



# Aspects that influence infant feeding introduction

## Aspectos influenciadores da introdução alimentar infantil

## Aspectos que influyen en la introducción de alimentos en la infancia

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### Abstract

**Introduction:** The Ministry of Health (Health Department) recommends the infant feeding introduction at 6 months of age. However, it is observed that many families introduce food before this age group, which can harm the child's health. This may happen due to existing beliefs, previous family experiences, among other social and cultural factors. **Objective:** To investigate aspects that influence the feeding introduction for the children. **Methods:** This study is a cross-sectional, quantitative research, with a non-probabilistic, convenience sample. A total of 22 parents or guardians of children aged up to 24 months were included in the study. A questionnaire was asked to the parents or guardians that had questions related to the child, the family and socio-cultural factors; feeding introduction; and beliefs and knowledge about food introduction. **Results:** There was a prevalence of exclusive breastfeeding up to 6 months of 31.8% and well-timed feeding introduction of 45%. The results demonstrate a correlation between schooling, income, presence of health plan and occupation of the parents outside home with knowledge about complementary feeding. It was also found a correlation between the parents' knowledge and the period of exclusive breastfeeding and when complementary feeding was introduced. **Conclusion:** From the results, it can be inferred that the level of schooling, occupation and family income influence the parents' knowledge about feeding introduction. And that this knowledge influences the duration of exclusive breastfeeding and the moment of feeding introduction.

**Keywords:** Infant Nutritional Physiological Phenomena; Feeding Behavior; Mixed Feeding; Infant; Cultural Characteristics; Socioeconomic Factors; Knowledge.

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### Authors' contributions:

NKLM and RSCA: were responsible for the conception and design of the study, for data collection, tabulation, analysis and interpretation, as for the manuscript elaboration.

RMMM and LSFP: were responsible for general orientation of execution stages and for revision of the article.

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## Resumo

**Introdução:** O Ministério da Saúde recomenda que a introdução alimentar infantil seja feita aos 6 meses de idade, porém, observa-se que muitas famílias introduzem alimentos antes dessa faixa etária, o que pode prejudicar a saúde da criança. Isso pode ocorrer devido às crenças existentes, experiências prévias da família, entre outros fatores de ordem social e cultural. **Objetivo:** Investigar aspectos influenciadores da introdução alimentar de crianças. **Métodos:** O presente estudo trata-se de uma pesquisa transversal, quantitativa, com amostra não probabilística, de conveniência. Foram incluídos no estudo 22 pais ou responsáveis de crianças com idade até 24 meses. Foi aplicado um questionário com os pais ou responsáveis que continha perguntas relacionadas à criança, à família e aos fatores socioculturais; introdução alimentar; e crenças e conhecimentos sobre introdução alimentar. **Resultados:** Houve prevalência de aleitamento materno exclusivo até os 6 meses de 31,8% e introdução alimentar em tempo oportuno de 45%. Os resultados demonstram correlação entre escolaridade, renda, presença de plano de saúde e ocupação dos pais fora de casa com conhecimento sobre alimentação complementar. Encontrou-se também correlação entre o conhecimento dos pais e tempo de aleitamento materno exclusivo e tempo em que foi introduzida alimentação complementar. **Conclusão:** A partir dos resultados pode-se inferir que o nível de instrução, a ocupação e a renda familiar exercem influência no conhecimento dos pais sobre introdução alimentar. E que este conhecimento influencia a duração do aleitamento materno exclusivo e a época da introdução alimentar.

**Palavras-chave:** Fenômenos Fisiológicos da Nutrição do Lactente; Comportamento Alimentar; Alimentação mista; Lactente; Características Culturais; Fatores Socioeconômicos; Conhecimento.

