfeeding and breastfeeding during the first year of life and to investigate associated factors.

METHODS

This is an integrated study to the study “Child health in the first year of life: a prospective cohort study in the countryside of São Paulo” (CLaB Study), which is a population-based, prospective cohort study, in which data was collected from July 2015 to January 2017, in Botucatu, State of São Paulo, Brazil.

The formation of this cohort included newborns born in the municipality of Botucatu (SP) and who attended, in the period stipulated for data collection (June 2015 to January 2016), their first clinical consultation in a centralized unit of neonatal care of the basic health network, with coverage of more than 90% of all births in the municipality.

Trained researchers were in that unit on a daily basis to invite mothers to participate in the research after verifying the newborns’ eligibility condition. The eligibility criteria were: newborn resident in the city and less than 30 days old, and whose mother was the main caregiver and able to participate in telephone and face-to-face interviews.

To meet the objectives of this research, gestational age at birth was considered as an inclusion criterion, and late preterm (n=41) and full-term (n=540) newborns who completed the follow-up up to one year of age were analyzed. Premature newborns with gestational age at birth below 34 weeks were excluded from the study.

As part of the participant recruitment process, among the 923 consultations held in the fundraising unit, 138 were not eligible according to the criteria mentioned above, and 785 mothers were invited. Of these, 129 refused to participate and 656 composed the initial sample of the CLaB Study. The main reason given by the mothers for refusing to participate in the cohort was the unavailability of time or lack of interest.

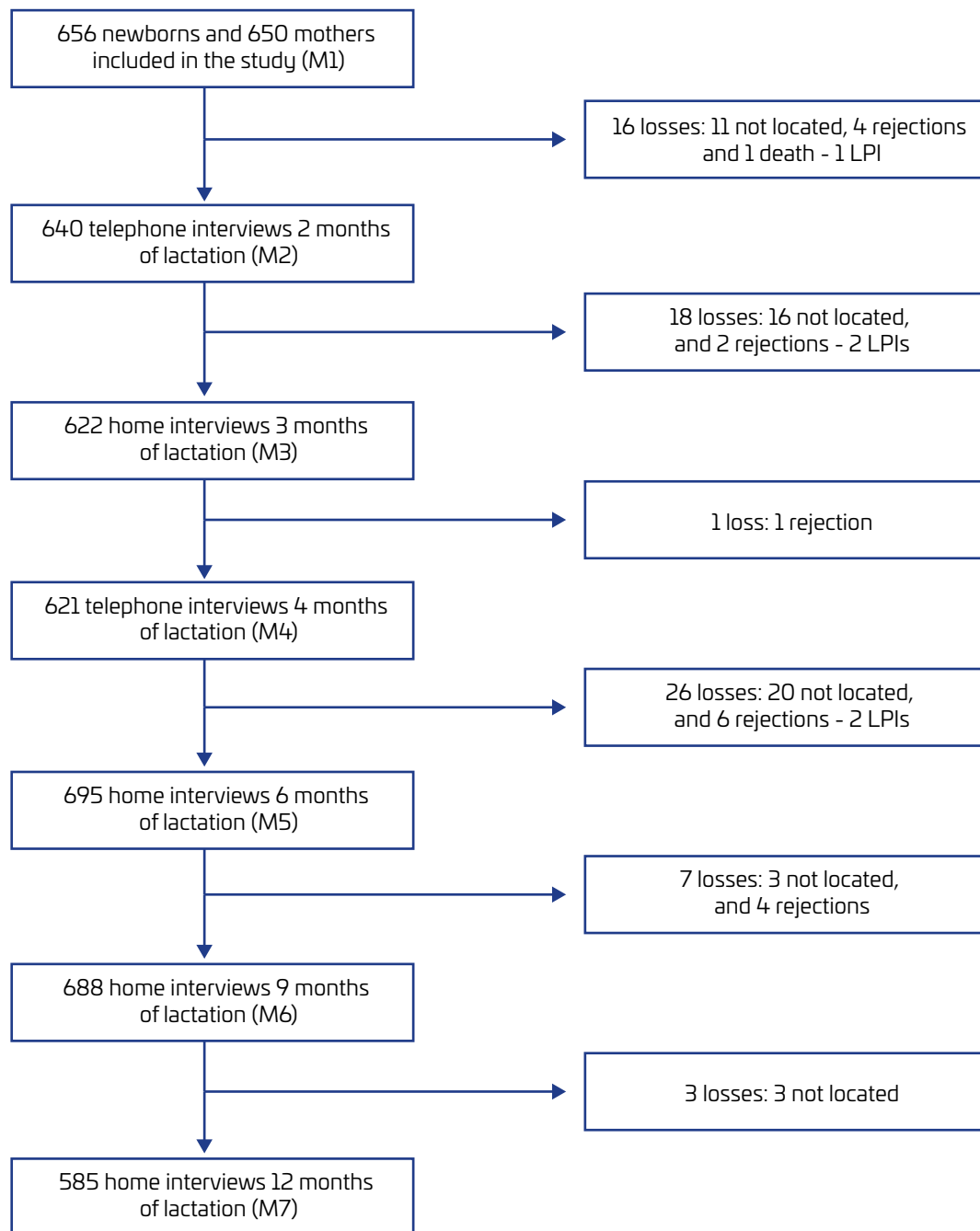
Figure 1 presents the moments of data collection of the research (M1 to M7), with the respective inclusions and reasons for the losses of cohort participants.

