BREASTFEEDING, COMPLEMENTARY FEEDING AND HEALTH

DOI: 10.12957/DEMETRA.2019.43327

DEMETRA Alimentação, Nutrição & Saúde

Bruna dos Santos Nunes [1]
Muriel Bauermann Gubert [1]
Gisele Ane Bortolini [2]

[1] Universidade de Brasília, Faculdade de Ciências da Saúde, Departamento de Saúde Coletiva. Brasília, Distrito Federal, Brasil.

[2] Ministério da Saúde, Coordenação Geral de Alimentação e Nutrição, Departamento de Atenção Básica. Brasília, DF, Brasil.

Correspondence
Bruna dos Santos Nunes
dsnbruna@gmail.com

This article comes from the dissertation "Breastfeeding and complementary feeding: assessing the knowledge of health professionals in Brazil", by Bruna dos Santos Nunes, Universidade de Brasília, 2018.

Are the official recommendations about breastfeeding and complementary feeding familiar to Brazilian health professionals?

As recomendações oficiais sobre amamentação e alimentação complementar são conhecidas pelos profissionais de saúde brasileiros?

Resumo

Objective: This study identifies the consolidated knowledge among healthcare professionals in Brazil about breastfeeding and complementary feeding along with the omissions and divergences about this theme in the available institutional materials. *Methods:* This descriptive and cross-sectional study was conducted nationwide using an online questionnaire with 316 health professionals (nurses, doctors, and nutritionists) recruited through the snowball sampling method. Each professional answered 89 question expressing their degree of agreement on a five-point Likert scale. The contents included in the questionnaire were from scientific articles and institutional materials as well as suggested by experts in the subject. For data analysis, the average score for each item was calculated and items with scores between 2.5 and 3.5 were considered knowledge gaps. Consensus items were when at least 80% of responses totally disagreed (1) or agreed (5). *Results:* Most of the 89 items studied referred to knowledge gaps. The main gaps identified were offering specific food and/or nutrient groups, fruit and vegetable hygiene, micronutrient supplementation, cross-nursing, breastfeeding at night, offering natural juices, and early introduction of food. The consensus was mostly about the biological safety and nutritional adequacy of preparations. *Conclusion:* The guidelines available today must be reviewed with special

attention paid to the missing themes and those with knowledge gaps, to improve training and education about health and consequently improve the guidance provided by professionals to the community.

Keywords: Breastfeeding. Knowledge. Children's nutrition. Healthcare Personnel. Health promotion.

Resumo

Objetivo: Identificar os conhecimentos consolidados entre profissionais de saúde no Brasil sobre aleitamento materno e alimentação complementar e as omissões e divergências a respeito desta temática nos materiais institucionais disponíveis. *Métodos:* Estudo descritivo e transversal de abrangência nacional, com aplicação de questionário *online* para 316 profissionais de saúde (enfermeiros, médicos e nutricionistas), recrutados por meio da metodologia de bola de neve. Foram apresentados 89 itens, para os quais o profissional expressava seu grau de concordância em escala Likert de cinco pontos. Os conteúdos incluídos no questionário foram retirados de artigos científicos e materiais institucionais e, também, sugeridos por especialistas na temática. Para análise dos dados, foi calculada a pontuação média para cada item e foram consideradas lacunas de conhecimento os itens com pontuações entre 2,5 e 3,5. Foram considerados consensos os itens com pelo menos 80% de respostas com discordância (1) ou concordância (5) total. *Resultados:* Dos 89 itens estudados, a maioria referia-se a lacunas de conhecimentos. As principais lacunas identificadas foram: oferta de grupos alimentares e/ou nutrientes específicos, higienização de frutas e hortaliças, suplementação de micronutrientes, amamentação cruzada, aleitamento materno noturno, oferta de sucos naturais, introdução alimentar precoce. Em relação aos consensos, grande parte versava sobre a segurança biológica e a adequação nutricional das preparações. *Conclusão:* É preciso revisar as diretrizes hoje disponíveis com atenção especial às temáticas omissas e aquelas ainda consideradas lacunas de conhecimento, para o aprimoramento nos processos de formação e educação em saúde e consequente melhoria das orientações fornecidas pelos profissionais à comunidade.

Palavras-chave: Aleitamento materno. Conhecimento. Nutrição da criança. Pessoal de saúde. Promoção da saúde.

INTRODUCTION

The importance of exclusive breastfeeding (EBF) in the first six months of life and timely and appropriate complementary feeding (CF) is well known, with continued breastfeeding (BF) up to two years of age or older.[1] Breastfeeding has repercussions on a child's health, nutrition, and development, as human breast milk is not only the most perfectly adapted food for babies, but also the most specific personalized medicine a child can receive.[2]

Over the past 30 years, the prevalence of BF and EBF in Brazil had an upward trend until 2006, with relative stabilization after this period.[3] Research indicates a high frequency of consumption of milk other than breast milk at very early ages, with cow's milk the most consumed.[4] According to the latest national survey, 50.6% of children under 12 months were being breastfed in complementary fashion.[5]

CF should be started at six months on, and if started earlier, can be detrimental to the child's health.[6] In Brazil, only 63% of children 6 to 12 months old consume fruits and vegetables daily.[7] In terms of quality of diet, 47% of Brazilian children under 12 months old have inadequate eating habits and 80% consume a low diversity of foods.[8] The latest national survey about Brazilian children under two years found that 32.3% consume soft drinks or artificial juice and 60.8% eat cookies, crackers, or cake.[5]

Hence, the need to strengthen and invest in public policies to encourage, promote, and protect breastfeeding and healthy complementary feeding is evident.[9] These include food recommendations, especially those focused on children,[10] which explain scientific knowledge in simplified guidelines for the general population.[11,12] The guides are official recommendations that assist healthcare professionals to promote breastfeeding and proper CF.

In Brazil, the first food guide for children was published in 2002[13] and summarized in the "*Dez passos para uma alimentação saudável: guia alimentar para crianças menores de dois anos*" (Ten steps to healthy eating: a food guide for children under two), which was updated in 2010.[14] The recommendations contained in the guide have already been evaluated, and when implemented, can improve the prevalence of EBF and the quality of CF in young children.[15,16]

Hence, this study aims, based on current official recommendations on BF and CF, sought to identify consolidated knowledge and knowledge gaps among healthcare professionals in Brazil, as well as omissions and divergences in the available institutional materials.

METHODS

This is a descriptive and cross-sectional study, with qualitative and quantitative approach conducted nationwide. For data collection, an online questionnaire was developed in the SurveyMonkey© platform, containing questions for nurses, doctors, and nutritionists about their knowledge relating to BF and CF, based on official recommendations of the *Ministério da Saúde* (MS - Brazilian Ministry of Health)[3,17,18] and the *Sociedade Brasileira de Pediatria* (SBP- Brazilian Society of Pediatrics) feeding for young children.[19]

The data collection instrument was structured in two sections. The first section was to collect information about the healthcare professional answering the questionnaire (Block 1) and the second on their knowledge about BF and CF (Block 2). The development of Block 2 included the following steps: literature review, construction and writing of the items, expert assessment of the instrument, and pilot study.