## Resumen

**Introducción:** El Ministerio de Salud recomienda la introducción de alimentos para bebés a los 6 meses de edad, sin embargo, se observa que muchas familias introducen alimentos antes de este grupo de edad, lo que puede dañar la salud del niño. Esto puede deberse a creencias existentes, experiencias familiares previas, entre otros factores sociales y culturales. **Objetivo:** investigar aspectos que influyen en la introducción de alimentos en los niños. **Métodos:** Este estudio es una investigación transversal, cuantitativa, con una muestra de conveniencia no probabilística. El estudio incluyó a 22 padres o tutores de niños de hasta 24 meses. Se aplicó un cuestionario con los padres o tutores que contenía preguntas relacionadas con el niño, la familia y factores socioculturales; introducción de alimentos; y creencias y conocimientos sobre la introducción de alimentos. **Resultados:** hubo una prevalencia de lactancia materna exclusiva hasta 6 meses de 31,8% y alimentación oportuna de 45%. Los resultados demuestran una correlación entre escolaridad, ingresos, presencia de seguro de salud y ocupación de padres fuera del hogar con conocimiento sobre alimentación complementaria. También se encontró una correlación entre el conocimiento de los padres y el tiempo de lactancia materna exclusiva y el momento en que se introdujo la alimentación complementaria. **Conclusión:** a partir de los resultados, se puede inferir que el nivel de educación, la ocupación y el ingreso familiar influyen en el conocimiento de los padres sobre la introducción de alimentos. Y que este conocimiento influye en la duración de lactancia materna exclusiva y el tiempo de introducción de alimentos.

**Palabras clave:** Fenómenos Fisiológicos Nutricionales del Lactante; Conducta Alimentaria; Alimentación Mixta; Lactante; Características Culturales; Factores Socioeconómicos; Conocimiento

## Introduction

In the last years, much has been discussed about the importance of breastfeeding and, consequently, questions have arisen regarding complementary feeding for babies. According to the recommendations of the World Health Organization (WHO), children should only start eating food, in addition to breast milk, after six months of age<sup>1</sup>. Therefore, the introduction of any food before that age is considered premature. The recommendation for complementary feeding, from six months onwards, assumes that, until that age, the child does not need any other food than breast milk<sup>2</sup>. Another reason for the complementation to be made this way is the child's motor development, since at six months the child can support the trunk and cervical spine, being able to sit without support, and the movements of the tongue and jaw are more appropriate for the chewing<sup>3</sup>.

It is important that the introduction of food does not occur early, since the development of the static and dynamic structures that make up the stomatognathic system is directly related to the sucking stimuli that are present in breastfeeding<sup>4,5</sup>. The stomatognathic system is responsible for the sucking, breathing, swallowing, speech and chewing functions<sup>6</sup>. Therefore, adequate stimuli performed during breastfeeding promote the correct development of the other orofacial functions of the child<sup>4</sup>.

Researches show that children who received food before the appropriate period were more susceptible to diseases<sup>7</sup>, malnutrition<sup>2</sup> and obesity<sup>8</sup>. In addition to the short-term losses, according to the WHO, there are long-term consequences, such as poor school performance, decreased productivity and less intellectual and social development<sup>9</sup>. A research found that individuals who were breastfed had better results on cognitive tests, showing a correlation between breastfeeding and the development of intelligence<sup>10</sup>.

As already noted by some studies, the introduction of food in the children's diet often occurs early<sup>11-13</sup>. This is often associated with the beliefs that permeate the child's diet<sup>2</sup> and also with a possible difficulty in understanding or even in assimilating the guidelines provided by health professionals to parents, causing them to forget the guidance or prefer not to follow them<sup>13</sup>.

It is still possible to note that mothers feel safer when offering food to children, since, during the preparation of meals, they have total control over what will be given to the child, how it will be offered and they can still have control over the amount of food ingested by the child. The same does not happen with breast milk, as its production is mediated by physiological and hormonal processes that are often not understood by mothers<sup>14</sup>.

The choice of foods that will make up the child's diet is also related to the family's purchasing power<sup>15</sup>. Thus, the child's food should be understood as a socio-cultural and economic phenomenon, since, in order to choose the foods and the moment in which they will be offered, the parents or guardians consider the experiences already lived, the commercial value of the foods available on the market and other social and cultural factors<sup>2,14</sup>.

