


## **PRACTICES OF MOTHERS AND CAREGIVERS IN THE IMPLEMENTATION OF THE TEN STEPS FOR HEALTHY FEEDING**

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### **ABSTRACT**

**Objective:** to evaluate the practices of mothers and caregivers regarding the diet of children under one year of age, according to the recommendations of the ten steps for healthy feeding.

**Method:** a cross-sectional, analytical study. A total of 151 mothers or caregivers of children aged 12-23 months and 29 days who were registered in the Basic Health Units of the IV Health District in Recife, Pernambuco, Brazil, were interviewed between July and September 2015. For the purpose of analysis a ten-step compliance score for healthy feeding was constructed. Poisson regression with robust variance was performed to identify the determinants of inadequate feeding practices.

**Results:** the median of the steps was 20%. Paid maternal work outside the home, not living with the partner and performing less than seven childcare consultations were determinants of inadequate feeding practices.

**Conclusion:** The practices of the mothers and caregivers in relation to children's diet were considered inadequate due to the low compliance regarding the number of accomplished steps.

**DESCRIPTORS:** Feeding behavior. Infant nutrition. Child care. Health education. Nursing.

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# PRÁTICAS DE MÃES E CUIDADORES NA IMPLEMENTAÇÃO DOS DEZ PASSOS PARA ALIMENTAÇÃO SAUDÁVEL

## RESUMO

**Objetivo:** avaliar as práticas de mães e cuidadores na alimentação de crianças menores de um ano, de acordo com as recomendações dos dez passos para alimentação saudável.

**Método:** estudo transversal e analítico. Foram entrevistadas 151 mães/cuidadores de crianças de 12 a 23 meses e 29 dias, cadastradas nas Unidades Básicas de Saúde do Distrito Sanitário IV da cidade do Recife, Pernambuco, Brasil, entre julho e setembro de 2015. Para análise foi construído um escore de cumprimento dos dez passos para alimentação saudável. A regressão de Poisson com variância robusta foi realizada para identificar os determinantes da prática alimentar inadequada.

**Resultados:** a mediana no cumprimento dos passos foi de 20%. Trabalho materno remunerado fora do lar, não residir com o companheiro e realizar menos de sete consultas em puericultura foram determinantes para a prática alimentar inadequada.

**Conclusão:** as práticas maternas e de cuidadores na alimentação das crianças foram consideradas inadequadas, devido ao baixo cumprimento no número de passos.

**DESCRITORES:** Comportamento alimentar. Nutrição do lactente. Cuidado da criança. Educação em saúde. Enfermagem.

# PRÁCTICAS DE MADRES Y CUIDADORES EN LA IMPLEMENTACIÓN DE LOS DIEZ PASOS PARA LA ALIMENTACIÓN SALUDABLE

## RESUMEN

**Objetivo:** evaluar las prácticas de madres y cuidadores en la alimentación de niños menores de un año, de acuerdo con las recomendaciones de los diez pasos para alimentación saludable.

**Método:** estudio transversal y analítico. Se entrevistó a 151 madres/cuidadores de niños de 12 a 23 meses y 29 días, registrados en las Unidades Básicas de Salud del Distrito Sanitario IV de la ciudad de Recife, Pernambuco, Brasil, entre julio y septiembre de 2015. Para el análisis se construyó una puntuación de cumplimiento de los diez pasos para la alimentación saludable. Se realizó una regresión de Poisson con varianza robusta para identificar los determinantes de la práctica alimentaria inadecuada.

**Resultados:** la mediana en el cumplimiento de los pasos fue del 20%. El trabajo materno remunerado fuera del hogar, no residir con el compañero y realizar menos de siete consultas en puericultura fueron determinantes para la práctica alimentaria inadecuada.

**Conclusión:** las prácticas maternas y de cuidadores en la alimentación de los niños fueron consideradas inadecuadas, debido al bajo cumplimiento en el número de pasos realizados.