In the first step, scientific articles were identified that addressed the performance of healthcare professionals in promoting proper and healthy nutrition in childhood, those that deal with the knowledge to professionals on the theme of BF and CF, and tools for their evaluation. This review was performed on the SciELO, Lilacs, MedLine, Scopus, and Web of Science databases, using the following descriptors: breastfeeding; complementary feeding; breast-feeding; knowledge, attitudes and practices; introduction of complementary feeding; Healthcare professionals.

In the next stage which entailed construction and writing of the items, the information collected in the literature review was used and institutional materials from the MS and SBP were selected. The publication "*Dez passos para uma alimentação saudável: guia alimentar para crianças menores de dois anos - um guia para o profissional da saúde na atenção básica*" (Ten steps to healthy eating: a food guide for children under two - a guide for the primary care healthcare professional)[17] was considered as the basis for constructing the questionnaire.

Supplemental information, we consulted the *Caderno de Atenção Básica nº 23 - Saúde da Criança: aleitamento materno e alimentação complementar* (Primary Healthcare Booklet No. 23 - Child Health: breastfeeding and complementary feeding);[18] the *Guia alimentar para crianças menores de dois anos: Série A - Normas e Manuais Técnicos* (Food Guide for children under two years of age: Series A - Technical Standards and Manuals);[13] and the *Manual de orientação para a alimentação do lactente, do pré-escolar, do escolar, do adolescente e na escola* (Orientation manual for feeding infant, preschool, school, adolescents, and children at school)[19] To draft the items,

we selected knowledge considered relevant within the theme of BF and CF, based on the information collected in the literature review and selected institutional materials.

The preliminary version of the questionnaire then went through an improvement step, in which the instrument was reviewed by a group of specialists in breastfeeding and complementary feeding, from the three professional categories studied (nursing, medicine, and nutrition) and in different institutional roles (research, teaching, public management, and clinical practice), selected for convenience, to reach consensus.[20,21]

The objective of this phase was to analyze and judge the questions about the proposal of the knowledge researched, the appropriateness of the language used, the clarity of the items, and the relevance of the evaluated content, which included a field for comments, suggestions, or additions of new items to the questionnaire. After this step, some items were rewritten, others were subdivided, and new items were created, including themes indicated by these experts as controversial or polemic in relation to infant feeding.

The final version of the questionnaire consisted of 100 items, 11 related to professional characterization and 89 items for measuring knowledge, in which 14 were about BF and 75 to CF (Table 1). The possibilities for answering these questions were organized on a five-point Likert scale,[22] according to the degree of agreement with the statement or recommendation presented.

In the final step, the validated questionnaire was applied in a pilot study to a group of ten students from the Post-graduate program in Human Nutrition and Collective Health at the Universidade de Brasília, involving the same professional categories for which the instrument was intended, selected for convenience.

Responses were collected between September and December 2017, and used a methodology inspired by snowball sampling. This technique provides for the indication of "participation" pairs, in which the initial participants of the study indicate new participants who, in turn, indicate new participants and so on, until the objective proposed by the study is reached.[23-25] In this research, initial pairs were recruited via e-mail and social media, and respondents were encouraged to share the instrument with their peers. The final sample was completed according to the deadline for receiving responses, which was three months, as recommended for knowledge assessment questionnaires.[26]

The questionnaire was answered only by professionals who met the following inclusion criteria: nurse, doctor, and/or nutritionist with access to the internet. Exclusion criteria were

vocational training outside Brazil or fixed residence abroad. The total sample consisted of 316 complete and valid questionnaires.

For data analysis, a score was assigned to each response category: "strongly disagree (1)", "partially disagree (2)", "neither agree nor disagree (3)", "partially agree (4)", and "completely agree (5)". Then, the average for each item on the questionnaire was calculated, which could vary from 1 to 5.

The knowledge gap was considered scores that ranged between 2.5 and 3.5, due to the proximity to the neutrality score (3.0), indicating uncertainty about the research knowledge. In addition, the frequency of consistent answers was calculated, and consolidated knowledge was when more than 80% of answers "strongly agree" and "strongly disagree".

At the same time, the authors conducted a documentary analysis of the institutional materials selected for this study.[13,17,18] They identified in these documents omissions and divergences in relation to the knowledge assessed by the questionnaire available to healthcare professionals.

For framework analyses, the items were divided into two themes - BF and CF, the latter being grouped into categories according to the theoretical model on attributes, components, and CF markers proposed by Oliveira et al.[21] The highlighted attributes of CF were opportunity, adequate nutrition, and safety. The opportunity corresponds to the age of introduction of CF. Nutritional adequacy includes four components: presence of specific nutrients, variety of food, energy density of meals, and absence of ultra-processed products. Finally, safety is characterized by two components: absence of food additives and safety of the preparation.

Although the attributes included all the contents researched in this study, some components and markers did not encompass certain themes and, therefore, the following components were proposed within the opportunity and safety attributes: physiological maturity; context offered; and allergenic foods.

The software SPSS Statistics 22.0 was used for data analysis. This study was approved by the Research Ethics Committee at the Faculdade da Saúde (CEP/FS) of the Universidade de Brasília (CAAE 66063316.7.0000.0030).

RESULTS

The study included 316 healthcare professionals, with an average age of 34.6 ± 9.1 years, 92.7% female. Most participants were nutritionists (56.6%), with 26.9% nurses, and 16.5%

doctors. Of the professionals surveyed, 59.8% stated they had completed a specialization or residency. The professional activity found that most live in the Centralwest (42.7%) and Southeast (33.9%), 24.4% work in a public and/or university hospital and 14.9% in Primary Care, as noted in Table 1.

Table 1. Description of the healthcare professionals participating in the research. Brasil, 2018.