In addition to the nutritional issues, the way food is offered to children during the complementary feeding period deserves attention. In this context, the speech-language pathologist has a relevant role, with a focus on preventing functional changes in the stomatognathic system and childhood eating disorders such as refusal or food selectivity<sup>16</sup>. The Ministry of Health (Health Department) recommends that the food introduction be initially made in a pasty consistency, but with the food kneaded with a fork and not sieved or grind (in a blender) and that the food be presented separately, instead of mixed<sup>17</sup>. This recommendation is favorable to the development of taste and smell, allows sensory experiences and the learning of chewing. Another approach to food introduction, called Baby Led Weaning (BLW), has gained popularity in the last decade<sup>18</sup>. The BLW recommends the offer of food in larger pieces and the child's autonomy to ingest it. Therefore, cutlery is not used<sup>18-20</sup>. Among the advantages of this method are the greater possibility of exploring the taste, texture, color and smell of each food, greater autonomy of the child and development of the visual-motor coordination. Regardless of the way the family adopts feeding introduction, these are guidelines provided by speech-language pathologists: respect the child's autonomy, allow them to manipulate food, insert them in family meal times and environments and offer consistencies compatible with the level of child's oral motor development<sup>21</sup>.

Although there are many studies that investigate aspects that influence breastfeeding, there are

few that address the introduction of infant feeding, especially with regard to the way in which food is offered to child. Therefore, the present study seeks clarification about the process of feeding introduction for children, providing data that will allow health professionals to approach parents/guardians more effectively. For this, the objective of this research was to investigate the aspects that influence infant feeding introduction.

## Material and method

This study is a cross-sectional, quantitative research, with a non-probabilistic, convenience sample, carried out in three private schools in the cities of Belo Horizonte and Contagem. The research was authorized by the Research Ethics Committee of the Instituto Metodista Izabela Hendrix under register No. 3,180,360.

A total of 22 parents or guardians of children were included in the study, 12 (54.5%) of male children and 10 (45.5%) of female ones. Most children (81%) were aged between 13 and 24 months. The inclusion criteria were: having at least one child aged between 0 and 2 years with no syndromes, accepting to participate in the research, signing the free and informed consent form and being available to answer a questionnaire. Participants who answered less than 80% of the questionnaire items were excluded from the study.

The recruitment of participants was carried out via e-mail and by note, being intermediated by the schools. To carry out the data collection, a questionnaire specifically prepared for this study was used (Chart 1), which was delivered to the parents/guardians and collected, with the answers, within a period of four days.

The questionnaire consisted of three blocks of questions. Block I contained questions about the personal aspects of the child and the family and the socio-cultural ones: child's age and sex, date of birth, birth weight, gestational age, mother's age, duration of maternity leave, parents' work outside home, parents' schooling, family income and family health plan. In block II, there were questions about the child's eating process: the maximum age of exclusive feeding through the mother's milk, the maximum age of breastfeeding, age of the offering of food. It was questioned whether the offering of food, at the time under study, was carried out with separate or mixed foods, the consistency of the food

at the beginning of the introduction, if the child manipulated the food, if the child ate while watching television and/or playing and/or messing with the phone, if he/she used a baby bottle, a pacifier and if she/he had the meals with the family. In Block III, the parents/guardians answered questions related to the knowledge and beliefs about infant feeding.

The questionnaire was developed by the authors of the present research, being three speech-language pathologists and one nutritionist, and was based on the Manual with Guidelines for the Evaluation of Food Consumption Markers in Primary Care, developed by the Ministry of Health<sup>22</sup>, the ten steps for a healthy diet for Brazilian children under two years<sup>17</sup> and the document that presents the indicators for assessing infant and young child feeding practices, published by the World Health Organization<sup>23</sup>.

After data collection, the results were transcribed to a Microsoft® Excel spreadsheet. The nominal data was changed to a letter/number code, guaranteeing the confidentiality of the interviewees' personal data. In addition, from the questions about knowledge and beliefs regarding the infant feeding introduction, the score was calculated, quantifying the compatible responses with the guidelines of the Ministry of Health and the World Health Organization, with 1 point for each answer given according to what is recommended. Thus, the lowest possible score to be obtained in the questionnaire was zero and the highest, 10. The results were subjected to analysis in order to describe the sample. Measures of central tendency (mean) and variability (standard deviation), for the continuous variables and frequency analysis for categorical variables, were carried out. Two children had not undergone food introduction yet, as they were one and two months old. These were not included in the analysis of the association of the questions regarding the feeding introduction of Block II. The t-test was applied for independent samples and Mann-Whitney test or ANOVA to evaluate the association between categorical and continuous variables. Spearman's correlation test was applied to assess the correlation between the continuous variables, considering the following classification: 0 - 0.2 very bad correlation; 0.21 - 0.4 bad correlation; 0.41 - 0.6 regular correlation; 0.61 - 0.8 good correlation; 0.81 - 1.00 optimal correlation. Values of  $p < 0.05$  were considered significant. The data were analyzed using the IBM SPSS statistical program.