The data collection instruments were developed by researchers with experience in epidemiological projects, and

were pretextualized until the version considered satisfactory by the researchers involved was reached.

Of the variables collected for the CLab Study, in the current opportunity, those related to demographic, socioeconomic and obstetric characteristics of mothers and newborns were studied, seeking to primarily explore those considered as risk

criteria or vulnerability to childbirth, according to the criteria outlined by the World Health Organization (WHO) and also adopted by the Brazilian Ministry of Health for child health surveillance⁽¹⁰⁾. For the characterization of the care aimed at breastfeeding, among others, the variables considered were those recommended by the WHO and the United Nations



M1-M7: moments of research data collection; RNPTT: late preterm newborns.

Figure 1. Follow-up flowchart of participants in the CLab Study. Botucatu, SP, 2015-2017.

Children's Fund (UNICEF) for the protection, promotion and support of breastfeeding, summarized in the Ten Steps to the success of this practice⁽¹¹⁾.

These variables were used to describe the cohort and to control the possible confounding effects on the association between late prematurity and breastfeeding status of infants in the first year of life.

The initial outcomes under study were:

- maternal knowledge (yes, no) of the duration indicated for exclusive breastfeeding (EBF) and breastfeeding (BF);
- EBF (yes, no) and BF (yes, no) of the infant throughout the first year of life: at discharge from the maternity ward and at two, four and six months;
- BF situation (yes, no) at nine and 12 months of age.

Recommendations for the duration and definitions of exclusive breastfeeding and breastfeeding were adopted in the guide *Protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services: the revised Baby-Friendly Hospital Initiative*, published in 2018 by WHO⁽¹¹⁾.

A descriptive analysis of the cohort was performed comparing LPIs and TIs (n and %) as to the variables of interest, and by univariate analysis, with evaluation of the differences made by non-parametric chi-square tests and Fisher's exact test. For these analyses, the gross *odds ratio* (OR) was calculated. Subsequently, multivariate logistic regression analyses were performed only for those outcomes with statistically significant association ($p < 0.20$), in univariate analyses. In these analyses, the co-variables that had a significance level of $p < 0.20$ in the previous univariate analysis were inserted. The adjusted *odds ratios* (OR_j) were then calculated, adopting p critical < 0.05 as the level of statistical significance. All analyses were performed using the Statistical Package for the Social Sciences (SPSS) V21 software.

The research project was submitted to the Research Ethics Committee of the Faculty of Medicine of Botucatu of Paulista State University (CAAE n° 45017215.8.0000.54.11). The mothers who agreed to participate in the study, after being informed and guided, signed a Free and Informed Consent Form.

RESULTS

Table 1 shows the distribution of late preterm and term newborns according to demographic, socioeconomic and maternal and obstetric variables at birth.

When compared with the TIs, the LPIs presented similar characteristics for all socioeconomic and demographic variables studied, except for family income *per capita* lower than a minimum wage and mother/father drug user, when the situation was favorable to premature babies. It was

found that the LPIs statistically presented more chances of low birth weight ($p < 0.001$; OR=28.16; 95%CI=12.0-65.83) (Table 1).