Study Variables	n	%
Sex/gender		
Female	293	92.7
Male	23	7.3
Race/color		
Asian and Indigenous	10	3.1
White	210	66.5
Brown and Black	95	30.1
Did not respond	1	0.3
Personal Monthly Income*		
> 20 MS (Greater than R$ 19,080.00)	22	7.0
10 - 20 MS (Between R $9,540.00 and R$ 19,080.00)	45	14.2
4 - 10 MS (Between R$ 3,816.00 and R$ 9,540.00)	115	36.4
2 - 4 MS (Between R$ 1,908.00 and R $3,816.00)	86	27.2
< 2 MS (Less than R$ 1,908.00)	48	15.2
Professional Category		
Nurse	85	26.9
Doctor	52	16.5
Nutritionist	179	56.6
Type of institution for undergraduate degree		
Private	145	45.9
Public	171	54.1
Degree of education		
Undergraduate only	58	18.4
Specialization or residency	189	59.8
Master's degree	51	16.1
Doctorate and Postdoctoral	18	5.7
Place of employment by region		
North	8	2.5
Northeast	30	9.5
Centralwest	135	42.7
Southeast	107	33.9
South	36	11.4

Table 1. Description of the healthcare professionals participating in the research. Brasil, 2018. (continues)

Study Variables	n	%
Type of business		
Healthcare Center, Primary Healthcare Unit, or Family Healthcare Clinic	47	14.9
Private office and/or hospital	101	32.0
Nursery or School	22	7.0
Public and/or university hospital	77	24.4
Food and Nutrition Unit	6	1.9
Public and/or private university	45	14.3
Other	96	30.4
	Mean	Standard Deviation
Age in years	34.6	9.1
Professional training time in years	10.3	8.6

* Personal Monthly Income at time (Lei de Diretrizes Orçamentárias, 2018): R$ 954,00.

Chart 1 provides which institutional materials presented the knowledge measured in the 89 items of the questionnaire. Subjects addressed in eight items were absent in the reference materials, and the themes in six items contained conflicting information according to the institutional material consulted; the omissions and divergences in the reference materials were identified. The items considered omissions were assembled from the literature review and suggestions by the experts consulted in the improvement step.

Of the eight omitted items, two were related to theme BF (items 7 and 8), and six to CF. Of these, four corresponded to the attribute "opportunity", two related to the component "physiological maturity" (items 60 and 65) and the others to the "context offered" (items 67 and 68). The other two items referred to the attribute "safety" within the "absence of food additives" components (items 83 and 84). Regarding the divergences, one of the items was related to the theme of BF (item 14) and the other five to that of CF, in the attributes "adequate nutrition" (items 15, 25, 37, and 38) and "opportunity" (item 57).

Of the 89 items evaluated, 22 presented averages ranging from 2.52 to 3.49, as shown in Table 2, indicating that approximately 25% of the statements caused doubts among healthcare professionals about their research knowledge (knowledge gap), considering the proximity to the neutrality score (3.0). Of these, the item with the most neutrality referred to the recommendation of a vegetarian diet in CF (M = 3.137), item belonging to the attribute "adequate nutrition".

Table 2. Description of the mean score of the items studied about breastfeeding and complementary feeding. Brasil, 2018.

Item	Mean
27. The entire egg, both white and yolk, should be offered only after the child is over nine months old.	2.529
22. Vegetable oil used for cooking food for children should preferably be soybean oil or canola oil.	2.557
85. Gluten should be offered only at twelve months of age, as its introduction before this age may increase the risks of developing celiac disease in genetically predisposed children.	2.612
38. Considering that children have an innate preference for sweet tastes, the recommendation is that the introduction of complementary foods should start with offering squeezed fruit or natural fruit juices without added sugar, such as lime orange and coconut water.	2.659
60. Dark green leafy vegetables can be offered raw beginning in the first major meal.	2.669
75. Before offering fruits and vegetables to a child under two years old, parents or caregivers should sanitize them with detergent and water to reduce the chances of biological contamination.	2.723
55. At around six months old, most children do not have the tongue protrusion reflex.	2.737
17. Beginning at six months old, it is recommended that all children receive vitamin D supplementation.	2.743
65. Mesh/net feeders can be used by children to introduce complementary feeding because, in addition to promoting the child's eating autonomy, they protect against the risk of choking.	2.772
63. Complementary feeding of liquids should be offered in glasses with a lid or spout.	2.783
31. Pork may be added to main meal only after 12 months of age.	2.828
33. At six months old, the minimum amount of drinking water to be offered to the child is approximately 700 ml/day.	2.859
32. A vegetarian diet is contraindicated for children in the introduction phase of complementary feeding.	3.137
46. A regular interval of about 2 to 3 hours must be maintained between meals of the child.	3.287
20. For children receiving infant formula, iron and vitamin A supplementation is required.	3.378
59. At six months old, most children still do not have their first tooth eruption.	3.396
16. Beginning at six months old, it is recommended that all children receive iron and vitamin A supplementation.	3.416
5. Some foods consumed by the nursing mother are commonly responsible for the colic of the babies; therefore, they should be excluded from the maternal diet.	3.419
86. Oilseeds, such as nuts and seeds, should be offered to the child only after two years of age.	3.437
57. When complementary feeding is required at four months old, the composition and consistency of the food should follow the same guidelines as those for exclusively breastfed children which are over six months old.	3.439
7. In all situations, cross-nursing (practice in which the child is breastfed by a nursing mother other than their own mother) is contraindicated.	3.454
18. Considering that after six months old, breast milk alone is unable to meet the child's iron needs, it is important to offer viscera and giblets (for example, liver, heart, and gizzard) at least once a week to babies	3.490

Most of the items classified as knowledge gap related to the attribute "adequate nutrition" in the components "variety" (items 22, 27, 31, 32, and 33), "presence of specific nutrients" (items 16, 17, 18, and 20) and "energy density" (items 38 and 46). In addition, 27% were within the "opportunity" attribute, all related to the "physiological maturity" component (items 55, 57, 59, 60, 63, and 65). In the attribute "safety", the gaps appeared in the components "allergenic foods" (items 85 and 86) and "safe preparation" (item 75). Only 9% of the gap items referred to the BF theme (items 5 and 7).

Regarding the frequency of consensual answers (consensus), 13 items presented high percentages of agreement or disagreement ranging from 80.6 to 96.5%, as presented in Table 3. The item with the highest agreement (96.5%) belonged to the attribute "opportunity" and concerned the importance of the whole family adopting healthy eating habits when first introducing food a child (item 72).

Table 3. Frequency of complete agreement or disagreement according to the studied item. Brasil, 2018.