**Chart 1.** Questionnaire asked to parents or guardians

<b>BLOCK I - YOUR CHILD, FAMILY AND SOCIOCULTURAL DATA</b>		
1 - Child's sex: ( ) Female ( ) Male	2- Date of Birth ____/____/____	3 - Child's Age: _____
4 - Weeks of gestation _____	5 - Birth weight: _____	
6 - Prenatal care? ( ) Yes ( ) No	7-If yes, How many consultations did you have? _____	
8 - Mother's age: _____	9 - Mother's profession: _____	
10 - Autonomous or contracted mother? _____		
11 - If you have a formal contract, how long did you have maternity leave? _____		
12 - Father's age: _____	13 - Father's profession: _____	
14 - Do parents work outside home? ( ) Yes ( ) No ( ) Sometimes		
15 - If yes, when needed, who takes care of the child? (if necessary, check more than one option) ( ) Family ( ) Friends ( ) Nursery/school ( ) Nanny		
16 - Mother's schooling level: ( ) Incomplete Elementary School ( ) Incomplete High School ( ) Incomplete College Education ( ) Complete Elementary School ( ) Complete High School ( ) Complete College Education		
17 - Father's schooling level: ( ) Incomplete Elementary School ( ) Incomplete High School ( ) Incomplete College Education ( ) Complete Elementary School ( ) Complete High School ( ) Complete College Education		
18 - How many people live in the house? _____		
19 - How close are the people who live with you? (example: uncle, brother, husband, son) _____		
20 - Family income: ( ) Between 1 and 2 minimum wages ( ) Between 2 and 4 minimum wages ( ) Above 5 minimum wages		
21 - Does the family have health plan? ( ) Yes ( ) No		
22 - Is the child's development regularly followed by a pediatrician or other professional? ( ) Yes ( ) No		
23 - When care is needed regarding the child's health, which health network do you use most of the time? ( ) Public ( ) Private		
<b>BLOCK II - FOOD INTRODUCTION</b>		
1 - Is the child or has he/she been feeding ONLY with breast milk? ( ) No ( ) Yes		
2 - Until what age was the child ONLY fed on the mother's milk? _____		
3 - Does the child breastfeed or has she/he already breastfed? ( ) No ( ) Yes If yes, up to what age? _____		
4 - Does the child take or has he/she already taken box milk?? ( ) No ( ) Yes		
5 - Has the child already fed from infant formula? ( ) No ( ) Yes		
6 - If the child already eats solid food, how is the offering of food currently carried out? ( ) Mixed ( ) Separate		
7 - How was the consistency of the food at the beginning of the feeding introduction? ( ) In pieces ( ) Mashed ( ) Sieved ( ) Liquefied ( ) Broth		
8 - And today, how is the consistency? ( ) In pieces ( ) Mashed ( ) Sieved ( ) Liquefied ( ) Broth		
9 - What is the position in which the child feeds or is fed? ( ) On the lap ( ) On the couch ( ) On the little chair ( ) On the floor		
10 - What utensils are used in the meals? ( ) Plastic or silicone spoon ( ) Metal spoon ( ) Plate ( ) Spout cup ( ) Baby bottle ( ) Cup ( ) Others: _____		
11 - Does the child manipulate food with the hands? ( ) No ( ) Yes		
12 - Does the child have the habit of eating watching TV, playing or messing with the phone? ( ) No ( ) Yes		
13 - Does the child use a baby bottle? ( ) No ( ) Yes		
14 - Does the child use a pacifier? ( ) No ( ) Yes		
15 - Are the child's meals eaten together with the family? ( ) No ( ) Yes ( ) Sometimes		
16 - Where do you look for information on food introduction? ( ) Family ( ) Doctor ( ) Internet ( ) TV ( ) Friends ( ) Others		
<b>BLOCK III - KNOWLEDGE AND BELIEFS ABOUT FOOD INTRODUCTION</b>		
1 - Do you consider breast milk weak?	( ) Yes	( ) No ( ) Sometimes
2 - Do you consider yogurt a healthy food?	( ) Yes	( ) No
3 - Does the baby's first solid food have to be baby food?	( ) Yes	( ) No
4 - If the child refuses food twice does it mean that she/he does not like it?	( ) Yes	( ) No ( ) Sometimes
5 - Until the teeth appear, should the child eat everything mashed?	( ) Yes	( ) No
6 - Is the fruit healthier than the fruit juice?	( ) Yes	( ) No
7 - Does the box milk support the child more than breast milk?	( ) Yes	( ) No
8 - Does the baby need water since newborn?	( ) Yes	( ) No
9 - Are teas good for babies up to six months?	( ) Yes	( ) No
10 - Can the baby eat baby food after four months?	( ) Yes	( ) No
11 - Is it bad to give sweets to the baby?	( ) Yes	( ) No
12 - Is soda bad for children?	( ) Yes	( ) No
13 - What food are you sure the child is satisfied with (full)?	( ) Breast milk	( ) Food

