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Associations between breastfeeding, nourishing introduction and neuropsychomotor development in the first six months of life

Associação entre o aleitamento materno, introdução alimentar e desenvolvimento neuropsicomotor nos primeiros seis meses de vida

Asociación entre la lactancia materna, la introducción de alimentos y el desarrollo neuropsicomotor en los primeros seis meses de vida

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Abstract

Introduction: breastfeeding plays a fundamental role for nutritional, emotional, physical, oral motor system, as well as neuropsychomotor child development. **Objective:** to investigate the association of neuropsychomotor development, and nourishing introduction with breastfeeding in the first six months

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of life. **Method:** 16 infants without risk factors for developmental delay were monitored monthly from motherhood to six months for the evaluation of neuropsychomotor development through the Screening Test Denver II and eating routine and oral habits through a questionnaire. **Results:** in the first month, 87.5% of infants were breastfed, but 62.5% had early introduction of tea, water and other milks and 68.7% had oral habits. In the sixth month 18.7% had exclusive breastfeeding, 43.75% mixed feeding and 37.5% were using artificial milk, and 84.6% had introduced solids. 56.25% had oral habits. All the infants had adequate development in the evaluation while their stay in the maternity. In the sixth month in social personal area 93.75% had adequate development, and 6.25% were advanced. In adaptive fine motor, 87.5% suitable, advanced 6.25% and 6.25% were at risk. In the language 100% were age appropriate and in gross motor 31.25% were adequate and 68.75% advanced. **Conclusion:** the children who remained breastfed showed a better neuropsychomotor development and a lower incidence of deleterious oral habits, with no difference in nourishing introduction.

Keywords: Breast Feeding; Child Development; Child Care; Speech, Language and Hearing Sciences.

Resumo

Introdução: o aleitamento materno tem função primordial para o desenvolvimento nutricional, emocional, físico, do sistema motor oral, assim como no desenvolvimento neuropsicomotor infantil. Objetivo: investigar a associação do desenvolvimento neuropsicomotor, da introdução alimentar com o aleitamento materno de lactentes nos primeiros seis meses de vida. Método: 16 lactentes, sem fatores de risco para atraso no desenvolvimento, foram acompanhados mensalmente desde a maternidade até os seis meses para a avaliação do desenvolvimento neuropsicomotor por meio do Teste de Triagem Denver II e da rotina alimentar e hábitos orais por meio de um questionário. Resultados: no primeiro mês, 87,5% dos lactantes foram amamentados em seio materno, mas em 62,5% houve a introdução precoce de chá, água e outros leites e, 68,7% apresentavam hábitos orais. No sexto mês 18,7% realizavam aleitamento materno exclusivo, 43,75% aleitamento misto e 37,5% faziam uso de leite artificial, sendo que 84,6% já haviam introduzido sólidos. 56,25 % mantinham os hábitos orais. Quanto à avaliação do desenvolvimento, na maternidade, todos apresentaram respostas adequadas. No sexto mês na área pessoal social, 93,75% apresentavam desenvolvimento adequado, e 6,25% estavam avançadas. No motor fino adaptativo, 87,5 % adequado, 6,25% avançados e 6,25% apresentavam risco. Na linguagem 100% estavam adequadas à idade e, no motor grosseiro, 31,25% estavam adequadas e 68,75% avançadas. Conclusão: os lactentes que permaneceram em aleitamento materno apresentaram um melhor desenvolvimento neuropsicomotor e uma menor incidência de hábitos orais deletérios, não havendo diferença quanto à introdução alimentar.

Palavras-chave: Aleitamento materno; Desenvolvimento Infantil; Cuidado da criança; Fonoaudiologia.