**DESCRIPTORES:** Conducta alimentaria. Nutrición del lactante. Cuidado del niño. Educación en salud. Enfermeira.

## INTRODUCTION

A healthy feeding is essential for children, especially in the first two years of life.<sup>1</sup> The Brazilian Ministry of Health (MH) promotes this practice by following the recommendations of the World Health Organization (WHO) regarding exclusive breastfeeding until the sixth month of life and, afterwards the complementary supply of other foods as well as breast milk.<sup>1</sup>

Inadequate feeding practices in the first two years of the child's life adversely affect their health, increase their susceptibility to infections and contribute to the development of nutritional changes that range from malnutrition and lack of micronutrients to overweight and obesity, which may persist into adulthood.<sup>1</sup>

The risk of developing nutritional disorders in childhood can be minimized by nutritional guidance from a trained professional. The nurse, responsible for the follow-up of the child in primary health care, should understand child nutrition as a complex practice, involving socioeconomic factors, household and peridomicile conditions, maternal behavior, educational level, presence of companions, health conditions and assistance to the mother and child.<sup>2</sup>

To promote healthy feeding in children and prevent nutritional disorders, the MS, based on the WHO recommendations, provides health professionals with educational tools with dietary guidelines, such as the "Ten steps for healthy feeding guide: a guide for children under-two".<sup>1</sup> This material directs the systematic orientation of child nutrition by health professionals in the childcare consultation, which is adaptable to the reality of each family.

The persistence of nutritional disorders in children under the age of two<sup>1</sup> reinforces the application of institutional protocols that guide professionals who work in primary health care to promote healthy feeding. In addition to its application, investigating whether mothers or caregivers follow the recommendations made in childcare consultations can guide educational actions based on the family context of the child. In this context, the objective of this study was to evaluate the practices of mothers and caregivers regarding the feeding practices of children aged between 12 to 23 months and 29 days, according to the recommendations of the ten steps for healthy feeding.

## METHOD

A cross-sectional, analytical study performed at the Basic Health Units (BHU) of the IV Health District (HD) in Recife city, Pernambuco (Brazil). This district is subdivided into three micro- regions of health. The study population consisted of children aged between 12 months to 23 months and 29 days registered in the Family Health Teams (FHT) linked to the BHU.

For the sample calculation, the number of children aged between 12 months to 23 months and 29 days, registered in the BHU of HD IV in the month of September 2014 (N = 1,291), this age group was determined age group to minimize the child's recall bias in the first year of life. In order to estimate the expected proportion of inadequacy, the prevalence of early introduction of complementary food (inappropriate feeding practice) of 90% was used which was obtained in a study carried out in a municipality surrounding Recife<sup>3</sup>, a maximum error of 5%, a significance of 95% and additional 20% for any losses were also used. The final sample consisted of 151 children.

Sampling was performed in three stages: in the first stage a stratified sampling plan per micro-region of health was applied, proportional to the number of children enrolled in the Family Health Strategy; in the second stage, a simple random draw was carried out to select the amount of BHU necessary to reach the total number of children in each micro-region; and in the third stage, children who participated in the study were randomly selected. After this draw, the Community Health Agents (CHA) scheduled home visits in order to carry out the research. The children of parents who presented

difficulties in understanding the questions of the instruments, even after explaining the content, were excluded.

When participants refused to participate in the study or when the person responsible for the child chosen to participate in the study could not be found at home on three occasions, the CHA recommended another participant in the same age group in his or her assigned area.

Data were collected through interviews at the participants' homes between July and September 2015, using an instrument containing two forms: the first form contained sociodemographic, housing, maternal, child health, counselling, and educational strategies variables. The second was subdivided into ten topics in order to identify the steps in introducing complementary food from the "Ten steps for healthy feeding guide: a guide for children under-two",<sup>1</sup> plus a 24-hour diet recall containing questions about quantity, content and variety of the child's meals. This form was validated by eight specialists.<sup>4</sup>

The sociodemographic variables analyzed were; sex of the child, family income, categorized according to the minimum wage of R \$ 788.00 for 2015 and the economic and environmental indexes. The economic index, created by means of an adapted model,<sup>5</sup> was composed of consumer goods available at home. The score was established from the sum of the points attributed to consumer goods: 15 or more points =4; 10 to 14=3; 4 to 9=2; and from 1 to 3=1 point.<sup>5</sup> The frequency of the distribution of the variable varied from 6 to 8 points, the index was categorized as: up to 6 - the worst situation, 7 - intermediate situation and 8 - the best situation.