Table 2 refers to child health care, with emphasis on actions aimed at promoting breastfeeding. For most of the variables, the LPIs obtained lower or similar attention when compared to the TIs, with the only exception of having been more evaluated for breastfeeding at three months of age, respectively, 34.1% and 27.4%. The significant differences found by the univariate analysis among the newborns studied were: the LPIs had less chance of prenatal care in the public service ($p = 0.023$; OR= 0.50; 95%CI=0.30-0.91), participating in six or more prenatal consultations ($p < 0.001$; OR= 0.23; 95%CI=0.10-0.53), remaining in the maternity unit ($p < 0.05$), and in the maternity unit ($p < 0.05$).0.001; OR=0.16; 95%CI=0.08-0.34), breastfeeding in the first hour of life ($p = 0.001$; OR=0.36; 95%CI=0.19-0.68) and being evaluated for breastfeeding in the maternity hospital ($p = 0.020$; OR=0.14; 95%CI=0.03-0.59) (Table 2).

Table 3 is related to maternal knowledge about the indicated duration of EBF and BF and the situation of infants in relation to these practices at the different moments studied (univariate analysis). This table shows small differences between LPIs and TIs. For example, the LPIs were most frequently EBF at two (58.5% x 55.2%) and six (5.0% x 3.0%) months of age; and for breastfeeding in the first appointment scheduled after discharge from the maternity hospital (97.0% x 96.7%), two (90.2% x 87.6%), four (82.9% x 70.6%) and six (70.7% x 61.5%) months of age. Such differences, however, did not reach statistical significance. It was verified that there were considerable decreases in the prevalence of EBF from two to four months of age, both for LPIs (58.5% to 21.9%) and for TIs (55.2% to 26.8%); and there was a notable reduction in BF from six to 12 months in LPIs (70.7% to 7.6%) and TIs (61.5% to 23.3%).

Table 3 also shows that, by univariate analysis, differences were found in maternal knowledge about the duration indicated for the EBF, and the LPIs showed better results ($p = 0.002$; OR=2.70; 95%CI=1.38-5.20); however, these infants had a lower chance of EBF at hospital discharge ($p < 0.001$; OR=0.27; 95%CI=0.14-0.51) and of BF at 12 months ($p = 0.017$; OR=0.25; 95%CI=0.08- 0.85).

The univariate analyses selected as outcomes to be considered in the multivariate analyses were: knowledge about age indicated for EBF, exclusive breastfeeding at discharge from the maternity hospital and breastfeeding at four and 12 months. Multivariate analyses to identify the effect of late prematurity adjusted for potential confounders are shown in Table 4.

There was a positive association between late prematurity and maternal knowledge about the age indicated for EBF (OR_j=2.59; 95%CI=1.13-5.93; $p = 0.024$), as well

Table 1. Distribution of late preterm and full-term newborns in the CLaB Study, according to maternal, obstetric and birth sociodemographic and economic characteristics. Botucatu, SP, 2015-2017.