Resumen

Introducción: la lactancia materna tiene un papel fundamental para el desarrollo nutricional, emocional y físico del sistema motor oral, así como para el desarrollo neuropsicomotor infantil. **Objetivo:** investigar la asociación entre desarrollo neuropsicomotor y la introducción de alimentos con lactancia materna en lactantes, durante los primeros seis meses de vida. **Método:** 16 lactantes sin factores de riesgo de retraso en el desarrollo, fueron controlados mensualmente de la maternidad hasta los seis meses, para la evaluación del desarrollo neuropsicomotor a través de la Prueba de Tría de Denver II y de la rutina alimentar y hábitos orales, a través de un cuestionario. **Resultados:** en el primero mes, el 87,5% de los lactantes fueron amamantados al seno, pero en el 62,5% hubo introducción temprana de té, agua y otras leches y 68,7% presentaban hábitos orales. En el sexto mes, el 18,7% tenían exclusivamente la lactancia materna, el 43,75% lactancia mixta y el 37,5% utilizaban la leche artificial. El 84,6% ya había introducido sólidos. El 56.25% mantenía hábitos orales. En la evaluación del desarrollo, en la maternidad, todos presentaron respuestas adecuadas. En el sexto mes, en el área personal social, 93,75% presentaban un desarrollo adecuado, y 6,25% estaban avanzados. En la motricidad fina adaptativa, el 87,5% se mostró

adecuado, 6,25% avanzados y 6,25% presentaron riesgo. En el lenguaje el 100% estaban adecuados para la edad y en la motricidad gruesa, el 31,25% estaban adecuados y el 68.75% avanzados. **Conclusión:** los lactantes que permanecieron en la lactancia materna presentaron un mejor desarrollo neuropsicomotor y una menor incidencia de los hábitos orales perjudiciales, sin diferencias en cuanto a la introducción de alimentos.

Palabras claves: Lactancia materna; Desarrollo Infantil; Cuidado del Niño; Fonoaudiología.

Introduction

The World Health Organization (WHO) advocates exclusive breastfeeding in the first six months of life, considering that the nutritional and immunological conditions of breast milk cannot be replaced by any other natural or synthesized product, being also unnecessary the supplementation of the mother's milk with water, teas or any other complementary food during this period[1].

Studies have also shown[2,3] the positive association between breastfeeding (BF) and improved development not only in childhood, but also in adolescence and adulthood, providing evidence that breast milk is the "gold standard" food for the development of the brain. Since various nutrients and components of breast milk develop the brain both by biochemical and functional action, as well as by changes in the sensory system that affect its development.

In addition to the aforementioned aspects, BF is also important for the correct maturation and growth of structures of the stomatognathic system (lips, tongue, mandible, jaw, cheeks, soft and hard palate, floor of the mouth, oral musculature and dental arches), maintaining it suitable for the development of facial muscles, stimulating the development of various physiological functions, such as sucking, swallowing, chewing, breathing and speaking[3].

However, in addition to the biological factors, the socioeconomic and cultural context and the support to the infants in their singularities appear as challenges to be faced for the success of breastfeeding, with the rates of breastfeeding in Brazil being, especially exclusive breastfeeding, below recommended. Despite this, this rate has been increasing as a consequence of the development of actions, such as the Kangaroo Infirmaries for the care of premature and underweight children, the implantation of Child Friendly Hospitals, the formation of support groups and encouragement to BF, in order to follow the WHO guidelines[1,4,5].

Among the main obstacles for EBF practice, it can be mentioned the lack of knowledge and awareness of the population in general, health professionals and managers; inappropriate behaviors and poor qualification of health professionals; cultural aspects; lack of confidence / low self-esteem of the mother; problems with the breast and the nipple; lack of family support; women's work and the marketing of infant milk formulas[3,4]. The difficulties present in the breastfeeding process are generally related to the lack of follow-up and information that is consistent with its needs, which evidences the lack of promotion, protection and support of breastfeeding by health professionals[6].

Every healthcare professional must be prepared to provide effective, solidary, integral and contextualized assistance that respects the knowledge and life history of each woman. This will help her overcome fears, difficulties and insecurities[7]. In this context, the speech therapist is increasingly working on issues related to breastfeeding, contributing with interdisciplinary teams to promote maternal and child health, stimulating adequate neuropsychomotor development, preventing the establishment of deleterious oral habits and guiding the importance of EBF up to the sixth month of age.