Item	Frequency
Complete agreement	
72. Parents or caregivers should be encouraged to adopt healthy eating habits as children learn by imitation.	96.5%
80. Every utensil that will be used to feed the child needs to be washed and rinsed with clean water.	96.0%
82. To prevent improper storage, ensure that the refrigerator is kept closed and that the refrigerator door is in good sealing condition.	94.9%
50. Ultra-processed foods (for example, sausages, filled cookies, and cereal bars) should not be offered to the child because they contain additives, artificial preservatives, and high salt content, which suppresses the child's appetite and compete with healthy foods.	91.0%
77. Meat should always be offered well-cooked without any apparent blood.	90.1%
71. If the child refuses a particular food, the caretake should insist on offering it, at other times, at different meals or with various forms of presentation, to encourage the child to accept it.	89.6%
47. Up to one year of age, coffee, teas, mate, bottled drinks, and soft drinks should not be offered to the child.	86.1%
49. The supply of ultra-processed foods (for example sausages, filled cookies and cereal bars) is related to the development of non-communicable chronic diseases such as obesity and cancer in adulthood.	85.0%
12. Improper latching during breastfeeding can lead to early weaning due to nipple injuries.	83.7%
76. Providing honey is completely contraindicated during the first year of life.	80.9%
19. To increase iron absorption, it is important to encourage the consumption foods rich in vitamin C during or shortly after the child's meal.	80.6%
Complete disagreement	
11. Some mothers have weak or insufficient milk to meet the nutritional needs of their baby.	86.4%
51. Up to six months of age, breastfed infants may receive, if or when the mother is not present, a complementary supply of water or other liquids that do not contain sugar or any artificial products.	80.7%

Within this attribute, two items (51 and 71) were consensual that addressed the age of beginning CF and the context of providing food. Four items of consolidated knowledge belonged to the attribute "safety" (items 76, 77, 80, and 82) and discussed the safety of the preparations. Two components of the attribute "adequate nutrition" were also in consensus: "presence of specific nutrients" (item 19) and "absence of ultra-processed products" (items 47, 49, and 50).

Chart 1. Categorization of items on breastfeeding and complementary feeding according to the Theoretical Model in Oliveira et al. (2015) and presentation of the institutional materials used as a database for the wording of the items.

Thematic content	Source*
Breastfeeding	
1. Developing self-control in food intake occurs earlier in breast-fed compared to non-breastfed children.	A
2. Pumped breast milk can be stored in the refrigerator for up to 12 hours and in the freezer or frozen for up to 30 days.	A
3. Stored breast milk may be defrosted in the microwave oven.	A
4. There is no evidence that pacifier use is associated with early weaning.	B
5. Some foods consumed by the nursing mother are commonly responsible for the colic of the babies; therefore, they should be excluded from the maternal diet.	A
6. Breast milk should not be provided as a supplement to meals.	D
7. In all situations, cross-nursing (practice in which the child is breastfed by a nursing mother other than their own mother) is contraindicated.	+
8. Nightly breastfeeding increases the risk of developing caries if the child has teeth.	+
9. According to Brazilian manuals and guidelines, the following are permanent contraindications for breastfeeding: untreated infectious diseases (for example, tuberculosis) and maternal HIV infection.	B
10. According to Brazilian manuals and guidelines, temporary contraindications for breastfeeding include regular treatment with drugs harmful to infants and children with rare metabolic diseases such as galactosemia and phenylketonuria.	B
11. Some mothers have weak or insufficient milk to meet the nutritional needs of their baby.	B
12. Improper latching during breastfeeding can lead to early weaning due to nipple injuries.	A, B
13. Breast milk production depends on the baby's suction and its ejection is influenced by the mother's emotional state.	A, B, D
14. If the possibilities of breastfeeding of children under four months of age are exhausted, the recommendation is to use infant formula or dilute cow's milk according to age group.	A, D**

Chart 1. Categorization of items on breastfeeding and complementary feeding according to the Theoretical Model in Oliveira et al. (2015) and presentation of the institutional materials used as a database for the wording of the items. (continues)

Thematic content		Source*
Complementary Feeding		
1. Adequate Nutrition		
1.1. Presence of specific nutrients	15. Salt should be added to the main meals (lunch and dinner) that will be offered to babies.	A, D**
	16. Beginning at six months old, it is recommended that all children receive iron and vitamin A supplementation.	D
	17. Beginning at six months old, it is recommended that all children receive vitamin D supplementation.	D
	18. Considering that after six months old, breast milk alone is unable to meet the child's iron needs, it is important to offer viscera and giblets (for example, liver, heart, and gizzard) at least once a week to babies	A, D
	19. To increase iron absorption, it is important to encourage the consumption foods rich in vitamin C during or shortly after the child's meal.	A, D
	20. For children receiving infant formula, iron and vitamin A supplementation is required.	A, D
1.2. Variety	21. The introduction of complementary feeding should preferably include regional foods such as region-specific fruits.	A, D
	22. Vegetable oil used for cooking food for children should preferably be soybean oil or canola oil.	D
	23. Cow's milk and/or other dairy foods may be offered to the child after six months old, except for babies who have a family history of allergy or intolerance to this food.	A, D
	24. Meat should be offered only when the child is seven months old.	A, D
	25. Fish should not be offered before the child's first year of life.	A, D
	26. Initially, the ingredients in the main meal may be offered mixed to improve the child's acceptance.	A, D**
	27. The entire egg, both white and yolk, should be offered only after the child is over nine months old.	A, D
	28. Since the offer of the first major foods, all food groups must be present, i.e. baby food should contain food from the cereal or tuber group, the legume and vegetables group, the meat or egg group, and the bean group.	A, D
	29. Unsweetened natural yogurts can be offered as a snack option for children beginning at six months of age, even if breastfed.	A, D
	30. The child should receive water ad libitum at mealtimes once it is no longer exclusively breastfed.	A, D
	31. Pork may be added to the main meal only after 12 months of age.	A
	32. A vegetarian diet is contraindicated for children in the introduction phase of complementary feeding.	A, D
	33. At six months old, the minimum amount of drinking water to be offered to the child is approximately 700 ml/day.	D
	34. If the family has the habit of consuming spicy foods, these can be offered to the baby, since the introduction of complementary feeding should respect and value the cultural and food identity of the family.	A
	35. Substituting meals for dairy drinks can cause anemia, overweight, and a predisposition to food allergies.	A

Chart 1. Categorization of items on breastfeeding and complementary feeding according to the Theoretical Model in Oliveira et al. (2015) and presentation of the institutional materials used as a database for the wording of the items. (continues)