| Variable | Late Prematurity | | | | OR | 95%CI | P |
|---|------------------|------|------------|------|-------|-------------|----------------|
| | Yes (n=41) | | No (n=540) | | | | |
| | n | % | n | % | | | |
| Age<20 years old | | | | | | | |
| No | 35 | 85.4 | 463 | 85.7 | 1.03 | 0.41-2.53 | 0.947 |
| Yes | 6 | 14.6 | 77 | 14.3 | | | |
| Absence of companion | | | | | | | |
| No | 34 | 82.9 | 471 | 87.0 | 1.40 | 0.59-3.29 | 0.431 |
| Yes | 7 | 17.1 | 69 | 13.0 | | | |
| School approval<8 years old | | | | | | | |
| No | 3 | 7.3 | 52 | 9.6 | 0.74 | 0.22-2.48 | 0.442 χ^2 |
| Yes | 38 | 92.7 | 488 | 90.4 | | | |
| Family income <i>per capita</i> < 1(MW) | | | | | | | |
| No | 13 | 31.7 | 111 | 20.6 | 0.55 | 0.27-1.11 | 0.092 |
| Yes | 28 | 86.3 | 429 | 79.4 | | | |
| Main job provider | | | | | | | |
| No | 1 | 2.5 | 18 | 3.0 | 0.72 | 0.09-5.57 | 0.606 χ^2 |
| Yes | 40 | 97.5 | 522 | 97.0 | | | |
| Mother/ father user alcohol/drug | | | | | | | |
| No | 34 | 82.9 | 494 | 91.5 | 2.21 | 0.92-5.26 | 0.066 |
| Yes | 7 | 17.1 | 46 | 8.5 | | | |
| Desired pregnancy | | | | | | | |
| No | 4 | 9.7 | 42 | 7.8 | 1.78 | 0.26-2.29 | 0.411 χ^2 |
| Yes | 37 | 90.3 | 498 | 92.2 | | | |
| High risk pregnancy | | | | | | | |
| No | 35 | 85.4 | 483 | 89.4 | 1.45 | 0.58-3.60 | 0.418 |
| Yes | 6 | 14.6 | 57 | 10.6 | | | |
| Primiparity | | | | | | | |
| No | 20 | 49.0 | 266 | 49.3 | 0.98 | 0.51-1.85 | 0.952 |
| Yes | 21 | 51.0 | 274 | 50.7 | | | |
| Newborn sex | | | | | | | |
| Male | 23 | 56.0 | 300 | 55.6 | 1.02 | 0.53-1.93 | 0.946 |
| Female | 18 | 44.0 | 240 | 44.4 | | | |
| Birth weight<2500g | | | | | | | |
| No | 16 | 39.0 | 528 | 97.8 | 28.16 | 12.04-65.83 | <0.001 |
| Yes | 25 | 61.0 | 12 | 2.2 | | | |
| Apgar 5 ^o minute<seven | | | | | | | |
| No | 40 | 97.5 | 536 | 99.3 | 3.35 | 0.36-30.68 | 0.307 χ^2 |
| Yes | 1 | 2.5 | 4 | 0.7 | | | |

OR: odds ratio; IC95%: confidence interval; MW: minimum wage; χ^2 : corrected chi-square.

Table 2. Distribution of late preterm and full-term newborns in the CLaB Study, according to health care and actions to promote breastfeeding in the prenatal period, delivery and first year of life. Botucatu, SP, 2015-2017.

| Variable | Late Prematurity | | | | OR | 95%CI | P |
|----------------------------------|------------------|------|------------|------|------|-----------|----------------|
| | Yes (n=41) | | No (n=540) | | | | |
| | n | % | n | % | | | |
| PN in public service | | | | | | | |
| No | 20 | 48.8 | 358 | 33.7 | 0.50 | 0.30-0.91 | 0.023 |
| Yes | 21 | 51.2 | 182 | 66.3 | | | |
| Nº of queries PN>6 (n=508) | | | | | | | |
| No | 9 | 24.3 | 33 | 7.0 | 0.23 | 0.10-0.53 | <0.001 |
| Yes | 28 | 75.7 | 438 | 93.0 | | | |
| Educational group in PN | | | | | | | |
| No | 40 | 97.6 | 515 | 95.4 | 0.51 | 0.06-3.89 | 0.438 χ^2 |
| Yes | 1 | 2.4 | 25 | 4.6 | | | |
| EBF duration orientation in PN | | | | | | | |
| No | 34 | 82.9 | 400 | 74.1 | 0.58 | 0.25-1.35 | 0.208 |
| Yes | 7 | 17.1 | 140 | 25.9 | | | |
| Orientation duration BF in PN | | | | | | | |
| No | 27 | 65.9 | 349 | 64.6 | 0.94 | 0.48-1.85 | 0.874 |
| Yes | 14 | 34.1 | 121 | 35.4 | | | |
| Childbirth in public service | | | | | | | |
| No | 18 | 43.9 | 173 | 32.0 | 0.60 | 0.31-1.14 | 0.118 |
| Yes | 23 | 56.1 | 367 | 68.0 | | | |
| Vaginal birth | | | | | | | |
| No | 27 | 65.9 | 275 | 50.9 | 1.85 | 0.95-3.62 | 0.065 |
| Yes | 14 | 34.1 | 265 | 49.1 | | | |
| Skin to skin contact in MT | | | | | | | |
| No | 19 | 46.3 | 180 | 33.3 | 0.57 | 0.30-1.09 | 0.090 |
| Yes | 22 | 53.7 | 360 | 66.7 | | | |
| Joint accommodation in MT | | | | | | | |
| No | 14 | 34.2 | 43 | 8.0 | 0.16 | 0.08-0.34 | <0.001 |
| Yes | 27 | 65.8 | 497 | 92.0 | | | |
| Orientation EBF duration in MT | | | | | | | |
| No | 9 | 21.9 | 121 | 22.0 | 1.02 | 0.47-2.21 | 0.946 |
| Yes | 32 | 78.1 | 419 | 78.0 | | | |
| Guidance duration BF in MT | | | | | | | |
| No | 5 | 12.2 | 59 | 10.9 | 0.88 | 0.33-2.33 | 0.802 |
| Yes | 36 | 87.8 | 481 | 89.1 | | | |
| First hour of life breastfeeding | | | | | | | |
| No | 23 | 56.1 | 171 | 31.7 | 0.36 | 0.19-0.68 | 0.001 |
| Yes | 18 | 43.9 | 369 | 68.3 | | | |