The environmental index was based on a model<sup>6</sup> and included the variables; destination of sewage, waste disposal, water supply, drinking water treatment and housing occupancy regime, so that the most unfavourable condition received a score of 0 and the most favourable received a score of 1. The worst environmental situation found had 3 points - unfavourable; the intermediary, 4 points - partially favourable; and the best situation, 5 points - favourable.

The maternal variables analyzed were; age, education, paid work outside the home, presence of the partner at home, number of prenatal consultations  $\geq 6$  or  $< 6$ , and breastfeeding of the previous child. Those related to the child were; birth weight  $\geq 2500g$  or  $< 2500g$ , breastfeeding in the first hour of life, number of child care consultations  $\geq 7$  or  $< 7$  and the responsible person for the child when the mother is at work, categorized in the primary social network, represented by the husband, mother, grandmother, mother-in-law, siblings and neighbours and secondary when caregivers were from child care institutions.

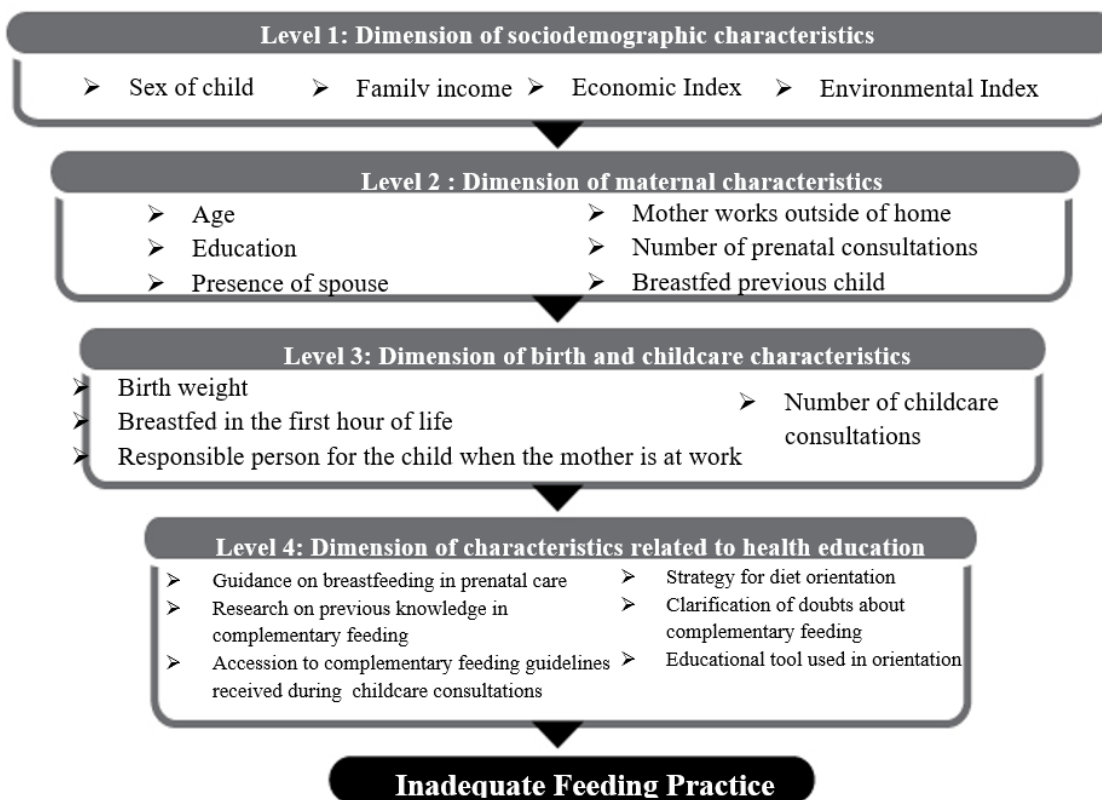
In order to investigate health education practices the following were evaluated; variables regarding breastfeeding guidance in prenatal care, research on previous knowledge on complementary feeding, adherence to dietary guidelines received in the childcare consultation, strategy used in food orientation, clarification of doubts regarding complementary feeding and the applied educational tool in the orientation.