Thematic content		Source*
1.3. Energy density	36. During the period of introducing complementary feeding, the adoption of fixed times to provide food assists in the child's process of adaptation.	B
	37. Beginning at nine months old, the child should be on a diet that contains two fruit meals, one in the morning and one in the afternoon, and two main meals, one at lunch and one at dinner.	A, D**
	38. Considering that children have an innate preference for sweet tastes, the recommendation is that the introduction of complementary foods should start with offering squeezed fruit or natural fruit juices without added sugar, such as lime orange and coconut water.	A, D**
	39. One of the strategies to increase the daily caloric value in the diet of underweight children is to add a small amount of vegetable oil or olive oil to the main food.	A
	40. Food must be initially offered in a liquefied consistency or in liquid form, such as juices or soups, to facilitate swallowing and to provide the necessary energy supply for the baby.	A, D
	41. Instead of fruit for snacks, natural juices not sweetened with sugar, honey, molasses, or other sweeteners may be offered to babies.	A, D
	42. In early feedings, legumes such as beans, lentils, and peas should be liquified to prevent choking.	A
	43. When introducing complementary feeding, food should be offered mashed, shredded, crushed, or minced, depending on the child's degree of development.	A, D
	44. The use of blender or sieve for the provision of complementary feeding is totally contraindicated.	A, D
	45. Too rigid of mealtimes may diminish a child's ability to distinguish between hunger and satiety.	A, D
	46. A regular interval of about 2 to 3 hours must be maintained between meals of the child.	A, D
1.4. Absence of ultra- processed products	47. Up to one year of age, coffee, teas, mate, bottled drinks, and soft drinks should not be offered to the child.	A, D
	48. Ultra-processed foods (for example, sausages, filled cookies, and cereal bars) may be associated with the development of behavioral disorders in children, such as hyperactivity and attention deficit.	D
	49. The supply of ultra-processed foods (for example sausages, filled cookies, and cereal bars) is related to the development of non-communicable chronic diseases such as obesity and cancer in adulthood.	B, D
	50. Ultra-processed foods (for example, sausages, filled cookies, and cereal bars) should not be offered to the child because they contain additives, artificial preservatives, and high salt content, which suppresses the child's appetite and compete with healthy foods.	A

Chart 1. Categorization of items on breastfeeding and complementary feeding according to the Theoretical Model in Oliveira et al. (2015) and presentation of the institutional materials used as a database for the wording of the items. (continues)

Thematic content		Source*
2. Opportunity		
2.1 Appropriate age to begin	51. Up to six months of age, breastfed infants may receive, if or when the mother is not present, a complementary supply of water or other liquids that do not contain sugar or any artificial products.	A, D
	52. Beginning at the age of six months, breast milk alone is no longer sufficient to meet the nutritional needs of the child.	A
	53. Up to six months of age, the provision of any other food may harm the baby by increasing the risk of contamination illness and replacing the volume of breast milk that might be ingested.	A
	54. On days when the temperature is very high, it is recommended to provide water for babies of all ages, including exclusively breastfed babies.	A
2.2. Physiological maturity	55. At around six months old, most children do not have the tongue protrusion reflex.	A, D
	56. Beginning at four to five months old, all children are able to support their heads and complementary feeding may be offered.	A
	57. When complementary feeding is required at four months old, the composition and consistency of the food should follow the same guidelines as those for exclusively breastfed children which are over six months old.	A, D**
	58. Pacifier use is associated with a higher frequency of oral thrush and respiratory, dental, and orofacial changes.	B
	59. At six months old, most children still do not have their first tooth eruption.	A, D
	60. Dark green leafy vegetables can be offered raw beginning in the first major meal.	+
	61. Cleaning the baby's oral cavity is recommended only after the eruption of the first tooth.	B
	62. The gastric capacity of the baby is about 20 to 30 ml/kg of weight.	A
	63. Complementary feeding of liquids should be offered in glasses with a lid or spout.	A
	64. Offering more food than the child's gastric capacity may result in refusal of part of the food or breast milk.	A
	65. Mesh/net feeders can be used by children to introduce complementary feeding because, in addition to promoting the child's eating autonomy, they protect against the risk of choking.	+

Chart 1. Categorization of items on breastfeeding and complementary feeding according to the Theoretical Model in Oliveira et al. (2015) and presentation of the institutional materials used as a database for the wording of the items. (continues)

Thematic content		Source*
2.3 Context Offered	66. When children are sick and convalescent, they should be offered their favorite foods, provided they are healthy, as a strategy for maintaining adequate calorie intake.	A
	67. Baby Led-Weaning (BLW) is a method of introducing complementary feeding in which children are encouraged to choose foods from those presented by their caretakers and the amounts they want consume.	+
	68. Baby Led-Weaning (BLW) is a method that should be taught to the mother as it is the most current and innovative option for introducing complementary feeding.	+
	69. Children should be encouraged to pick up food with their own hands when complementary feeding is introduced.	A, D
	70. Offering favorite or comfort foods when the child refuses to eat a main food or fruit may condition the child to successive refusals in order to obtain their favorite food.	A
	71. If the child refuses a particular food, the caretake should insist on offering it, at other times, at different meals or with various forms of presentation, to encourage the child to accept it.	A, D
	72. Parents or caregivers should be encouraged to adopt healthy eating habits as children learn by imitation.	D
	73. If a sick and convalescent child will accept only one type of healthy preparation, it is recommended to keep offering it until the child recovers.	A
	74. Practicing rewards (such as offering sweets after meals) or using television during a meal can be used for sick and convalescent children to ensure sufficient nutritional support.	A

Chart 1. Categorization of items on breastfeeding and complementary feeding according to the Theoretical Model in Oliveira et al. (2015) and presentation of the institutional materials used as a database for the wording of the items. (continues)

Thematic content		Source*
3. Safety		
3.1. Safe preparation	75. Before offering fruits and vegetables to a child under two years old, parents or caregivers should sanitize them with detergent and water to reduce the chances of biological contamination.	A
	76. Providing honey is completely contraindicated during the first year of life.	A, D
	77. Meat should always be offered well-cooked without any apparent blood.	A, D
	78. Leftover food on the child's plate may be offered at the next meal, provided it has been properly stored in the refrigerator.	A
	79. Bottles and sippy cups present a high risk of contamination due to the difficulty in cleaning and sanitizing.	A
	80. Every utensil that will be used to feed the child needs to be washed and rinsed with clean water.	A
	81. In prepared foods, of microorganisms can proliferate if they remain at room temperature or if the refrigerator is not kept at a suitable temperature, which is below 5 degrees Celsius.	A
	82. To prevent improper storage, ensure that the refrigerator is kept closed and that the refrigerator door is in good sealing condition.	A
3.2. Absence of food additives	83. For the meals of children under two years of age, the preferential offer of organic fruits and vegetables, i. e. free of pesticides, is recommended.	+
	84. Iron and/or aluminum cookware are indicated for the preparation of complementary foods offered to the child as they may add amounts of minerals such as iron to the food.	+
3.3. Allergenic foods	85. Gluten should be offered only at twelve months of age, as its introduction before this age may increase the risks of developing celiac disease in genetically predisposed children.	D
	86. Oilseeds, such as nuts and seeds, should be offered to the child only after two years of age.	B
	87. Seafood such as shrimp and lobster should be offered to the child only after two years of age.	B
	88. For breastfed infants, soymilk may be offered.	D

*Data sources for the wording of the items: A) *Dez passos para uma alimentação saudável*: guia alimentar para crianças menores de dois anos - um guia para o profissional da saúde na atenção básica (Brasil, 2013); B) *Caderno de Atenção Básica* nº 23 - Saúde da Criança: aleitamento materno e alimentação complementar (Brasil, 2015); C) *Guia alimentar para crianças menores de dois anos*: Série A - Normas e Manuais Técnicos (Brasil, 2005); D) Manual de orientação para a alimentação do lactente, do pré-escolar, do escolar, do adolescente e na escola (SBP, 2012).

