

# Maternal Knowledge and Breastfeeding Practices in Infants

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## Research Article

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# Abstract

The study aimed to investigate maternal knowledge and breastfeeding practices in infants. This was a cross-sectional study, which involved 41 mothers of infants up to 2 years of age, users of one school, in the city of São Paulo. A questionnaire with closed questions was applied, containing: sociodemographic data, infant data, information on the practice of breastfeeding, maternal knowledge and previous guidance received on breastfeeding. Most of the mothers interviewed were between 30 and 39 years old, are married and have an extra-domestic occupation. It was noted that 100% of infants received breast milk for some period, 53.7% received infant formula and 12% had already received cow's milk. About 65.8% of mothers received previous guidance on breastfeeding. Most of the interviewees knew the recommended time of exclusive breastfeeding and the total duration of breastfeeding. The main reasons reported for early weaning were low milk production and return to work. Most of the mothers interviewed were aware of the benefits, recommendations and practices of breastfeeding and, for the most part, practiced them. However, mothers also showed to believe in beliefs and taboos on the subject.

## Introduction

The World Health Organization recommends exclusive breastfeeding until the child is six months old and after this period, food and liquids should be complementary to breast milk, contributing to the reduction of infant mortality [30].

Breastfeeding (BF) promotes the physical and psychological health of the infant, reducing infant mortality from diarrhea and respiratory infection. The benefits extend throughout life, reducing the likelihood of chronic non-communicable diseases, such as diabetes mellitus, obesity, among others. Health benefits for breastfeeding women are also proven, such as protection against breast, uterine and ovarian cancer [4, 22].

The abandonment of breastfeeding before the child is six months old is called early weaning. Early weaning is a common practice nowadays and can occur due to several factors, including economic, cultural, biological and psychological [24, 30].

In Brazil, a survey by the Ministry of Health carried out during the multi-vaccination campaign in 2008 revealed that the prevalence of EBF in children under 6 months of age was 41.0% in Brazilian capitals and the Federal District, in a very heterogeneous way. It showed that EB lasted 54.1 days on average and EB lasted 341.6 days on average [8].

Some determinants of weaning are related to the mother, such as her attitudes towards the act of breastfeeding, breast complications, beliefs in myths, socioeconomic and educational conditions, and others related to the newborn, the environment, available health services, their birth conditions, postpartum period, maternal working and living conditions [34].

Health services and professionals have great importance in the promotion of breastfeeding, clarifying the advantages for the baby and the mother, advising on proper management techniques and thus contributing to the reduction of the chances of early weaning. Actions to encourage breastfeeding and the adequate introduction of complementary food depend on multidisciplinary and intersectoral work, with comprehensive and humanized care having a prominent role in this process [7,11,21].

However, currently, it is noted that the lack of maternal education on knowledge related to the breastfeeding process can lead to inappropriate practices, generating numerous problems during this process. The difficulties faced in breastfeeding contribute to the low prevalence of breastfeeding and the early introduction of complementary feeding, which can lead to nutritional deviations in the baby and even public health problems [21].

Considering this problem, it is essential to identify factors related to early weaning, in order to support Food and Nutrition Education actions so that they are proposed and implemented, through guidelines in public and private services, hospitals and maternity hospitals and early childhood education centers.

The general objective of this study was to investigate maternal knowledge and breastfeeding practices in infants. And as specific objectives, to investigate maternal knowledge about the importance, recommended time of breastfeeding, maternal knowledge about breastfeeding practices, possible difficulties faced during breastfeeding, identify myths and taboos related to breastfeeding, investigate the nutritional status of infants, identify the use of artificial teats and explore sociodemographic factors related to early weaning.

## **Materials And Methods**

The study was a cross-sectional study with primary data collection. Were selected to compose the sample of this study, mothers of infants up to 2 years of age, users of health services at the Centro de Saúde Escola "Prof. Samuel B. Pessoa", in the city of São Paulo. Mothers awaiting care at the pediatric outpatient clinic were invited to participate in the research, and after a brief presentation on the study objectives, they signed the informed consent form (ICF).