The introduction of complementary feeding was analyzed by means of a healthy feeding score, based on the main recommendation of each of the ten steps. Each step was assigned ten points, and the score was based on the sum of all the steps, with a total of 100 points for the mothers or caregivers who correctly performed the Ten Steps for Healthy Feeding.<sup>1</sup>

Normal distribution of the healthy feeding scores was tested using the Kolmogorov-Smirnov test, with 5% significance. As the variable did not present a normal distribution, it was decided to analyze the data by the median of the healthy feeding scores, categorized in two groups, equal to or above the median (healthy) or less than the median (poor), being considered the dependent variable.

The chi-square test was used for bivariate analysis between the healthy feeding scores and the independent variables, and when the assumptions of this test did not allow its application, the Fisher's exact test, with a statistical significance of 5% was utilized. Variables with  $p < 0.20$  were selected for multiple analysis.

During the multiple analysis, the variables were grouped according to an adapted hierarchical conceptual model,<sup>2</sup> organized in four levels, according to the magnitude of association with the outcome (Figure 1).



**Figure 1** - Hierarchical causal model of the inadequate feeding practice in children's diet.<sup>2</sup> Recife, PE, Brazil, 2015

The Poisson regression model with robust variance was used to investigate the influence of the independent variables in the determination of the Inadequate Feeding Practice, defined by the lower compliance scores of the Ten Steps for Healthy Feeding. The backward method was used. No first-level variables were included in the model. Initially, the variables of the second level were added to the model, with those with the highest p value being progressively excluded until all variables with  $p < 0.20$  remained in the model. Next, the variables from the third level and later from the fourth level were added, excluding the variables according to the same criterion. The variables with  $p < 0.05$  at each level were considered significant. Statistical significance was determined by the Wald test, estimating the adjusted prevalence ratios and respective 95% confidence intervals.

Data were entered twice in the Epi Info Program, version 3.5.2. After typing validation, the analysis was performed in the IBM Statistical Package for the Social Sciences program (SPSS Inc., Chicago, United States), version 18.0.

## RESULTS

The distribution of children by sex was similar and 58.9% were in the age range of 12 to 18 months of age. Regarding birth weight, only 6.6% of the children had low birth weight.

Among the variables of the mothers, 54.3% of the mothers were between 21 and 30 years of age (mean 21.5, standard deviation, (SD) = 0.72), 63.6% had more than nine years of education, 45% lived in a consensual union and 19.9% were married. 26.5% of the mothers worked outside the

home, and the most mentioned person regarding childcare while the mother was at work were the members of the primary social network. In relation to the indices, 51.7% and 63.6% of the families obtained the best score in the economic and environmental condition, respectively.

The maximum score found in the appropriate feeding practices score was 80.0% with a median of 20.0%. The most completed steps for the mothers were the 10 (43.7%) that correspond to the feeding of the child in periods of illness, 5 and 7 (40.4%) that are related to the consistency of the meal and the varied diet respectively, and step 2 (36.4%) representing the introduction of complementary foods at six months of age. The lowest adherence step was 8, which corresponds to avoiding consumption of processed products during the first years of life (Table 1).

**Table 1** - Adherence to the ten steps for healthy feeding in children by mothers or caregivers of children in the first year of life, Recife, PE, Brazil, 2015

Variables	Yes	No
	n (%)	n (%)
Step 1 - Give only breast milk up to six months.	40 (26.5%)	111 (73.5%)
Step 2 - Slowly and gradually introduce other foods.	55 (36.4%)	96 (63.6%)
Step 3 - Give complementary foods three times a day if the child is breastfeeding.	24 (15.8%)	127 (84.2%)
Step 4 - Offer complementary food according to family schedules, respecting the child's appetite.	5 (3.3%)	146 (96.7%)
Step 5 - Start feeding with pasty consistency and gradually increase consistency until reaching the family's regular diet.	61 (40.4%)	90 (59.6%)
Step 6 - Offer the child a varied diet.	4 (2.6%)	147 (97.4%)
Step 7 - Stimulate the daily consumption of fruits and vegetables.	61 (40.4%)	90 (59.6%)
Step 8 - Avoid sugar, coffee, canned foods, fried foods, soft drinks, candies, snack foods and other treats in the first few years of life. Use salt in moderation.	1 (0.7%)	150 (99.3%)
Step 9 - Take care of hygiene during preparation, handling, storage and conservation of food.	39 (25.8%)	112 (74.2%)
Step 10 - Offer the sick and convalescing child their usual food as well as favourite foods.	66 (43.7%)	85 (56.3%)

In the bivariate analysis, the following variables were selected for multiple analysis: mothers working outside the home, presence of the partner and number of prenatal consultations from the second level; birth weight, number of childcare consultations and the responsible person for the child when the mother is at work, at the third level. In the fourth level, adherence to the guidelines regarding diet and feeding in the childcare consultation, strategy and educational tool used in dietary guidance.