**Items in which the source materials consulted differed as to the recommendations offered.

+Information is not explicitly stated in any of the materials used.

DISCUSSION

In Brazil, the Ministério da Saúde (MS) and the Sociedade Brasileira de Pediatria (SBP) compile the main materials that provide guidelines on healthy eating for children, which are used as references by healthcare professionals. Although the materials have been published since the 2000s, this study still found many uncertainties about what is recommended for healthy eating by Brazilian children under two years old.

The item that professionals had the highest degree of uncertainty, due to the neutrality of the observed average, concerned the adequacy of a vegetarian diet in CF. The four materials consulted highlight the importance of offering all food groups, including the meat group, without mentioning the possibility of adopting a vegetarian diet or taking a contrary position on this practice.[13,17-19] The WHO recommends offering a variety of foods to ensure that the child's nutritional needs are met, pointing out that the vegetarian diet may not provide nutrients needed for this age.[1] However, the *Sociedade Vegetariana Brasileira* (SVB - Brazilian Vegetarian Society) indicates that a vegetarian diet is adequate for all life cycles, including children under the age of two, stressing that nutritional adequacy can be met.[27]

In addition to these themes, knowledge gaps were considered: the supply of specific foods and/or nutrients in CF, such as egg, oilseeds, pork, and gluten; the type of oil indicated for cooking complementary foods; sanitizing fruits and vegetables; micronutrient supplementation; the use of cups with a lid or spout; the regular interval between meals; offering viscera and giblets; early initiation of CF; the relationship between the foods consumed by the mother and infantile colic; the age at which the protruding tongue reflex is absent, and the age of the first tooth eruption.

For egg and pork, all materials recommend offering the entire egg and all the meat group from the sixth month onwards, explicitly including pork as an option in this group.[13,17-19]

As for potentially allergenic foods, the old recommendations were that these foods should be introduced late. Currently, MS and SBP understand that the introduction of these foods at six months of age is not related to a greater predisposition to allergies, even in children with a family history of the disease.[17,19]

The MS materials do not explicitly address the issue of when to introduce gluten into a child's diet. However, SBP takes a favorable position about offering gluten beginning at sixth month, considering that this practice helps the acquisition of tolerance and reduces the risk of gluten allergenicity.[19]

Healthcare professionals had doubts about the type of oil most suitable for cooking food. The MS emphasizes that fried foods should be avoided in the first years of life and that lipids are naturally present in foods, breast milk, and vegetable oil used to cook the main meal.[17] The SBP explicitly indicates the proportion of oil to be used and recommends soybean or canola oils.[19]

The daily water needs for children was also one of the identified knowledge gaps. Both MS and SBP state that from the beginning of CF water should be provided at mealtime. SBP recommends 700 to 800 mL per day, depending on age.[17,19] MS materials[17,18] indicate the provision of water for breastfed children.

The fruits and vegetables consumed by a child should be washed in running water and then placed in chlorinated water, with subsequent rinsing.[17,19] Despite this recommendation appearing in both the MS and SBP materials, professionals still are not sure.

Another issue that raised doubts among professionals was micronutrient supplementation. According to the materials consulted, if the child is drinking infant formula, iron and vitamin supplementation is not necessary, as these products are enriched with these nutrients.[17,19] According to SBP, for breastfed infants with regular sun exposure, vitamin D supplementation is unnecessary.[19] As for vitamin A and iron, in regions with a high prevalence of deficiencies, prophylactic supplementation of both is recommended beginning in the sixth month of life.[17,19]

Regarding the offer of juices or squeezed fruits, a theme considered divergent and a knowledge gap, the MS recommends that fresh fruits should be mashed, rather than juiced.[17] SBP indicates that fruits can be offered squeezed and that respecting the period of exclusive breastfeeding, the consumption of water, fruits, and natural juices should be stimulated.[19]

For early introduction of CF, another theme considered both divergent and a knowledge gap, the MS states that if the child is using infant formula or cow's milk, solid food should be started at four months of age, with dairy meals gradually being replaced by these foods. In this case, the composition, consistency, and manner of introducing meals should follow the same guidelines as those for exclusively breastfed children over six months.[17] However, for SBP, the introduction of CF between three and four months may increase risk of allergies, so even if the child is receiving infant formula, CF should begin at six months of age.[19]

The materials consulted in this research corresponded to those most used and/or recommended as a theoretical and practical reference for practicing healthcare professionals in Brazil. However, even though they are considered reference materials, some researched

knowledge was absent, and others were divergent, according to the consulted material. One third of each of the omissions and divergences were also considered as knowledge gaps.

The missing items referred to cross-nursing, night breastfeeding, Baby Led-Weaning (BLW) method, types of food preparation utensils, organic food consumption, use of mesh/net feeders, and supply of raw vegetables.

Divergent items were related to diluted cow's milk, initiation of CF at four months old, the need to add salt to the main food, the provision of mixed ingredients in the preparations, the diet at nine months old, and the offer of squeezed fruit or natural fruit juices in the initial CF period.

Cross-nursing was an omitted theme and considered as a knowledge gap. WHO recommends the practice only under exceptional conditions.[1] However, the MS, through Ordinance No. 2415/1996, does not recommend the practice of cross-nursing.[28] The ordinance dates from 1996 and this information does not appear in any of the materials consulted. Cross-nursing may be related to outcomes such as those found by von Seehausen et al.,[29] who observed a high prevalence (43.4%) of cross-nursing among mothers in Rio de Janeiro.

Regarding night breastfeeding, there is no scientific evidence to prove the relationship between this practice and dental caries, an association often disseminated by healthcare professionals themselves.[30,31]

None of the materials address the introduction of CF from the BLW method, an alternative approach to initiate CF in which the emphasis is on self-feeding by the child rather than the adult offering food with a spoon.[32] BLW has been disseminated and encouraged on social media. In 2017, SBP released a publication against the BLW method.[33] However, this does not yet appear as a recommendation in its official guidelines.

Studies are not explicit about the utensils recommended to prepare complementary foods in terms of the best cooking pans, according to its risks and benefits of metal transfer, which makes it difficult for professionals to accurately guide mothers. Most pans allow for migration of various minerals, but none release heavy metals.[34,35] The only study recommending a specific type of pan dates back to the 1990s and recommends using iron pans.[36]

Brazil is the largest consumer of pesticides in the world, and about 30% of the food consumed by the Brazilian population is contaminated. Although some active ingredients are classified as low toxicity, the chronic effects of long-term exposure to these substances stand out.[37,38] Thus, the consumption of organic fruits and vegetables should be encouraged whenever

possible, from the earliest days. Although the *Guia Alimentar para a População Brasileira* (Food Guide for the Brazilian Population) recommends organic and agroecological foods for the adult population,[39] this information is not present in materials about feeding children.