Adolescent mothers, mothers of children over 2 years of age, mothers of children with special needs (e.g. Down syndrome, cerebral palsy), premature children and twin situations were not included in the sample.

Anthropometric data on weight and length of the infants were obtained by consulting the information on the child's card or medical record available at the health service where the research was carried out. Birth weight was classified according to the World Health Organization (WHO) reference [42].

Subsequently, the anthropometric indices were calculated: weight for age (W/A), length for age (H/A), weight for length (W/H) and BMI for age (BMI/A) 9. The nutritional diagnosis based on the points The z-score cutoff of these anthropometric indices to assess the nutritional status of children was based on the 2011 Technical Standard of the Food and Nutrition Surveillance System (SISVAN) [9].

In this study, an authorial questionnaire was applied, considering the review of previous studies on the topic [29, 34]. The variables investigated included maternal data on age, education level, marital status, type of work, type of delivery, parity, previous guidance received on breastfeeding, knowledge about breastfeeding and early weaning, difficulties faced in breastfeeding, beliefs about breastfeeding and reasons for early weaning. Information about the infant's breastfeeding practices was also collected, as well as the use of artificial teats and the child's health status.

Statistical analysis was performed using the STATISTICA 7.0 software, considering a significance level of  $p < 0.05$ . Parametric data were presented as mean  $\pm$  standard deviation and non-parametric data as median (minimum-maximum). Categorical variables were presented in absolute number and frequency. This work was approved by the Ethics Committee of Centro Universitário São Camilo (Opinion No. 3,416,922) and by the Ethics Committee of the Faculty of Medicine of the University of São Paulo (Opinion No. 3,555,587). All procedures were adopted in accordance with CNS resolution nº446 of December 12, 2012, which regulates research involving human beings.

## Results

The initial sample of the study consisted of  $n = 44$  mother-child binomials, however, the final sample was  $n = 41$  due to the exclusion of 3 infants who were born preterm.

When observing the data referring to the mother's sociodemographic characteristics, such as age, level of education, marital status, type of work and family income, most mothers are aged between 30 and 39 years (58.5%), are married (87.8%) and work outside the home (56.1%). Regarding the level of education, it was possible to observe that the prevalence of mothers with complete higher education (39.0%) was very close to the number of mothers with complete secondary education (36.6%). The most prevalent family income was more than 5 minimum wages (34.1%) and between 1 and 2 minimum wages (29.3%).

As for the characteristics of birth, it can be observed that most infants were born by vaginal delivery (56.1%) and were male (56.1%). In addition, at the time of data collection, 36.6% were aged between 0 and 6 months and 31.7% between 7 and 12 months. According to the classification of SISVAN (2011), 68% of the sample had adequate birth weight, 20% insufficient weight, 10% overweight and only 2% underweight.

The diagnosis of current nutritional status, according to the anthropometric indices of weight for length and BMI for age, showed that most of the sample was eutrophic, according to the weight/length index (70.7%) and BMI/age (68.3%). The nutritional diagnosis according to the length-for-age anthropometric index revealed that most infants were classified as having adequate length for age (78.1%). The nutritional diagnosis using the weight-for-age index showed that most of the sample was classified as having adequate weight for age (85.4%).

The result found shows that most mothers, 66%, received previous guidance on breastfeeding. In Table 1, it is observed that among these guidelines, the most reported were: nipple and areola latch, baby's

position and importance of breastfeeding, respectively. On the other hand, the least received guidance was about the frequency of breastfeeding on demand.

Table 1  
 – Maternal knowledge: guidance received on breastfeeding.  
 São Paulo, 2019.