Continue...

Table 2. Continuation.

| Variable | Late Prematurity | | | | OR | 95%CI | P |
|--|------------------|-------|------------|------|------|-----------|----------------|
| | Yes (n=41) | | No (n=540) | | | | |
| | n | % | n | % | | | |
| Evaluation of breastfeeding in MT | | | | | | | |
| No | 3 | 7.3 | 6 | 1.1 | 0.14 | 0.03-0.59 | 0.020 χ^2 |
| Yes | 38 | 92.7 | 534 | 98.9 | | | |
| Use of soothers in MT | | | | | | | |
| No | 31 | 75.6 | 412 | 76.3 | 1.04 | 0.49-2.17 | 0.920 |
| Yes | 10 | 24.4 | 128 | 23.7 | | | |
| Childcare public service | | | | | | | |
| No | 15 | 63.4 | 141 | 26.1 | 0.61 | 0.31-1.18 | 0.144 |
| Yes | 26 | 36.6 | 399 | 73.9 | | | |
| Evaluation of breastfeeding 1 st SC | | | | | | | |
| No | 24 | 58.5 | 263 | 48.7 | 0.67 | 0.35-1.28 | 0.224 |
| Yes | 17 | 41.5 | 277 | 51.3 | | | |
| Orientation duration EBF 1 st SC | | | | | | | |
| No | 0 | 0 | 1 | 0.1 | - | - | 1.000 |
| Yes | 41 | 100.0 | 539 | 99.8 | | | |
| BF duration orientation 1 st SC | | | | | | | |
| No | 0 | 0 | 1 | 0.1 | - | - | 1.000 |
| Yes | 41 | 100.0 | 539 | 99.8 | | | |
| Breastfeeding evaluation 3 months | | | | | | | |
| No | 27 | 65.9 | 392 | 72.6 | 1.37 | 0.70-2.69 | 0.354 |
| Yes | 14 | 34.1 | 148 | 27.4 | | | |

OR: *odds ratio*; 95%CI: confidence interval; PN: prenatal; EBF: exclusive breastfeeding; BF: breastfeeding; MT: maternity; SC: scheduled consultation; χ^2 : corrected square chi.

as an association between late prematurity and EBF at discharge, but in this case the effect was the opposite, i.e., late prematurity had less chance of being EBF (OR_j=0.37; 95%CI=0.16-0.89; p=0.026). The association between late prematurity and breastfeeding at four months remained positive and significant after adjustments for potential confounding factors, with a more favorable situation for late prematurity (OR_j=2.79; 95%CI=1.06-7.38; p=0.038). The negative association between late prematurity and breastfeeding at 12 months, observed in the univariate analysis, was not significant after the entry of confounding factors (OR_j=0.37; 95%CI=0.10-1.31; p=0.122) (Table 4).

DISCUSSION

This prospective cohort study compared breastfeeding in the first year of life of LPIs and TIs.

In favor of the validity of the results obtained is the longitudinal design and frequent data collection throughout the first year of life, avoiding a possible bias in the memory of mothers, a risk present when breastfeeding practices are assessed after long periods of time.