Based on the above and on the influence that BF exerts on child development, it is extremely important to understand the aspects that may influence the success or failure of breastfeeding. Therefore, the objective of this study was to investigate the association of neuropsychomotor development, feeding and breastfeeding of infants in the first six months of life.

Method

This is a quantitative, longitudinal and exploratory study. The research is part of a pilot project that will accompany the development of infants in various health areas for a period of one year. It was approved by the CAAE 42167415800005546 of the institution of origin and is based on the Resolution

466/2012 of the National Health Council. Those responsible signed the Free and Informed Consent Term, respecting free and spontaneous decision making in participating in the project.

The sample of this research consisted of 16 infants, with the inclusion criteria being: babies born without intercurrences, with 24 to 48 hours old, of mothers older than 18 years old and living in the urban area of the municipality. The sample was collected at the Municipal Maternity, from September 2015 to February 2016.

The evaluations were performed in seven different moments, one in the maternity ward and the others in monthly home visits until the sixth month of life of the infant, for the application of a questionnaire about food routine and oral habits, evaluation of neuropsychomotor development and breastfeeding orientations, introduction of complementary feeding, neuropsychomotor development and strategies to stimulate it.

The visits were carried out by two students of the Speech, Language and Hearing Sciences course, trained by the work-orientation teacher, previously scheduled by telephone with the mother, at a time that the mother considered most convenient, and in the week in which the infant completed another month of life. The instruments used were:

a) Questionnaire on dietary routine and oral habits (Annex): to know the eating routine and oral habits, a questionnaire was prepared by the researchers with 18 questions, divided into the following items: personal information, socioeconomic data, health information and medical follow-up of the infant, and lastly, data on breastfeeding, feeding and oral habits. The mother answered the questions verbally and they were recorded and annotated by the researcher. Some items were filled only in the first visit, while others as food and health data were filled in at all visits as described in the questionnaire.

The definitions adopted by the World Health Organization (WHO)[8] and recognized throughout the world were used to classify the type of breastfeeding:

- Exclusive breastfeeding (EBF): when the child receives only breastmilk, direct from the breast or milked, or human milk from another source, with no liquids or solids, except drops or syrups containing vitamins, oral rehydration salts, mineral supplements or medicines.
- Predominant breastfeeding (PBF): when the child receives, in addition to breast milk, water or water-based drinks (sweet water, teas, infusions), fruit juices and ritual fluids.
- Breastfeeding (BF): when the child receives breast milk (direct from the breast or milked), regardless of whether or not receiving other foods.
- Complementary breastfeeding (CBF): when the child receives, in addition to breast milk, any solid or semi-solid food in order to complement it, but not replace it. In this category the child may receive, in addition to breast milk, another type of milk, but this is not considered complementary food.
- Mixed or partial breastfeeding (MBF): when the child receives breast milk and other types of milk.

b) Neuropsychomotor development assessment: for the assessment of psychomotor development, the Denver Developmental Screening Test II was used[9]. The test is composed of 125 items distributed in 4 areas of development: a) Personal-Social: aspects of the sociability of the child inside and outside the family environment; b) Adaptive Fine Motor: visual-manual coordination, manipulation of small objects; c) Language: sound emission, ability to recognize, understand and use language and; d) Coarse Motor: body motor control, sit, walk, jump and other movements performed by the broad musculature.

The results of each of the evaluated areas were considered as normal, of risk, advanced and non-testable according to the interpretation of each evaluated item, following the criteria: Normal, when there were no delays or care; Advanced when there were no delays or care and the child passed on items ahead of the age line; Of Risk of delay, when two or more cares or one or more delays occurred; and Non-testable when the child refused to perform one or more items.

After the last visit, in the sixth month, for association between the type of breastfeeding, the neuropsychomotor development and feeding, the infants were divided into two groups, G1 being composed of ten infants who maintained BF and G2, that consisted of six infants with early weaning (EW).