In the multivariate analysis, variables such as: mothers working outside the household, not residing with the partner, attend less than seven child-care consultations when compared to seven or more remained significant in the model as determinants of inappropriate feeding practices in children (Table 2).



**Table 2** - Adjusted prevalence ratio of feeding practice scores of children in the first year of life according to maternal and child factors. Recife, PE, Brazil, 2015

Variables	PR	CI(95%)	p-value*
Mother works outside of home			
Yes	0.57	1.01 – 2.43	0.044*
No	1.00	-	-
Companion			
Yes	1.00	-	-
No	0.65	1.05 – 2.59	0.028*
Number of childcare consultation			
Less than 7 consultations	1.64	1.34 – 5.21	0.005*
7 or more	1.00	-	-

\* p-value of the Wald tests.

## DISCUSSION

In this study, the practices of mothers regarding feeding in children under two years of age were inadequate, this is because mothers or caregivers met less than half of the recommendations of the ten steps for healthy feeding. Working outside the home, not residing with the partner, performing less than seven childcare consultations are associated with inadequate feeding habits in infants.

The low adherence of the mothers or caregivers to the ten steps for healthy feeding in children under two years was confirmed by the average compliance of only two steps. This situation is similar to that found more than a decade ago in the same region,<sup>7</sup> in which the majority of the children did not receive adequate food for their age, despite mothers receiving verbal and written instructions in the evaluated service, which may be related to the method applied in health education actions directed at the population. This reality does not differ from that found in the southern region of the country, where compliance varies from 6.7% to 62.3%.<sup>8</sup>

With regard to adherence to the steps, the most performed step by the mothers or caregivers was the feeding in situations of illness. During periods of illness, the child needs to increase the amount of food ingested in order not to lose weight and to accelerate recovery.<sup>1</sup> Adherence to this recommendation can be explained by the cultural value of food, as when the child becomes ill, the mothers or caregivers prepare the child's favourite food because they are concerned about the repercussions of inappetence to the child's health.

Exclusive breastfeeding until the sixth month of life was only practised by 26.5% of the mothers or caregivers, which is lower than that found in all Brazilian capitals and the Federal District in 2008.<sup>9</sup> Despite the initiatives already implemented in Brazil, such as the Brazilian norm for the commercialization of infant foods, approval of the 120-Day Maternity Leave, Baby Friendly Hospital Initiative, the Brazilian Network of Human Milk Banks and the growth of this practice in the last 30 years in the country, its prevalence is still lower than that recommended by WHO.<sup>10</sup>

After breast milk, the first foods offered to the infant should be pasty (step 5), with a gradual increase in consistency, until reaching the diet that the family follows.<sup>1</sup> In this study, mothers or caregivers offered liquefied meals to the children during the first year of life. The supply of liquefied food is a very common practice, justified by the fear of gagging and ease of offering<sup>9</sup> although this conduct is contraindicated due to the risk of over-dilution, with consequent reduction in the caloric supply.<sup>1</sup>

Infant diets should consist of a variety of fruits, vegetables in order to meet their fiber, vitamins, minerals and iron needs.<sup>1</sup> Although the mothers or caregivers of this study provide daily fruits and

vegetables, the food intake of children from 6 to 72 months is characterized by low frequency of ingestion of natural foods and high consumption of processed products,<sup>11</sup> which may compromise the intake of important nutrients that maintain the speed of growth and development at that stage.