However, a limitation of this study is the small size of the cohort in relation to the frequency of LPIs (less than 10%), so that the comparisons made have involved a low number of LPI cases. This may have reduced the statistical strength of the study, which is why the evidence produced needs to be investigated in further studies involving larger birth cohorts. Another limitation refers to the assessment of the effect of actions to promote and support breastfeeding received by mothers, because only guidance given in prenatal and maternity care and maternal knowledge about the recommended duration for EBF and breastfeeding were evaluated. In addition, the study was limited to identifying

Table 3. Distribution of late preterm and full-term newborns in the CLaB Study, according to maternal knowledge about the indicated duration and status of breastfeeding during the first year of life. Botucatu, SP, 2015-2017.

| Variable | Late Prematurity | | | | OR | 95%CI | P |
|--------------------------|------------------|------|------------|------|-------|------------|----------------|
| | Yes (n=41) | | No (n=540) | | | | |
| | n | % | N | % | | | |
| Knowledge duration EBF | | | | | | | |
| No | 25 | 61.0 | 436 | 80.7 | 2.70 | 1.38-5.20 | 0.002 |
| Yes | 16 | 39.0 | 104 | 19.3 | | | |
| Knowledge duration BF | | | | | | | |
| No | 37 | 90.3 | 486 | 90.0 | 0.973 | 0.33-2.83 | 0.602 χ^2 |
| Yes | 4 | 9.7 | 54 | 10.0 | | | |
| EBF on MT high | | | | | | | |
| No | 23 | 56.1 | 139 | 25.7 | 0.27 | 0.14-0.51 | <0.001 |
| Yes | 18 | 43.9 | 401 | 74.3 | | | |
| BF in 1 st SC | | | | | | | |
| No | 1 | 2.4 | 18 | 3.3 | 1.37 | 0.17-10.59 | 0.606 |
| Yes | 40 | 97.6 | 522 | 96.7 | | | |
| EBF at 2 months | | | | | | | |
| No | 17 | 41.5 | 242 | 44.8 | 1.14 | 0.60-2.18 | 0.677 |
| Yes | 24 | 58.5 | 298 | 55.2 | | | |
| BF at 2 months | | | | | | | |
| No | 4 | 9.8 | 67 | 12.4 | 1.31 | 0.45-3.79 | 0.420 χ^2 |
| Yes | 37 | 90.2 | 473 | 87.6 | | | |
| EBF at 4 months | | | | | | | |
| No | 32 | 78.1 | 395 | 73.2 | 0.76 | 0.35-1.64 | 0.493 |
| Yes | 9 | 21.9 | 145 | 26.8 | | | |
| BF at 4 months | | | | | | | |
| No | 7 | 17.1 | 159 | 29.4 | 2.02 | 0.88-4.66 | 0.090 |
| Yes | 34 | 82.9 | 381 | 70.6 | | | |
| EBF at 6 months | | | | | | | |
| No | 39 | 95.0 | 524 | 97.0 | 1.67 | 0.37-7.56 | 0.367 χ^2 |
| Yes | 2 | 5.0 | 16 | 3.0 | | | |
| EBF at 6 months | | | | | | | |
| No | 12 | 29.3 | 208 | 38.5 | 1.951 | 0.75-3.03 | 0.239 |
| Yes | 29 | 70.7 | 332 | 61.5 | | | |
| BF at 9 months | | | | | | | |
| No | 23 | 56.1 | 261 | 48.3 | 0.73 | 0.38-1.38 | 0.337 |
| Yes | 18 | 43.9 | 279 | 51.7 | | | |
| BF at 12 months | | | | | | | |
| No | 38 | 92.7 | 414 | 76.7 | 0.25 | 0.08-0.85 | 0.017 χ^2 |
| Yes | 3 | 7.3 | 126 | 23.3 | | | |

OR: odds ratio; 95%CI: confidence interval; EBF: exclusive breastfeeding; BF: breastfeeding; MT: maternity; SC: scheduled consultation; χ^2 : corrected square chi.

whether or not women received guidance on breastfeeding, but did not collect data on what the information was or how it was offered.