The results were tabulated in the Excel spreadsheet software (Microsoft® Office package). No inferential statistical analysis was performed due to the reduced number of infants in each group. In

the descriptive statistics, the categorical data were summarized by means of absolute (No) and relative (%) frequency, regarding the total of patients in each group studied.

Results

The average age of the mothers was 26.8 years old (± 5.7). Regarding the socioeconomic level of the families, the average family income per capita was R$ 499.82, and six mothers chose not to respond. The average number of individuals per household was 3.69 and the average number of children per family was 1.94. As for the profession of the mothers, it is possible to observe in Table 1 that the majority of the mothers were housewives and farmers. In Table 1, in addition to information on socioeconomic variables, it is possible to observe information regarding gestation and childbirth.

In the evaluation of the neuropsychomotor development, still in the maternity, all the newborns presented normal answers in all the evaluated areas. In Table 2 it is possible to verify, month by month, the results of the neuropsychomotor development screening in all the evaluated areas.

Regarding the type of breastfeeding, 62.5% maintained BF for 6 months, but in only 18.7%, the EBF was maintained. The EW occurred in 37.7%, from the third month and, in the first month, 68.7% had already introduced some type of liquid. By the sixth month, no mother introduced solid foods, yet the pasty foods began to be introduced from the fourth month. The presence of oral habits was observed in 68.7% of the infants in the first month, while in the sixth month it was 56.3%, with the use of pacifiers being prevalent (Table 2). In all cases in which liquid was introduced, for example, water, milk, tea or juice, the bottle was used. With the majority, 70%, using an orthodontic nozzle.

Considering the evaluations of the sixth month and dividing the infants into two groups, G1 consisted of ten infants that maintained BF and the G2 consisted of six infants with EW. It was possible to observe that, regarding the childbirth type, G1 presented 40% Normal childbirth and 60% cesarean. In G2, however, 33.3% presented a normal childbirth and 66.7%, cesarean.

When comparing oral habits, it was observed that 70% of G1 did not acquire oral habits, while 100% of G2 presented it. Regarding neuropsychomotor development, a better performance was observed in G1, since 70% were advanced for age in at least one of the studied areas, 20% had normal development and 10% presented a risk of delay. With regard to G2, 50% presented normal development and 50% advanced.

Table 1. Number and percentage of socioeconomic and gestational data

Variable	n (%)
Total number of infants	16 (100)
Male	9 (56,3)
Female	7 (43,7)
Mother's Schooling	
Incomplete elementary school	6 (37,5)
Incomplete high school	5 (31,25)
Complete Higher Education	2 (12,5)
Complete High School	1 (6,25)
Complete primary education	1 (6,25)
No education	1 (6,25)
Mother's jobs	
Housewife	5 (31,25)
Farmer	5 (31,25)
Student	1 (6,25)
Receptionist	1 (6,25)
Seamstress	1 (6,25)
Administrator	1 (6,25)
Hairdresser	1 (6,25)
Pharmacist	1 (6,25)
Weeks of gestation	
Between 38 to 42 weeks	14 (87,5)
Less than 38 weeks	2 (12,5)
Gestational intercurrence	1 (6,25)
Childbirth Type	
Cesarean	10 (62,5)
Normal	6 (37,5)
No complications during childbirth	16 (100)

Discussion

The EBF has all the necessary and essential features for adequate nutrition of the infant until the sixth month of life. Associated with this, several studies have already demonstrated the positive effect of BF avoiding infant deaths, diarrhea and respiratory infection; reducing the risk of allergies, hypertension, high cholesterol and diabetes; reducing the chance of obesity; presenting a positive effect on intelligence and on the better development of the oral cavity. For the mother, breastfeeding seems to be associated with a lower incidence of

Table 2. Number and percentage of DENVER II results, lactation, feeding and oral habits in each visit.