The introduction of ultra-processed products in the infant diet in the first year of life was the most inadequate practice performed by mothers or caregivers. *Petit suisse* type yogurt, industrialized popcorn, added sugar in juices, snacks, and biscuits with fillings were the most offered types of foods. The consumption of processed foods begins in the first six months of the child's life and is still a common practice in Brazil and in other countries of the world, increasing the risk of overweight in childhood.<sup>9</sup>

As for food diversity, the main characteristic of the infant's diet was dietary monotony, with a menu containing milk and carbohydrates,<sup>11</sup> due to the social representation of these foods as important for the child's growth.<sup>12</sup> Excessive milk consumption interferes with the acceptance of other food groups, increasing the amount of calories per meal and, consequently, the risk of overweight and obesity.<sup>13</sup> In this study, the prevalence of starch in the diet of children evaluated in this study may be linked to the belief of porridge as being a nutritious food,<sup>11</sup> which due to its practical preparation, offering and sweet taste guarantees greater satiety and acceptance on the part of the child.

Feeding habits established in the first years of life result from the interaction of the child with the mother or caregiver.<sup>1</sup> Maternal sedentarism and prolonged use of electronic devices are associated with lower intake of fruits, vegetables and higher consumption of ultra-processed foods,<sup>13</sup> which consequently interferes with feeding their child.

Another factor related to the child's food consumption is the availability of food at home due to its interference in the acquisition and feeding habits of the family<sup>14</sup> and, consequently, in the nutritional status of the children residing in the household. Households with lower purchasing power tended to consume more industrialized products, due to the low cost associated with the greater availability of these products near their residences.<sup>15</sup> Participants who had a family income of one or more minimum wages presented lower medians of feeding habits, although no statistical significance was found, going against what is stated in the literature.

In the second level of the model, the absence of the partner was associated with lower scores of adequate feeding habits. The presence of the spouse positively influences breastfeeding<sup>16</sup> and, consequently, the child's diet, possibly because the woman feels more supported and confident in the decision-making related to the health of her child. In the first few weeks after giving birth, the support and encouragement from the women's social networks, such as their husbands, grandparents, other family members and friends, can help with difficulties related to breastfeeding<sup>17</sup> and positively influence the continuation of breastfeeding.<sup>1</sup>

The insertion of women in the labor market and the search for care and education institutions for their children interfered negatively in the dietary pattern of these children.<sup>18-19</sup> In some cases, day care is offered by professionals responsible for the care of several children simultaneously and are unable to introduce food into the child's diet,<sup>20</sup> which makes it more difficult for the child to accept food in the transition phases.

The permanence of children in day-care centres for long periods of time can lead to difficulties in accepting the family menu, since the infant tends to become accustomed to the presence of the caregiver responsible for their meals and the way of preparing the food in that particular institution, which may differ from that at home. On the other hand, the contact and observation of other children being fed in the same environment instigates the acceptance of food by children with food neophobia.

In the final model, when variables of the proximal levels were included, it was verified that performing less than seven childcare consultations was associated with inadequate feeding practice. This result reinforces the competence and ability of nurses and other professionals in guiding mothers



of children in the nutritional transition phase,<sup>21</sup> because it enables children to be followed up in a systematic way, as well as allowing early intervention in situations that characterize dietary errors.

In this study, health education actions did not remain in the final model as determinants of healthy feeding habits. However, developing good communication techniques and qualified listening improves adherence to the provided guidelines.<sup>21</sup> In addition, educational interventions on complementary feeding have a positive effect on increasing the compliance scores of the ten steps,<sup>8</sup> emphasizing the importance of this practice in the promotion of healthy feeding in children.

Although the ten steps for healthy feeding guide was launched in Brazil more than a decade ago, there are few studies that evaluate their compliance in the various regions of the country. This evaluation guides professional training and the adequacy of the health guidelines regarding the health needs of the children, effective strategies to increase the prevalence of exclusive breastfeeding in the first six months of age and the improvement of feeding habits in the first two years of life.<sup>22</sup>

## CONCLUSION

The practices of mothers and caregivers in relation to feeding children under one year of age were found to be inadequate in this study due to the low compliance of actions recommended by WHO for healthy infant feeding.

The presence of the companion, the child's follow-up in childcare consultations according to the MS's recommendation during the first year of life and not working outside the home influence the mother or caregiver in the accomplishment of the ten steps and consequently in the adequate feeding practices.

The results of this study reinforce nurses' competence in nutritional guidance and the importance of health education in the construction of good feeding practices in children, especially in childcare consultations. Based on the diagnosis of inadequate maternal feeding practices of their children, new studies are encouraged that investigate the repercussion of this behavior on the child's nutritional status and, together with these results, lead to the elaboration of effective educational strategies.