## Results

It was found that the minimum age of respondents was 24 years old, maximum of 56 years, with

an average of 33 years and standard deviation of 7 years. Tables 1 and 2 present the descriptive analysis of the study participants and the data referring to Block I and Block II of the questionnaire.

**Table 1.** Distribution of the response frequency to the variables in block i of the questionnaire

Variables		Frequency	Percentage
Sex	Female	12	54.5
	Male	10	45.5
Child age	0 to 6 months	2	9.1
	7 months to 12 months	2	9.1
	13 months to 24 months	18	81.8
Gestational age	42 complete weeks or more	1	4.5
	Less than 37 weeks	2	9.1
	Between 37 and 42 weeks	19	86.4
Birth weight	Adequate (greater than 3,000 g)	14	63.6
	Insufficient (2,500 to 3,000 g)	6	27.3
	Low Weight (1,500 to 2,500 g)	2	9.1
Maternity leave time	Less than 4 months	1	4.5
	From 4 to 6 months	14	63.6
	More than 6 months	1	4.5
Parents' work outside home	Did not answer	6	27.3
	Yes	16	72.7
	No	2	9.1
Parents' schooling (higher schooling level of the couple)	Sometimes	4	18.2
	Elementary School	1	4.5
	High School	7	31.8
	College Education	14	63.6
Family income	Did not answer	3	13.6
	From 1 to 2 minimum wages	3	13.6
	From 2 to 4 minimum wages	7	31.8
Health Plan	More than 5 minimum wages	9	40.9
	Yes	16	72.7
	No	6	27.3

Legend: g = grams

**Table 2.** Distribution of response frequencies in block ii of the questionnaire

Variables	Frequency	Percentage	
How many months did the child feed ONLY on the mother's milk?	0 month	2	9.1
	1 month	1	4.5
	3 months	2	9.1
	4 months	6	27.3
	6 months	7	31.8
	7 months	1	4.5
	Did not answer	3	13.6
	0-5 months	4	20.0
Up to what age did the child breastfeed?	6-12 months	8	40.0
	13-24 months	8	40.0
	0-3 months	1	5.0
At what age did the offering of food start?	4-5 months	10	50.0
	6 months	9	45.0
	Mixed	12	60.0
	Separate and Mixed	1	5.0
How is food currently offered?	Separate	7	30.0
	In pieces	1	5.0
	Mashed	16	80.0
How was the consistency of the food at the BEGINNING of the food introduction?	Mashed and sieved	1	5.0
	Sieved	2	10.0
	Yes	16	80.0
Does the child manipulate food with the hands?	No	4	20.0
	Yes	10	50.0
Does the child have the habit of eating while watching TV, playing or messing with the phone?	No	9	45.0
	Sometimes	1	5.0
	Yes	15	68.2
Does the child use a baby bottle?	No	7	31.8
	Yes	10	45.5
Does the child use a pacifier?	No	11	50.0
	Did not answer	1	4.5
	Yes	14	70.0
Are the child's meals eaten with the family?	No	2	10.0
	Sometimes	4	20.0

Table 1 shows that there was a higher frequency of female children, aged between 13 and 24 months, born at normal term and with adequate weight. Most mothers obtained maternity leave between four and six months. Most parents worked outside home and had college education. The most frequent family income was above five minimum wages and most participants had health plan.