Evaluation	1st month	2nd month	3rd month	4th month	5th month	6th month
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
DENVER/ SP						
Normal	16 (100)	15(93,7)	15(93,7)	8(50,0)	15(93,7)	15(93,7)
Advanced	0	1 (6,3)	1(6,3)	8(50,0)	0	1(6,3)
Risk	0	0	0	0	1(6,3)	0
Non testable	0	0	0	0	0	0
DENVER/ AFM						
Normal	16 (100)	11(68,8)	14 (87,5)	7(43,7)	7(43,7)	14 (87,5)
Advanced	0	3 (18,7)	2 (12,5)	7(43,7)	8(50,0)	1 (6,3)
Risk	0	2 (12,5)	0	2(12,5)	1(6,3)	1 (6,3)
Non testable	0	0	0	0	0	0
DENVER/ LGG						
Normal	16 (100)	14 (87,5)	14 (87,5)	12(75,0)	14(87,5)	16(100)
Advanced	0	2 (12,5)	1 (6,3)	3(18,75)	1(6,3)	0
Risk	0	0	1 (6,3)	1(6,3)	1(6,3)	0
Non testable	0	0	0	0	0	0
DENVER/ CM						
Normal	14 (87,5)	14 (87,5)	12(75,0)	12(75,0)	9(56,3)	5 (31,3)
Advanced	2 (12,5)	2 (12,5)	3(18,7)	3(18,7)	6(37,5)	11(68,7)
Risk	0	0	1(6,3)	0	1(6,3)	0
Non testable	0	0	0	1(6,3)	0	0
Type of Breastfeeding						
EBF	5 (31,3)	4 (25,0)	4 (25,0)	3(18,7)	3(18,7)	3(18,7)
PBF	2 (12,5)	3 (18,7)	3 (18,7)	1 (6,3)	0	0
MBF	7 (43,7)	4 (25,0)	3 (18,7)	6 (37,5)	7(43,7)	7(43,7)
EW	2 (12,5)	5 (31,3)	6 (37,5)	6 (37,5)	6(37,5)	6(37,5)
Pasty Introduction						
Yes	0	0	0	4 (25,0)	6(37,5)	10(62,5)
No	16 (100)	16 (100)	16 (100)	12(75)	10(62,5)	6(37,5)
Oral Habits						
Yes	11(68,7)	10(62,5)	11(68,7)	13 (81,3)	12(75,0)	9 (56,3)
No	5 (31,3)	6 (37,5)	5 (31,3)	3 (18,7)	4(25,0)	7 (43,7)

Legend: SP = social personal; AFM = adaptive fine motor; LGG = language; CM = coarse motor; EBF = exclusive breastfeeding; PBF = predominant breastfeeding; MBF = mixed breastfeeding; EW = early weaning.

postpartum hemorrhage, faster recovery of pre-pregnancy weight, longer periods between childbirth, reduction of risk of certain tumors, lower financial costs, and promotion of the affective bond between the mother and the child[10].

The literature is controversial about the influence of maternal age on early weaning. Some studies consider that the age of over 20 years old is a protective factor for breastfeeding[11,12], while in others, this factor was not significantly associated with the initiation of early weaning practices13,14. In this study, the average age of the mothers was reasonably high, which may be justified by the inclusion criteria of the study, in which the mother should be older than 18 years old. adolescent mothers did not participate in this study, thus making it impossible to associate maternal age with the risk of weaning.

The level of schooling of the mother, which is often seen as a factor of confusion with age, since the younger the mother, the lower will be her schooling, is also divergent in the literature. However, most studies report low schooling as a risk factor for breastfeeding[11,13,14]. In this regard, a publication of the Committee on Nutrition of the European Society of Gastroenterology, Hepatology and Nutrition[15] points out the highest educational and socioeconomic level of BF in industrialized countries, probably, due to their greater knowledge of the advantages of maternal breastfeeding for the

mother and the child. In developing countries, the opposite occurs, which may be a consequence of the greater influence of public policies to encourage breastfeeding on the low-income population.