For the use of mesh/net feeders in the CF period, a theme missing and considered as a knowledge gap, no scientific studies were found that specifically studied them. However, the risk of contamination is high due to their format and the difficulty to sanitize them, and the mesh feeders significantly change the natural presentation of the food.

Finally, for the question about offering of raw leafy vegetables, a theme also missing and considered as a knowledge gap, no scientific studies were found that clearly addressed the recommendation or not of offering raw vegetables for children in the phase of food introduction.

As for the consolidated knowledge, breastfeeding is a theme in which professionals had the most security. There was consensus on the importance of proper latching during breastfeeding to maintain breastfeeding and on the absence of weak or insufficient milk. All materials consulted advise on the importance of evaluating and stimulating the proper latching to promote breastfeeding. However, only MS[13,17,18] materials address breast stimulation, even when mothers interpret their milk as weak or insufficient.

Around the CF theme, the biological safety of the preparations, in terms of food preparation and storage, is consolidated knowledge among professionals, as well as the inappropriateness of giving certain foods to children, like honey. This information is covered in all consulted materials.

For context offered, professionals demonstrated that they know that the adoption of healthy eating habits by the family is crucial for the success of appropriate CF[19] and that it is important to restrict a child's access to ultra-processed foods.[13,17-19]

This study indicates that the agencies responsible for planning, elaborating, and disseminating institutional materials for healthcare professionals must identify the content that still present knowledge gaps for this audience and highlight these themes. In addition, these materials should be linked to training strategies, because healthcare professionals play a key role in promoting adequate nutrition and healthy eating, especially in the context of infant feeding.

The promotion of adequate and healthy eating is proposed in the intervention of the eating behavior and, thus, is characterized as educational work.[40] Despite the advances, the educational actions and strategies developed in the healthcare field are still very close to the

idea of prevention rather than the idea of health promotion, which should be developed to promote autonomy.[41]

It is important to emphasize training professionals to act as final agents in the process of implementing policies, programs, and actions that promote adequate and healthy eating. Thus, investment in communication and health education instruments that provide information to help facilitate their transmission of knowledge about food and nutrition is essential.[42]

Finally, the institutional materials and official guidelines that provide theoretical and practical fundamentals are important for the performance of healthcare professionals, which emphasizes the importance of revisiting and constantly updating these documents. In line with this, Brazil is about to launch a new Food Guide for children under two later in 2019, and it is expected that this material fill many of the weaknesses found in this study.

CONCLUSION

This study has demonstrated that healthcare professionals still have many doubts related to breastfeeding and complementary feeding. Thus, materials available to them should be constantly revisit and update, with special attention to topics identified here as knowledge gaps or omissions in the official recommendations.

The process of providing information and updating healthcare professionals, especially those who work with primary care, is necessary and continuous. Strengthening and fostering programs and strategies for training about breastfeeding and complementary feeding should be a priority.

Research such as this is an important tool for assessing and monitoring knowledge demands that is often not easily identified by those who develop support materials for professionals. Clearly, the appropriation of knowledge by professionals does not guarantee that it will be properly transmitted to the population, and even less that it will become a daily practice, but it is a first and big step in the challenging journey to promote better health.

ACKNOWLEDGEMENTS

We thank all healthcare professionals who volunteered to collaborate with this study by answering the questionnaire to assess knowledge about breastfeeding and complementary feeding.

REFERENCES

1. World Health Organization (WHO). Global strategy for infant and young child feeding. Genebra: WHO; 2003.

2. Victora CG, Barros AJD, França GVA, Bahl R, Rollins NC, Horton S, Krasevec J, Murch S, Sankar MJ, Walker N. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. The Lancet, v. 387, Jan 30, 2016.

3. Boccolini CS, Boccolini PMM, Monteiro FR, Venâncio SI, Giugliani ERJ. Tendência de indicadores do aleitamento materno no Brasil em três décadas. Rev Saude Publica. 2017;51:108.

4. Bortolini GA, Vitolo MR, Gubert MB, Santos LM. Early cow's milk consumption among Brazilian children: results of a national survey. J Pediatr (Rio J.) 2013;89:608-13.

5. IGBE. Instituto Brasileiro de Geografia e Estatística. PNS. Pesquisa Nacional de Saúde: 2013: ciclos de vida: Brasil e grandes regiões / IBGE, Coordenação de Trabalho e Rendimento. - Rio de Janeiro: IBGE, 2015.

6. Giugliani ERJ, Victora CG. Alimentação complementar. J Pediatr. 2000; 76 (Supl.3):S253-62.

7. Brasil. Ministério da Saúde. Centro Brasileiro de Análise e Planejamento. Pesquisa Nacional de Demografia e Saúde da Criança e da Mulher – PNDS de 2006. Dimensões do Processo Reprodutivo e da Saúde da Criança. Série G. Estatística e Informação em Saúde. Brasília - DF. 2009.

8. Bortolini GA, Vitolo MR, Gubert MB, Santos LMP. Iniquidades sociais influenciam a qualidade e a diversidade da dieta de crianças brasileiras de 6 a 36 meses. Cad. Saúde Pública, Rio de Janeiro, 31(11):2413-2424, nov, 2015.

9. Cunha AJDA, Leite AJM, Almeira IS. The pediatrician's role in the first thousand days of the child: the pursuit of healthy nutrition and development. J Pediatr (Rio J). 2015;91:S44-51.

10. Anderson GH, Zlotkin SH. Developing and implementing food-based dietary guidance for fat in the diets of children. Am J ClinNutr. 2000;72:1404-9.

11. Golley RK, Hendrie GA, McNaughton SA. Scores on the dietary guideline index for children and adolescents are associated with nutrient intake and socio-economic position but not adiposity. J Nutr 2011;141(7):1340-7.

12. Shonkoff JP, Bales SN. Science does not speak for itself: translating child development research for the public and its policy makers. Child Dev. 2011;82:17-32.

13. Brasil. Ministério da Saúde. Secretaria de Política de Saúde. Organização Pan Americana da Saúde. Guia alimentar para crianças menores de dois anos / Secretaria de Políticas de Saúde, Organização Pan Americana da Saúde. – Brasília: Ministério da Saúde, 2002. 152 p.: il. – (Série A. Normas e ManuaisTécnicos; n. 107).

14. Brasil. Ministério da Saúde. Dez passos para uma alimentação saudável para crianças brasileiras menores de dois anos. Brasília - DF. 2010.