## REFERENCES

1. Ministério da Saúde (BR). 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 de saúde na atenção básica [Internet]. Brasília, DF; 2014 [cited 2015 Jul 13]. Available from: [http://bvsmms.saude.gov.br/bvs/publicacoes/passos\\_alimentacao\\_saudavel\\_menores\\_2anos\\_1edicao.pdf](http://bvsmms.saude.gov.br/bvs/publicacoes/passos_alimentacao_saudavel_menores_2anos_1edicao.pdf)
2. Schincaglia RM, Oliveira AC, Sousa LM, Martins KA. Feeding practices and factors associated with early introduction of complementary feeding of children aged under six months in the northwest region of Goiânia, Brazil. *Epidemiol Serv Saúde* [Internet]. 2015 [cited 2017 Dec 20]; 24(3):465-74. Available from: <https://dx.doi.org/10.5123/S1679-49742015000300012>
3. Andrade GMSC. Alimentação complementar de crianças assistidas pela estratégia de saúde da família no município de Vitória de Santo Antão-PE [dissertação na Internet]. Vitória de Santo Antão (PE): Universidade Federal de Pernambuco; 2013 [cited 2015 Jul 13]. Available from: <https://repositorio.ufpe.br/handle/123456789/11244>
4. Pasquali L. Principles of elaboration of psychological scales. *Rev Psiquiatr Clín*. 1998; 25(5):206-13.
5. Issler RMS, Giugliani ERJ. Identification of the groups most vulnerable to infant malnutrition through the measuring of poverty level. *J Pediatr* [Internet]. 1997 [cited 2015 Oct 14]; 23(2):101-5. Available from: <http://www.jpmed.com.br/conteudo/97-73-02-101/port.pdf>

6. Oliveira LPM, Barreto ML, Assis AMO, Braga-Júnior ACR, Nunes MFFP, Oliveira NF *et al.* Determinants of linear growth retardation in Brazilian preschool children: a multilevel approach. *Cad Saúde Pública* [Internet]. 2007 [cited 2017 Dec 20]; 23(3):601-13. Available from: <https://dx.doi.org/10.1590/S0102-311X2007000300019>
7. Santos CS, Lima LS, Javorski M. Factors that interfere in the food transition in children aged between five and eight months: an investigation of the childcare system in Recife, Brazil. *Rev Bras Saúde Mater Infant* [Internet]. 2007[cited 2017 Dec 20]; 7(4):373-80. Available from: <https://dx.doi.org/10.1590/S1519-38292007000400004>
8. Nunes LM, Vigo A, Oliveira LD, Giugliani ERJ. 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* [Internet]. 2017 [cited 2017 Dec 20]; 33(6):1-13. Available from: <https://dx.doi.org/10.1590/0102-311x00205615>
9. Saldiva SRDV, Venancio SI, Santana AC, Castro ALS, Escuder MML, Giugliani ERJ. The consumption of unhealthy foods by Brazilian children is influenced by their mother's educational level. *Nutr J* [Internet]. 2014 [cited 2017 Dec 20]; 13:33. Available from: <https://doi.org/10.1186/1475-2891-13-33>
10. Uema RTB, Souza SNDH, Mello DF, Capellini VK. Prevalence and factors associated with breastfeeding in Brazil between the years 1998 and 2013: a systematic review. *Semina* [Internet]. 2015 [cited 2017 Dec 20]; 36(1):349-62. Available from: <https://dx.doi.org/10.5433/1679-0367.2015v36n1Suplp349>
11. Karnopp EVN, Vaz JS, Schafer AA, Muniz LC, Souza RLV, Santos I, *et al.* Food consumption of children younger than 6 years according to the degree of food processing. *J Pediatr* [Internet] 2017 [cited 2017 Dec 20]; 93(1):70-8. Available from: <https://doi.org/10.1016/j.jped.2016.04.007>
12. Lima APE, Javorski M, Amorim RJM, Oliveira SC, Vasconcelos MGL. Práticas alimentares no primeiro ano de vida: representações sociais de mães de adolescentes. *Rev Bras Enferm* [Internet]. 2014 [cited 2017 Dec 20]; 67(6):965-71. Available from: <https://dx.doi.org/10.1590/0034-7167.2014670615>
13. Yeung S, Chan R, Li L, Leung S, Woo J. Bottle milk feeding and association with food group consumption, growth and socio-demographic characteristics in Chinese young children. *Mater Child Nutr* [Internet]. 2017 [cited 2017 Dec 20]; 13(3):1-13. Available from: <https://dx.doi.org/10.1111/mcn.12341>
14. Martins APB, Monteiro CA. Impact of the Bolsa Familia program on food availability of low-income Brazilian families: a quasi experimental study. *BMC Public Health* [Internet]. 2016 [cited 2017 Dec 20]; 16: 827 <https://dx.doi.org/10.1186/s12889-016-3486-y>.
15. Fechine ADL, Machado MMT, Lindsay AC, Fechine VAL, Arruda CAM. Parents' and teachers' perceptions of processed foods impact on child health. *Rev Bras Promoç Saúde* [Internet]. 2015 [cited 2015 Nov 25]; 28(1): 16-22. Available from: <http://www.redalyc.org/articulo.oa?id=40842428003>.
16. Marques RFSV, Taddei JAAC, Konstantyner T, Lopez FA, Marquez ACV, Oliveira CSO, *et al.* Antropometric indices and exclusive breastfeeding in the first six months of life: a comparison with reference standards NCHS, 1977 and WHO, 2006. *Int Breastfeed J* [Internet]. 2015 [cited 2017 Dec 20]; 10(20). Available from: <https://dx.doi.org/10.1186/s13006-015-0045-6>
17. Maranhão TA, Gomes KRO, Nunes LB, Moura LNB. Factors related to exclusive breastfeeding among adolescent mothers. *Cad Saúde Coletiva* [Internet]. 2015 [cited 2017 Dec 20]; 23(2):132-9. Available from: <https://dx.doi.org/10.1590/1414-462X201500020072>
18. Sousa AM, Fracoli LA, Zoboli ELCP. Family practices related to breast-feeding maintenance: literature review and meta-synthesis. *Rev Panam Salud Publica* [Internet]. 2013 [cited 2015 Nov 14]; 18(2):545-52. Available from: [http://www.scielosp.org/scielo.php?script=sci\\_arttext&pid=S1020-49892013000800008](http://www.scielosp.org/scielo.php?script=sci_arttext&pid=S1020-49892013000800008)