Corroborating with the authors[15], in this study, most of the mothers presented only incomplete elementary education, that is, low educational level associated with a low socioeconomic level, since the average family income was inferior than a minimum wage. Nevertheless, the majority maintained breastfeeding until the sixth month of life. However, some of the progenitors performed early weaning, even receiving guidelines from the first month of life of the infant, on the importance of breastfeeding. Among the reasons most cited by mother, there are: "I do not have milk", "I had to wake up at dawn to give milk, because the child was always hungry" and "the child does not want to suck." The group that said they did not have milk was directed to find the city's milk bank, but none of them followed the recommendation.

Low-income families are considered by authors[16] as a constant threat that increases the vulnerability of the child, increasing the probability of child malnutrition, social deprivation and future educational disadvantage, which would jeopardize their overall development. The low socioeconomic level of the group studied did not negatively influence the development of infants, considering that the majority was presented as normal or advanced in the sixth month of life. This performance can be justified by the monthly Speech, Language and Hearing Sciences care that provided information to the caregivers regarding the importance and ways of stimulating the child, allowing a greater children's neuropsychomotor development. This confirms the findings of the study[17], which considered the child follow-up and the building of professional / child / family links, through a qualified, attentive and humanized listening, as a tool in the promotion and prevention of health in an integral perspective.

Researches have shown that the cesarean, a procedure performed by the majority of the mothers of this study, is a factor that can compromise breastfeeding, leading to early weaning due to several factors, such as difficulty in positioning the infant; retarded endocrine responses, since the procedure is often performed before the natural time of birth. In addition, the mother's body may not be ready for adequate milk production and the use of medications, which are more frequent in these cases, compromising the practice of breastfeeding[18-20].

Nevertheless, all mothers breastfed in the infant's first hour of life, which is considered essential for the effectiveness of breastfeeding, besides being a protective factor for infant mortality before one year of life[20]. The expressive number of breastfeeding in the first hour of life in this research may be related to the qualification of the maternity team about the provision of assistance and orientation about breastfeeding, since the institution is part of the Child Friendly Hospital network. This initiative is seen as an important protection factor for breastfeeding and a fundamental strategy for improving the child's health[10]. This fact associated to the monthly Speech, Language and Hearing Sciences guidelines may explain the large number of mothers who maintained BF up to the sixth month.

The early introduction of food can also influence the duration of breastfeeding, negatively affect the absorption of nutrients from breast milk and cause allergic reactions[21], with some practices considered as cultural being contrary to the dietary recommendations offered to infants. The belief that breast milk is insufficient to meet the infant's needs is common in society and ultimately leads to the introduction of substances such as water, juices, teas, and especially artificial, modified and complementary foods in the diet of these infants[22].

In this research, the influence of this cultural factor was visible, mainly regarding the introduction of teas, water and juices by orientation, mostly, of the grandparents. This would justify the early introduction of these liquids by the majority of mothers in the first month of life of the infants and the low number of EBF until the sixth month, even though it was advised that it was not necessary and could influence the success of breastfeeding. In these cases, the role of the Speech, Language and Hearing Sciences team was to encourage the BF, even if mixed.

Another important function, which should be discussed, is the role of BF in meeting the sucking needs of the infant. This happens due to the muscular effort exerted during the feeding, which does not happen in the use of nursing bottle, in which the flow of milk is greater, satisfying the infant faster and with less effort of the musculature. Thus, the emotional rapture regarding the suction impulse is not achieved, and the child looks for substitutions like the finger, the pacifier and objects to be satis-

fied. Thus, children who are breastfed are less likely to acquire deleterious oral habits[23].

In the present study, most children who were in BF did not acquire oral habits; while all participants in the DM group used pacifiers. This was also observed in other studies, which found a strong link between breastfeeding and the absence of deleterious oral habits, including the pacifier related as a causal factor for early weaning[23-25].