Orientation	n	%
Nipple and areola grip	27	65,8
Baby position	26	63,4
Importance of breastfeeding	26	63,4
Breast alternation	24	58,5
Breast milking	23	56,1
Breast massage	23	56,1
Breast emptying	22	53,6
Milk storage	21	51,2
Breastfeeding painlessly, comfortably	21	51,2
Time in each breast	20	48,8
Use of artificial nipples	19	46,3
Free frequency on demand	18	43,9

The most common difficulties encountered by mothers to breastfeed were clogged milk and bruised breast the most reported, in 39% of respondents, followed by pain when breastfeeding in 36.6% of cases. The difficulties that no mother reported were the presence of diseases and/or the use of medications that prevented the practice of breastfeeding.

Regarding the time considered ideal for breastfeeding, 51.2% reported that they considered 2 years of breastfeeding (BF) ideal and 9.8% more than 2 years. Regarding exclusive breastfeeding (EBF), 75.6% of mothers reported 6 months as the ideal time and only 2.4% considered 4 months.

Table 2 describes the mothers' knowledge about the benefits of breastfeeding for both the baby and the mother. It was noted that the best known benefits were “protection against infections, diarrhea and allergies” with 97.6%, “strengthening the mother-child bond” with 97.6% and “reducing the mother's weight” with 97.6%. The least reported knowledge was “decreased risk of bone fractures in the mother” (19.5%).

Table 2  
**Maternal knowledge about the benefits of breastfeeding. São Paulo, 2019.**

	n	%
Protects against infections, diarrhea and allergies	40	97,6
Strengthens the mother-child bond	40	97,6
Reduces the mother's weight	40	97,6
Low cost	36	87,8
Decreases the risk of respiratory diseases	35	85,4
Promotes the formation of the baby's intestinal flora	35	85,4
Decreases baby's colic	35	85,4
Decreases the risk of autoimmune diseases	33	80,5
Decreases the risk of childhood obesity	31	75,6
Decreases the risk of chronic diseases	30	73,2
Favors the process of chewing, speaking and diction	28	68,3
Decreases the risk of breast and ovarian cancer in the mother	28	68,3
Reduces dentition malformations	23	56,1
Increases baby's intelligence	22	53,7
Decreases the risk of bone fractures in the mother	8	19,5

Alluding to the duration of breastfeeding referred to as ideal and the maternal behavior, only 85% of the sample revealed that they would breastfeed for the entire period considered adequate. According to the data collected in relation to the type of milk offered, it was observed that the entire sample of infants received breast milk. Regarding the other types of milk offered to infants, 53.7% also received infant formula, followed by powdered milk and whole milk with 12.2% each.

Regarding weaning, most had not yet been weaned (68%). When infants were stratified by age (< 6 months or > 6 months), it was observed that the majority of infants (68%), both younger and older than 6 months, were still being breastfed. Table 3 shows the reasons for weaning the baby, according to the mothers' reports. The following reasons were most cited: low milk production (12.2%), return to work (9.7%) and tiredness, practicality and it was on time with 4.9%. Breast problems and persistent pain when breastfeeding were also identified as reasons for weaning in 4.8% of cases.

Table 3  
– Reasons for weaning, São Paulo, 2019.

	n	%
Low milk production	5	12,2
Back to work	4	9,7
It was time	2	4,9
Tiredness	2	4,9
Practicality	2	4,9
Breast problems	1	2,4
Persistent pain when breastfeeding	1	2,4
Little baby weight gain	1	2,4
Handle problem	0	0,0
Maternal illness	0	0,0

Regarding the beliefs that the mother carries in relation to breastfeeding, the most predominant belief that the baby may not want to be breastfed (85.3%), followed by the belief that the breasts sag with lactation (63.4% ) and that there is insufficient milk production (43.9%).

## Discussion

The concern to reduce infant and maternal morbidity and mortality has motivated public policies in Brazil that encourage exclusive breastfeeding. Breastfeeding rates had their increase observed in research on the subject carried out after the creation of the National Breastfeeding Incentive Program in 1981. Since then the prevalence of EBF has grown gradually, but it is still far from what would be considered satisfactory [15].