15. Vitolo MR, Louzada ML, Rauber F, Grehi P, Gama CM. Impacto da atualização de profissionais de saúde sobre as práticas de amamentação e alimentação complementar. Cad. Saúde Pública, Rio de Janeiro, 30(8):1695-1707, ago, 2014.

16. Nunes LM, Vigo A, Oliveira LD, Giugliani RRJ. Efeito de intervenção no cumprimento das recomendações alimentares no primeiro ano de vida: ensaio clínico randomizado com mães adolescentes e avós maternas. Cad. Saúde Pública 2017;33(6):e00205615.

17. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Dez passos para uma alimentação saudável: guia alimentar para crianças menores de dois anos - um guia para o profissional da saúde na atenção básica. 2 ed. – 2 reimpr. – Brasília: Ministério da Saúde, 2013.

18. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Saúde da criança: aleitamento materno e alimentação complementar/Ministério da Saúde, Secretaria de Atenção à Saúde, Departamento de Atenção Básica. – 2. ed. – Brasília: Ministério da Saúde, 2015. 184 p.: il. – (Cadernos de Atenção Básica; n. 23).

19. Sociedade Brasileira de Pediatria. Manual de orientação para a alimentação do lactente, do pré-escolar, do escolar, do adolescente e na escola/Sociedade Brasileira de Pediatria. Departamento de Nutrologia, 3ª. ed. Rio de Janeiro, RJ: SBP, 2012.

20. Borrego LM, Fonseca JA, Pereira AM, Pinto VR, Linhares D, Morais-Almeida M. Development process and cognitive testing of CARAT kids - Control of Allergic Rhinitis and Asthma Test for children. Ver Port Imunoalergologia. 2014;22:183-193.

21. Oliveira J M, Castro IRRD, Silva GB, Venancio SI, Saldiva SRDM. Assessing complementary feeding practices in the first two years of life: a proposal for indicators and a monitoring tool. Cadernos de Saude Publica, 31(2):377-394, 2015.

22. Azemati B, Heshmat R, Sanaei M, Salehi F, Sadeghi F, Ghaderpanahi M, Mirarefin M, Abdollahi Z, Hemami MR, Larijani B. Nutritional knowledge, attitude and practice of Iranian households and primary health care staff: NUTRIKAP Survey. Journal of Diabetes &Metabolic Disorders 2013,12:12

23. Goodman, LA. Snowball Sampling. Annals of Mathematical Statistics. 1961;20:572-579.

24. Rothenberg, RB. Commentary: Sampling in Social Networks' Connections. 1995;18:104-110.

25. Baltar F, Brunet I. Social research 2.0: virtual snowball sampling method using Facebook. Internet Research. 2012; 22(1):57-74.

26. SPRING/USAID. United States Agency for International Development - Strengthening Partnerships, Results, and Innovations in Nutrition Globally Project. The KAP survey model (knowledge, attitudes and practices), 2011.

27. Sociedade Vegetariana Brasileira. Departamento de Saúde e Nutrição. Alimentação para bebês e crianças vegetarianas até dois anos de idade. Guia alimentar para a família. 2018.

28. Brasil. Ministério da Saúde. Portaria nº 2.415, de 12 de dezembro de 1996. Diário Oficial da União.

29. Von Seehausen MP, Oliveira MIC, Boccolini CS, Leal MC. Fatores associados ao aleitamento cruzado em duas cidades do Sudeste do Brasil. Cad. Saúde Pública 2017;33(4):e00038516.

30. Ribeiro NME, Ribeiro MAS. Aleitamento materno e cárie do lactente e pré-escolar: uma revisão crítica. J Pediatr (Rio de Janeiro) 2004;80(5):199-210.

31. Moura MS, Moura LFAD, Mendes RF. Dental caries in children under five years old in Teresina-PI. Ver Odontol UNESP. 2010;39(3):143-149

32. Cameron SL, Heath A-LM, Taylor RW. Healthcare professional's and mother's knowledge of, attitudes to and experiences with Baby-Led Weaning: a content analysis study. BMJ Open; 2012.

33. Sociedade Brasileira de Pediatria. Guia prático de atualização: a alimentação complementar e o método BLW (Baby Led-Weaning). Departamento Científico de Nutrologia. Maio, 2017.

34. Quintaes KD, Amaya-Farfan J, Tomazini FM, Morgano MA, Mantovani DMB. Migração de minerais de panelas brasileiras de aço inoxidável, ferro fundido e pedra-sabão (esteatito) para simulantes de alimentos. Ciênc. Tecnol. Aliment. 2004;24(3):397-402.

35. Dantas ST, Saron ES, Dantas FBH, Yamashita DM, Kiyataka PHM. Determinação da dissolução de alumínio durante cozimento de alimentos em panelas de alumínio. Ciênc. Tecnol. Aliment. 2007;27(2):291-297.

36. Borigato VM, Martines FE. Conteúdo de ferro na dieta do lactente cozida em panela de ferro. Jornal de Pediatria 1995:71(2).

37. Agência Nacional de Vigilância Sanitária. Programa de Análise de Resíduos de Agrotóxicos em Alimentos (PARA): Relatório de atividades de 2010. Gerência Geral de Toxicologia. AVISA; 2011.

38. Associação Brasileira de Saúde Coletiva. Dossiê ABRASCO: um alerta sobre os impactos dos agrotóxicos na saúde / Organização de Fernando Ferreira Carneiro, Lia Giraldo da Silva Augusto, Raquel Maria Rigotto, Karen Friedrich e André Campos Búrigo. - Rio de Janeiro: EPSJV; São Paulo: Expressão Popular; 2015.

39. Brasil. Ministério da Saúde. Guia alimentar para a população brasileira. 2. ed. Brasília: Ministério da Saúde; 2014.

40. Boog, MCF. Atuação do nutricionista em saúde pública na promoção da alimentação saudável. Revista Ciência e Saúde 2008;1(1):33-42.

41. Santos, LAS. O fazer educação alimentar e nutricional: algumas Contribuições para reflexão. Ciência & Saúde Coletiva 2012;17(2):453-462.

42. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Política Nacional de Alimentação e Nutrição / Ministério da Saúde, Secretaria de Atenção à Saúde. Departamento de Atenção Básica – 1. ed., 1. reimpr. – Brasília: Ministério da Saúde; 2013.

Contributors

Nunes BS organized the conception, designed the research, coordinated the data collection, performed the analysis, interpreted the results, wrote the preliminary and partial versions of the article, and approved the final version of the manuscript. Gubert MB guided the research design and planning process, collaborated with the organization of data collection and analysis of results, conducted partial and final reviews of the article, and participated in the approval of the final version of the manuscript. Bortolini GA revised the final version of the article.

Conflicts of interest: the authors declare no conflicts of interest.

Received: June 13, 2019
Reviewed: August 8, 2019
Accepted: September 6, 2019