A longitudinal study carried out with Chilean children shows a positive association between BF and neuropsychomotor development, both in childhood and in adulthood, since the nutrients and components of breast milk help the development of the brain, besides of bringing biological and interactions benefits between the mother and the infant[26]. In another study, the relationship between neuropsychomotor development and breastfeeding duration was observed through the application of Denver II, with the risk for developmental delay being gradually reduced when the period of the infant being breastfed was longer[27].

From the monthly application of Denver II in infants followed up to the sixth month of life, it was possible to obtain results that suggest a higher incidence of risk from four months of age, which may be related to the introduction of other foods into the child's diet and, consequently, to early weaning. However, future studies with a greater number of patients and greater control of the variables that may influence infant development are necessary to generalize these findings.

It was also observed that in the coarse motor area, most infants presented advanced development in the sixth month of life. This can be justified by the fact that one of the main orientations carried out by the researchers during the visits was precisely the insertion of the practice of playing in the family routine; with suggestions of strategies of games that propitiated better development of the child, stimulating the motor, language and personal-social skills. As reported in the literature[28], games and playful activities have an important role in psychomotor development, since they stimulate creativity, imagination, the exploration of the body in space and the manipulation of diverse objects.

The positive results of this study demonstrate the importance of monthly professional follow-up in the first months of the infant's life, which, with guidelines and information, enabled the majority of mothers to maintain BF, even with the early introduction of other fluids and become more active in the stimulation of neuropsychomotor development of their babies. This confirms the findings of the literature[29] that observed that post-hospital follow-up strategies, through home visits, favor rates, initiation and duration of BF. However, encouragement and support to breastfeeding in the pre and postnatal period are concentrated in only a few regions of the country, therefore, a greater scope is needed within the Sistema Único de Saúde (Unified Health System), increasing accessibility as a way to strengthen the health of the baby and the mother.

However, the practice of EBF in the first six months of life in this research, as in all of Brazil, is still far from ideal. As described by Granja and Cunha[30], it is important that new studies search for factors such as maternal availability to breastfeed and their justifications to refuse to do so. Also, family dynamics factors that may or may not favor the practice, emotional conditions of mothers, which influence the understanding of health professionals' orientations; among other relevant aspects articulated to sociocultural and psychic factors, which are involved in coping with the dilemmas and conflicts inherent in breastfeeding.

Conclusion

The findings of this research demonstrated that infants who remained breastfed, even if by mixed breastfeeding, had a better neuropsychomotor development and a lower incidence of deleterious oral habits. However, there was no difference regarding the introduction of fluids and pasty food.

In addition, it was possible to observe the importance of support to mothers with guidelines on the benefits of breastfeeding and stimulation of neuropsychomotor. It was also demonstrated that the follow-up of the infant should be performed by a multidisciplinary team, with the participation of the speech therapist, thus allowing a global view of child development.

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Annex

Breastfeeding Questionnaire

I – *Personal Information*:
Name:
D.N (Mother): Age:
Schooling:
Job:
Childbirth date:
Baby's name:
Baby's gender:
Visit Address:
Telephone:

Visit Dates (complete month to month, as it occurs).
1st:
2nd
3rd
4th
5th
6th

II – *Socioeconomic data* (MATERNITY WARD)
1- How many people live with you? (Including relatives, children and friends)
2- The house where you live is:
( ) your own ( ) rented ( ) ceded ( ) other: .....
3- What is the monthly FAMILY income? (adding the income of everyone who lives in the house)
4- What is your income?
5- Do you work outside your house? How many hours? Who takes care of the child?
6- Marital Status:
( ) married ( ) single ( ) widowed ( ) lives with the lover
( ) other:.....
7- How many kids do you have?

III – Information on childbirth (MATERNITY WARD):
8- Childbirth type: ( ) cesarean ( ) normal
9- How many weeks of gestation:
10- Some intercurrence?
11- Were you able to breastfeed while you were in the maternity ward?