In the present study, the mothers reported the time they considered ideal for breastfeeding, where it was found that 51.2% considered the ideal time for breastfeeding (BF) to be 2 years and 75.6% to consider the ideal time for EBF to be 6 months, the the same recommended by the WHO (2002) and the Ministry of Health (2015) [42].

The study by Silva et al. showed similar data to the present study, in which 93.3% of mothers admitted to a private hospital in the city of Uberaba had knowledge about EBF to be performed until the infant was 6 months old, a higher percentage than found in this study. In addition to this result, it was also pointed out that 100% of mothers breastfed their children soon after birth, but only 70% maintained exclusive breastfeeding. Additionally, in our sample, 85.4% of the mothers reported the intention to continue breastfeeding for the period they considered adequate [35].

Santos et al. [32] identified that the prevalence of early weaning in children under two years of age was 58.5% and points out that it occurred more frequently in the age groups of one to two months (24.8%) and from two to three months (20.57%), which indicates that most children were not breastfed for the ideal time recommended by the WHO. The present study identified that 68% of the sample had not yet been weaned, however, when infants were stratified by age, it was observed that 86.7% of infants younger than 6 months and 57.7% of infants older than 6 months had not yet gone through the weaning process [42].

Rocha and Costa [31] point out that several factors can lead to early weaning and highlight the influences that lactating women suffer in their way of thinking and acting in relation to breastfeeding. Added to this, erroneous behaviors can contribute to the early introduction of water and other liquids, such as juices and other types of milk. In addition, the mother's return to the work environment is also a potential factor for weaning before the recommended time.

According to the Brazilian Society of Pediatrics (SBP), cow's milk is not recommended for children under 12 months, since its composition differs in many aspects from human milk. Cow's milk has inadequacies in relation to whey and casein proteins, limited amounts of carbohydrates, essential fatty acids, vitamins and minerals, as well as a high content of sodium, chloride, potassium and phosphorus. Thus, cow's milk should not be considered a nutritionally adequate food for this age group [12, 37, 38].

Infant formulas are recommended for babies who are not breastfed for some reason. Although this type of formulation is derived from cow's milk, it has adjustments in the nutrient content, however some elements such as anti-infective and bioactive factors found in breast milk are not contained in this type of compound. Although the nutritional content is adequate, formulas are not sterile and thus become a concern in relation to infant food safety [37, 42].

Family income and maternal schooling are considered socioeconomic determinants that can affect family well-being conditions, especially for the mother and baby. Individuals with a low socioeconomic level tend to have less assistance and greater difficulty in accessing health services and information about the importance of professional monitoring during prenatal care [25,27].

There is a relationship between knowledge about the practice and benefits of breastfeeding, with family income, and mothers who have higher family income have greater knowledge on the subject. In the study by Escobar et al. [14], it was noted that maternal schooling can interfere with the duration of breastfeeding, revealing that the higher the maternal schooling, the longer the breastfeeding period. The level of maternal education may also be associated with the lack of information on the benefits of this practice.

The promotion of breastfeeding during pregnancy can be carried out through counseling and health education activities. Educational strategies in prenatal care that promote and clarify the importance of breastfeeding, support from family members and health professionals are evidenced as determinants of adherence to this practice, especially by low-income mothers [35, 15].

Only 61% of the mothers in the present study received guidance on breastfeeding. Of the guidelines received, the most cited were about the attachment of the nipple and areola (65.8%), position of the baby (63.4%), importance of breastfeeding and alternation of breasts (58.5%). Less than half of the interviewees received guidance on the frequency of free demand (43.9%), use of artificial nipples (46.3%) and time in each breast (48.8%).