Among the results, it is worth noting that, proportionally, the LPIs presented worse results than the TIs for practically all variables related to maternal, obstetric and birth sociodemographic and economic characteristics, with the exception of the employment situation of the main provider. It was also statistically found that LPIs were more likely to be born underweight than those born at term. These results are consistent with the evidence that LPIs are exposed to risks and vulnerabilities in the gestational period⁽¹²⁾ and, at birth, are more likely to be underweight^(13,14), thus reinforcing the need for particular attention to feeding to be established⁽¹³⁻¹⁵⁾.

Being born prematurely, even if one or two weeks before completing 37 weeks of gestation has been recognized as a disadvantage for the newborn, for several reasons, such as: more days in the maternity ward, higher risk of complications such as respiratory difficulties, hypoglycemia, hypothermia, and readmission and mortality⁽¹³⁾.

In the present study, LPIs were more likely to fail at the beginning of breastfeeding than TIs, a fact already pointed out in previous studies⁽¹⁶⁾ and which could be avoided if there was differentiated attention from health services, especially

in supporting this practice in maternity wards^(6,7). However, no disadvantage was detected for LPIs regarding the situation of EBF and BF after discharge from the maternity hospital. In a cohort study conducted in Australia, LPIs compared to TIs had less chance of starting breastfeeding in the first hour of life and leaving the hospital when they were exclusively breastfed, regardless of other associated factors such as parity, smoking, maternal age, birth weight, Apgar 1 and 5 minutes, birth by caesarean section and twinning, results corroborated in this study. The study further confirmed that part of the risk of increased morbidity and mortality in childhood was due to difficulties in establishing early and successful breastfeeding, especially for LPIs⁽¹⁶⁾.

Intensive support actions have been shown to be effective in promoting early onset and duration of breastfeeding in LPIs. An English study showed that the mothers of LPIs who received sufficient support and guidance in the maternity ward and first month of life, were more likely to be breastfeeding exclusively at 10 days and six weeks of life⁽¹⁵⁾.

A recent integrative review on interventions to promote and support breastfeeding for LPIs identified 30 studies and, based on them, the three effective actions to increase the duration of breastfeeding were: intense skin-to-skin contact during the first hour of life, educational actions for parents from the prenatal period, during hospitalization and after discharge and joint housing in the maternity ward⁽¹⁷⁾. In the current study, the LPIs were proportionally at a disadvantage for most of the breastfeeding support variables studied, but even so, they did not differ from the TIs in terms of breastfeeding at later ages, during the first year of life.

It was statistically found that the LPIs participated less than the TIs in the recommended number of prenatal consultations⁽¹⁸⁾, in breastfeeding in the first hour of life, in the evaluation of breastfeeding in the maternity ward and in joint housing in the maternity ward, thus reinforcing the need for greater investment in the adequacy of these and other actions in favor of breastfeeding, which take into account their specificities and needs^(15,16). In this perspective, adherence to the Child-Friendly Hospital Initiative (IHAC) by the two maternity hospitals in the city where the CLaB Study was conducted is of fundamental importance, putting into practice the Ten Steps in order to protect, promote and support breastfeeding, as recommended by WHO and UNICEF⁽¹¹⁾.

As for maternal knowledge about the duration recommended for EBF and breastfeeding, more often the mothers of LPIs had knowledge about the duration of EBF, which indicates that such mothers received, in this sense, more qualified attention than the mothers of TIs.

Table 4. Results of logistic regression between late prematurity and maternal knowledge about the indicated duration and breastfeeding situation during the first year of life. Botucatu, SP, 2015-2017.

| Variable | ORj. | IC95% | P |
|------------------------|--------|-----------|-------|
| Knowledge duration EBF | 2.59 a | 1.13-5.93 | 0.024 |
| EBF on MT high | 0.37 b | 0.16-0.89 | 0.026 |
| BF at 4 months | 2.79 c | 1.06-7.38 | 0.038 |
| BF at 12 months | 0.37 d | 0.10-1.31 | 0.122 |

ORj: *odds ratio* ajustadas; 95%CI: confidence interval; EBF: exclusive breastfeeding; BF: breastfeeding; MT: maternity. a: adjusted for family income per capita < 1 minimum wage, mother/father alcohol/drug user, birth weight < 2500g, vaginal delivery route, prenatal care in public service, number of prenatal consultations > 6, delivery in public service, stay in shared accommodation, skin-to-skin contact in maternity, breastfeeding in the first hour of life, evaluation of breastfeeding in maternity. b=a.

c: adjusted for family income per capita < 1 minimum wage, mother/father using alcohol/drugs, birth weight < 2500g, prenatal in public service, childbirth in public service, stay in joint accommodation, skin-to-skin contact in maternity, evaluation of breastfeeding in maternity. d=c.