Table 2 shows that the group with the largest number of children is the one with exclusive breastfeeding until six months. The offering of food started between 0 and 5 months of age for most children. Regarding the presentation of the food, in most cases, it was offered mixed and the child manipulated the food with his/her hands. Regarding the consistency of the food offered at the beginning

of the feeding introduction, it was observed that it was mostly offered in mashed form. Most children used a baby bottle, but not a pacifier.

Regarding the environment in which the meals were carried out, it was found that, in the majority, the children had their meals with the family. However, half of the interviewees reported the habit of feeding the child in front of the screens (television, cell phone, among others) or with toys.

The score on "Beliefs and knowledge about food", Block III of the questionnaire, varied from four to ten points, with a mean of 7.1 and the standard deviation of 1.9 points.

In the correlation analysis between Blocks I, II and III of the questionnaire (Table 3), there was a correlation between the knowledge score and

the following variables: time fed only by mother's milk, age at which the offering of food started, work outside home, income, parents' schooling and having health plan.

**Table 3.** Association analysis between the score in block iii and time that the child was fed only from the mother's milk, age that the offering of the food began, parents work outside home, parents' schooling and having a health plan.

Variables	N	Mean Score	Standard Deviation	p-value and degree of the correlation	Interpretation	
How many months did the child feed ONLY on the mother's milk?	0 months	2	4.7	1.1	p=0.002* r=0.658***	The higher the score, the longer the breastfeeding period.
	1 month	1	4.0	-		
	3 months	2	6.7	1.8		
	4 months	6	7.4	1.9		
	6 months	7	8.3	1.4		
	7 months	1	9.0	-		
	At what age did the offering of food start?	0-3 months	1	5.2		
4-5 months		10	6.6	2.0		
6 months		9	8.3	1.2		
Do parents work outside home?	Yes	16	7.6	1.7	p=0.036** r=0.450***	Parents who work outside home had a higher score.
	No	2	4.7	1.1		
	Sometimes	4	6.2	2.1		
Parents' schooling (higher schooling level of the couple)	Elementary School	1	5.0	-	p=0.001** r=0.655***	The higher the schooling, the higher the score.
	High School	7	5.6	1.2		
	College Education	14	8.0	1.7		
Does the family have health plan?	Yes	16	7.6	1.9	p=0.037** r=0.448***	Families with health plan have a higher score.
	No	6	5.8	1.4		
Family income	From 1 to 2 minimum wages	3	6.8	1.2	p=0.013** r=0.557***	Families with an income higher than 5 wages have a higher score.
	From 2 to 4 minimum wages	7	5.8	2.0		
	More than 5 minimum wages	9	8.5	1.1		

Legend: N = number of participants. \* ANOVA test, \*\* T test, \*\*\* Pearson's correlation (Interpretation of the correlation: 0 - 0.2: Very bad correlation; 0.21 - 0.4: Bad correlation; 0.41 - 0.6: Regular correlation; 0.61 - 0.8: Good correlation; 0.8 - 1.0: Optimal correlation).

## Discussion

The results showed that exclusive breastfeeding and the feeding introduction at six months were practices performed by parents with greater knowledge of the World Health Organization and the Ministry of Health of Brazil recommendations and that this knowledge was greater in parents with higher schooling, higher income, access to health plan and that work outside home.

It was possible to verify in the results that most of the children received food other than breast milk before six months of age, which is considered early feeding introduction<sup>24</sup>. This is a common finding in

several studies<sup>25-27</sup>, which reinforces the need for public policies aimed at breastfeeding and feeding introduction.

The percentage of respondents who reported that their children used baby bottles and pacifiers was considered high, given the direct relationship between the use of pacifiers and baby bottles and the early weaning<sup>28-30</sup>. It is also important to highlight the high percentage of children who eat in front of screens and/or with toys. According to Silva Filho<sup>21</sup>, one of the attitudes that must be avoided for the child to acquire healthy eating habits is to offer distractions, especially screens, while he/she eats. On the other hand, it is good practice





that the baby, around six months, starts having the meals with the family and being encouraged to take an interest in the food, which includes holding it and putting it in the mouth<sup>16</sup>. Although the majority of respondents reported that their children have the meals with the family and that they allow the food to be handled, this dynamic is compromised in the presence of distractors.