It is of paramount importance that health professionals have a technical background and acquire skills to use them in clinical practice and counseling in various sectors of public health. Also, according to Silva et al. "the guidelines in relation to BF are not limited to prenatal care, but extend to the hospital, prepartum, delivery and postpartum areas". Therefore, health professionals must be present and know the social context of the mother and family, clarifying their doubts, fears and expectations, as well as demystifying beliefs and myths consolidated by society that negatively impact the duration of breastfeeding [35].

The study by Ferreira, Gomes and Fracolli was carried out precisely with the aim of identifying the guidelines that women received during pregnancy. Similar results to the present study were observed, so that the most prevalent orientation reported was on "importance of breastfeeding" with 88.3%, and "duration of exclusive breastfeeding for six months" with 79.2% [16].

Over the years, it has become evident how much breastfeeding has contributed to the reduction of infant mortality. According to research carried out in Brazil, in 14 municipalities in the state of São Paulo, the percentage of influence of breastfeeding on the reduction of infant mortality was 9.8%. The reasons for the reduction of this situation are the potential that human milk has in protecting and fighting diseases, such as diarrhea that threatens more than three non-breastfed children, leading to dehydration and consequently death. In cases of diseases caused by respiratory infections, the positive effects are clear in the reduction of occurrences in babies who receive maternal milk, due to the high availability of iron, in addition to reducing the risk of developing allergies to cow's milk protein, asthma and even atopic dermatitis and ear infections [7, 11].

Breastfeeding also allows other positive aspects about the health and evolution of infants, such as development of the oral cavity through suction, organizing the bones and strengthening the musculature, which provides correct dental disposition, chewing, breathing and swallowing, as well as joint articulation. of speech sounds [16].

The benefits are not limited to childhood, in the current literature there are indications that nutritional and metabolic conditions in the early stages of the human organism's development can reflect throughout life, a process called metabolic programming (programming). Thus, breastfeeding in the early stages of life is related to the prevention and reduction of the risks of chronic non-communicable diseases, such as obesity [38].

The advantages that breastfeeding provides to the neurological system and to the development of cognition lead to higher levels of intelligence. The mechanisms that involve this association between breastfeeding and the baby's intellectual development have not yet been clearly elucidated, but it is

believed that it is a behavioral issue and due to the presence of substances in breast milk that make up the central nervous system, such as fatty acids. polyunsaturated, taurine and galactose, capable of impacting the intellectual capacity [7, 11, 33,41].

On the other hand, despite the many benefits reported on breastfeeding, it was observed that there are benefits little known by mothers. The benefits best known by most lactating women in the present study (97.6%) were “protects the baby against infections, diarrhea and allergies”, “strengthens the mother-child bond” and “reduces the mother's weight”. The lesser known benefits are “reduces malformations in the baby's dentition” (56.1%), “increased the baby's intelligence” (53.7%) and “reduces the risk of bone fractures in the mother” (19.5%).

Breastfeeding may be related to the physical and emotional health of the lactating woman during the lactation period, in addition to promoting several health benefits, such as uterine involution and reduction of postpartum bleeding. Breastfeeding also favors the return of pre-gestational weight, promoting greater self-esteem and satisfaction with body image and the effect against fractures due to this lactation period increasing intestinal and renal calcium absorption [13, 40]. The benefits of breastfeeding for women's health during the breastfeeding period are of great importance, but they are rarely mentioned in recent studies. In the present study, in relation to the benefits of breastfeeding for the lactating woman, 97.6% reported knowing that it reduces the mother's weight, 68.3% reported knowing that it reduces the risk of breast and ovarian cancer and 19.5% reported knowing that it reduces the risk of breast and ovarian cancer. know that it reduces the risk of bone fractures in the mother [23].

Among the motivations that lead the lactating woman to breastfeed, the influence of the family can be highlighted, with its traditions and conceptions passed from generation to generation about this practice. Myths and beliefs existing in society can provoke some thoughts and feelings of incapacity, fear, anxiety and even guilt [18].

In view of this reflection, a study identified that these assertions are directly related to the supply of other types of milk, bottles, pacifiers and explain the early introduction of food and even early weaning [22].