IV - Information after discharge from hospital: (Applied only at the 1th month visit):
13- Has the baby tested the baby's ear? (Confirm on the card)
14- Have you returned at the Maternity ward or at the Health Unit? Are there any scheduled returns? (Show the baby's card - Note the dates of the returns and inquiries)

V – Baby Health Information (APPLY ON ALL VISITS):
15- Is the baby taking any medication?
16- Has the baby ever had any episodes of otitis (earache)?
17- Does the baby have any other health problems?
18- Does the baby attend a day care or school? Since what age?

	1st month	2nd month	3rd month	4th month	5th month	6th month
15	( ) N ( ) Y Which:	( ) N ( ) Y Which:	( ) N ( ) Y Which:	( ) N ( ) Y Which:	( ) N ( ) Y Which:	( ) N ( ) Y Which:
16	( ) N ( ) Y	( ) N ( ) Y	( ) N ( ) Y	( ) N ( ) Y	( ) N ( ) Y	( ) N ( ) Y
17	( ) N ( ) Y Which:	( ) N ( ) Y Which:	( ) N ( ) Y Which:	( ) N ( ) Y Which:	( ) N ( ) Y Which:	( ) N ( ) Y Which:
18	( ) N ( ) Y Age (months):	( ) N ( ) Y Age (months):	( ) N ( ) Y Age (months):	( ) N ( ) Y Age (months):	( ) N ( ) Y Age (months):	( ) N ( ) Y Age (months):

VI- Data on breastfeeding, feeding and oral habits (IN ALL THE VISITS):

19- Breastfeed on the breast? If not, please write the reason.

1st month	2nd month	3rd month	4th month	5th month	6th month
( ) Y ( ) N Why?	( ) Y ( ) N Why?	( )Y ( ) N Why?	( ) Y ( ) N Why?	( )Y ( ) N Why?	( ) Y ( ) N Why?

20- Did you introduce any other food or liquid? (Water, tea, juice)?

1st month	2nd month	3rd month	4th month	5th month	6th month
( ) Y ( ) N Which: Uses: ( ) Nursing bottle (nozzle) ( ) ortho ( ) trad Hole: ( ) original ( ) enlarged GLASS ( ) SPOON ( ) OTHER:	( ) Y ( ) N Which: Uses: ( ) Nursing bottle (nozzle) ( ) ortho ( ) trad Hole: ( ) original ( ) enlarged GLASS ( ) SPOON ( ) OTHER:	( ) Y ( ) N Which: Uses: ( ) Nursing bottle (nozzle) ( ) ortho ( ) trad Hole: ( ) original ( ) enlarged GLASS ( ) SPOON ( ) OTHER:	( ) Y ( ) N Which: Uses: ( ) Nursing bottle (nozzle) ( ) ortho ( ) trad Hole: ( ) original ( ) enlarged GLASS ( ) SPOON ( ) OTHER:	( ) Y ( ) N Which: Uses: ( ) Nursing bottle (nozzle) ( ) ortho ( ) trad Hole: ( ) original ( ) enlarged GLASS ( ) SPOON ( ) OTHER:	( ) Y ( ) N Which: Uses: ( ) Nursing bottle(nozzle) ( ) ortho ( ) trad Hole: ( ) original ( ) enlarged GLASS ( ) SPOON ( ) OTHER:

21- Oral Habits:

1st month	2nd month	3rd month	4th month	5th month	6th month
( ) NO ( ) YES ( ) FINGER ( ) PACIFIER Ortho ( ) Tradit. ( ) ( ) OTHER	( ) NO ( ) YES ( ) FINGER ( ) PACIFIER Ortho ( ) Tradit. ( ) ( ) OTHER	( ) NO ( ) YES ( ) FINGER ( ) PACIFIER Ortho ( ) Tradit. ( ) ( ) OTHER	( ) NO ( ) YES ( ) FINGER ( ) PACIFIER Ortho ( ) Tradit. ( ) ( ) OTHER	( ) NO ( ) YES ( ) FINGER ( ) PACIFIER Ortho ( ) Tradit. ( ) ( ) OTHER	( ) NO ( ) YES ( ) FINGER ( ) PACIFIER Ortho ( ) Tradit. ( ) ( ) OTHER