19. Mariz LS, Enders BC, Santos VEP, Tourinho FSV, Vieira CENK. Causes of infantile-juvenile obesity: reflexions based on the Theory of Hannah Arendt. *Texto Contexto Enferm* [Internet]. 2015 [cited 2017 Dec 20]; 24(3):891-7. Available from: <https://dx.doi.org/10.1590/0104-07072015002660014>
20. Konstantyner T, Konstantyner TCRO, Toloni MHA, Longo-Silva G, Taddei JAAC. Challenges in the management of nutritional disorders and communicable diseases in child day care centers: a quantitative and qualitative approach. *Global Health Promotion* 2015 [cited 2017 Dec 20]; 24(1):34-42. Available from: <https://dx.doi.org/10.1186/1475-2891-12-66>
21. Sunguya BF, Poudel KC, Mlunde LB, Shakya P, Urassa DP, Jimba M, Yasuoka J. Effectiveness of nutrition training of health workers toward improving caregivers' feeding practices of children age sixth months to two years: a systematic review. *Nutrition J* [Internet]. 2013 [cited 2015 Nov 14]; 12(1):S66. Available from: <http://nutritionj.biomedcentral.com/articles/10.1186/1475-2891-12-66>
22. Vitolo MR, Louzada ML, Rauber F, Grechi P, Gama C. The impact of health workers' training on breastfeeding and complementary feeding practices *Cad Saúde Pública* [Internet] 2014 [cited 2017 Dec 20]; 30(8):1695-707. Available from: <https://dx.doi.org/10.1590/0102-311X00186913>

## NOTES

### ORIGIN OF THE ARTICLE

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Review and final approval of the final version: Sousa NFC, Leal LP.

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### ETHICS COMMITTEE IN RESEARCH

Approved by the Research Ethics Committee of the Health Sciences Centre of the *Universidade Federal de Pernambuco*, opinion 1.052.807, Certificate of Presentation for Ethical Appreciation: 43745015.2.0000.5208.

### CONFLICT OF INTEREST

There is no conflict of interest.

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