Lahós, Pretto and Pastore et al. [19] identified that 66.7% of the mothers interviewed had already heard about the myth “weak milk”, but that only 35.9% actually believed in this myth. These results are in agreement with the findings of the present study, in which 14.6% of the mothers believe that there is weak milk and 19.5% that the milk does not support it.

According to a study by Borges and Philippi [6], which aimed to identify maternal knowledge about milk production, it was found that 82.9% of mothers believed in the existence of insufficient milk production. Comparing these results to those of the present study, the numbers are not similar, considering that only 43.9% of nursing mothers in our sample have the same belief. Therefore, it is essential that lactating women are well oriented by health teams on issues relevant to breastfeeding, as it contributes to the demystification of beliefs, myths and taboos that can compromise the duration of breastfeeding.

The prevalence of breast complications varies from 11 to 96% in women who breastfeed during the first week after delivery. Silva et al. [35] state that about 30% of lactating women have difficulties in breastfeeding due to cracked nipples, breast pain, tiredness and also because of problems with milk production. These data coincide with those of the present study, in which 39.0% of the mothers interviewed reported having bruised breasts, 39.0% cobbled milk and 36.6% had pain when breastfeeding.

The difficulties encountered during breastfeeding are considered important causes for weaning. In the present study, we found that 4.8% of mothers point out that breast problems and persistent pain when breastfeeding are reasons for weaning the baby [18].

Therefore, the correct practice of breastfeeding becomes a fundamental factor for achieving the adequate duration of breastfeeding and preventing breast complications. Among the guidelines, it should be prioritized that the child has his/her body close and facing the mother, the head and body aligned, with the mouth at breast height and in front of the areola<sup>1</sup>.

## **Conclusion**

It was possible to verify through the present study that the vast majority of mothers interviewed had knowledge about the importance of breastfeeding and its duration, benefits for the infant and the lactating woman and their correct practices. These results are probably related to the fact that most of them have been oriented at some point, which implies a decrease in early weaning and an increase in all the benefits provided by breastfeeding. There was a great belief in myths and taboos on the part of mothers, which results in some inappropriate practices, such as the use of artificial teats and offering other foods to the baby, as observed in this study. In this way, it is emphasized the importance that beliefs, probably transmitted through generations, still determine food practices today.

With this framework, one can point out the importance of guidance to mothers and family on breastfeeding by a health professional in the pre and postnatal period, through theoretical-practical assistance, clarifying doubts and, mainly, empowering the woman to take this initiative.

## **Declarations**

### **Ethics approval**

All procedures performed in studies involving human participants were in accordance with institutional and/or national research committee ethical standards and the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. This project was approved by the Ethics and Research Committee of the Centro Universitário São Camilo (3,416,922) and by the Ethics Committee of the Faculty of Medicine of the University of São Paulo (Opinion 3,555,587). All procedures were adopted in accordance with CNS resolution n°446 of December 12, 2012, which regulates research involving human beings.

## Consent to participate

All volunteers signed an informed consent form (ICF).

## Consent for publication

This work was approved by the Ethics Committee of Centro Universitário São Camilo (Opinion No. 3,416,922) and by the Ethics Committee of the Faculty of Medicine of the University of São Paulo (Opinion No. 3,555,587).

## Availability of data and material

All data generated or analysed during this study are included in this published article.

## Interest conflicts

The authors have no relevant financial or non-financial interests to disclose.

## Financing

No funding was received for this study.

## Authors' contribution

DM performed statistical analysis, handled the code of ethics requirement and guided the study. IC, LA, TA, and AB wrote the main text of the manuscript, performed data collection and analysis. IC adapted the manuscript for submission, and submitted it.

We declare, for the purpose of submission, that the article is original, unpublished and has not been submitted to another journal.

## Code availability

Statistical analysis was performed using the Software: STATISTICA 7.0, considering a significance level of  $p < 0.05$ .

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