Another frequent answer among the interviewees refers to the offer of mixed foods to their children, instead of being separated, which is contrary to the recommendation of the Ministry of Health. The recommendation to offer separate foods can be explained by the greater opportunity to get to know new flavors and textures with this type of offering<sup>17</sup>. However, the offer of mashed food, instead of ground (in a blender), carried out by most families, is in line with the recommendation of the Ministry of Health, being a strategy for the child to experience new consistencies and textures<sup>17</sup>, being also conducive to the chewing development.

The analysis of the parents' knowledge about feeding introduction, when related to parents' schooling, income and occupation, shows that the higher the level of schooling and income, the higher the score on knowledge and beliefs regarding feeding introduction. Similar studies carried out in the city of São Paulo and in Florianópolis related the parents' schooling with the late introduction of water, teas, sweets and soft drinks in the children's diet<sup>31,32</sup>. That is, the higher the schooling, the more appropriate are the practices with regard to feeding introduction. Family income also shows a relationship with lucidity about the child's diet, indicating that the population with more economic conditions has more access to information<sup>33,34</sup>.

The analysis of the results also showed that parents who work outside home and have health plan had greater knowledge about feeding introduction. A study carried out with users of a private health plan showed that, when parents receive more guidance, they appropriate the knowledge and adopt practices that are more consistent with the recommendations<sup>35</sup>.

Regarding the parents' occupation, it was observed that those who work outside home have greater knowledge about complementary feeding. Similar studies pointed out that these parents are less inclined to complementary feeding practices that contradict the recommendations<sup>36,37</sup>. It can be inferred that, due to working outside home, there

is an increase in family income and thus greater financial conditions, what leads to obtain information about complementary food. The relationship between having a health plan and the knowledge about complementary feeding can also be explained by the fact that the majority of parents who work outside home are the same parents with higher schooling and income, which reinforces the impact of schooling and income on parents' knowledge.

When the relation between Blocks II and III was evaluated, it was observed that the higher the score in Block III, the longer the exclusive breastfeeding time and the later the introduction of other foods. This indicates that the more information that parents have about complementary feeding, the greater the chance that the feeding introduction will be made in the time that is considered correct. This finding corroborates the literature that says that the greater the access to information, the lower the incidence of early food introduction<sup>38</sup>. It was reported in a survey that mothers with higher income demonstrated to follow the recommendations of health professionals regarding food introduction and that 50% of the interviewed parents received information, but chose not to follow it<sup>34</sup>, a finding that demonstrates that only providing information is not enough, and that it is necessary to consider other factors of a social and cultural order for the correct practices of feeding introduction to be effective. Also, it should be considered that acting with greater empathy in the health professional and patient relation improves the effectiveness of the guidelines<sup>39</sup>.

The study had a small sample and a very specific audience. Therefore, the results cannot be generalized. Another limitation of this research refers to not having investigated the caregiver's opinions and decisions, especially because in the sample collected, most of the parents worked outside home and the maternity leave ended at six months, the time when feeding introduction started. For subsequent studies, a larger sample is suggested, which contains individuals from different social classes, with different family structures and different living standards, among other factors. Despite the above-mentioned limitations, this research innovates by investigating the way in which food is offered in feeding introduction, if separated or mixed, the consistency, the handling by the child and the environment in which the offer is made.

## Conclusion

There was a correlation between the aspects of schooling, occupation outside home, family income and having a health plan with the parents' knowledge about infant feeding introduction, being the highest scores in the evaluation of the knowledge about feeding introduction obtained by parents with more schooling, who worked outside home, with higher income and health plan.

Knowledge about feeding introduction correlated with the duration of exclusive breastfeeding. The greater the knowledge of the parents, the longer the duration of exclusive breastfeeding. The above mentioned knowledge also correlated with the time of feeding introduction, since the greater the knowledge, the closer to the six months the feeding introduction was carried out.

Thus, the present study demonstrates the need for health professionals to create strategies to increase parents' knowledge regarding complementary infant feeding.

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