Taken together, the results on EBF are unfavorable for both groups of infants. In particular, at the time of discharge from the maternity hospital, the LPIs have already started with very unfavorable rates. However, later on, the differences between LPIs and TIs practically disappeared. At some ages, preterm infants had higher frequencies of EBF, although such differences did not reach statistical significance. In relation to breastfeeding, at four months of age, the situation was more favorable for LPIs. Although no worse results were observed regarding the duration of breastfeeding for LPIs, the situation found for all infants in the city where this study was conducted was very negative, compared to the indicators of breastfeeding in Brazil⁽¹⁹⁾.

It is important to highlight the considerable decreases in the prevalence of EBF from two to four months of age, both for LPIs and TIs, and of BF from six to 12 months for LPIs and the TIs. In a systematic review of 39 articles on causes of early weaning, it was found that the return of mothers to work was the main factor that led to the beginning of weaning⁽²⁰⁾. This reason may have influenced the decline of EBF in infants in this study, since the Brazilian legislation, until then, provided for the right to maternity leave for four months in most labor situations, which may have influenced, among other difficulties, decreasing BF in the second half of life of infants studied^(19,20).

Explaining the most relevant result of this study — the absence of worse results related to breastfeeding for LPIs after discharge from the maternity ward and the more favorable situation they presented at four months of age compared to the TIs — is a challenge, especially considering that there was a negative association between late prematurity and EBF at discharge from the maternity ward, with mothers participating less in actions to support breastfeeding during prenatal care⁽⁷⁾ and maternity⁽¹⁵⁾ than mothers of TIs. However, some hypotheses can be pointed out: this result could be justified by the greater exposure of mothers of LPIs, compared to those of TIs, to breastfeeding support activities after discharge from the maternity ward, performed by maternal and child health care services⁽¹⁵⁾. This hypothesis is supported by the positive association between late prematurity and maternal knowledge about the age indicated for EBF. However, data is not available for this research to confirm this hypothesis, referring to maternal participation in educational activities in these services, throughout the first year of life, which could help them overcome some of the obstacles to breastfeeding due to prematurity⁽¹⁴⁻¹⁷⁾.

Another alternative for the absence of unfavorable differences to LPIs could be the fact that their mothers eventually received more family support⁽⁷⁾ and/or have developed greater motivation and determination to breastfeed their children, precisely because they recognize

them more fragile. This hypothesis is supported by a qualitative study conducted in Canada, in which the results showed that despite the significant difficulties with breastfeeding and the stress caused by multiple problems resulting from prematurity, mothers of LPIs maintained the desire to breastfeed their children, precisely to provide the best nutrients to compensate for the deficiencies presented by them⁽⁴⁾. However, once again, the proof or refutation of this hypothesis is beyond the scope of the present study, due to the lack of data.

Future studies may test these hypotheses, and the combination of qualitative and epidemiological studies may be very useful to understand the behavior of mothers of LPIs and the subjective aspects involved with the practice of breastfeeding of late-term infants.

CONCLUSION

At birth, LPIs had a higher risk and vulnerability to health problems when compared to TIs, with an association of late prematurity statistically confirming low birth weight. As for the opportunities to promote breastfeeding, the former received less or similar attention than the latter, with the association of late prematurity statistically confirmed as the lower stay in joint housing.

During the first year of life, an association between late prematurity and the worst situations of exclusive and complementary breastfeeding was not confirmed; however, the rates of exclusive breastfeeding at two, four and six months and of complementary breastfeeding at nine and 12 months were worrying for all the infants studied.

Based on these findings, it is recommended that greater investment be made by the municipality's health services in focus, whether public or private, on maternal and child health care, including special care for the promotion and support of breastfeeding for late and term premature infants throughout the first year of life.

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