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FEEDING PRACTICES AND NUTRITIONAL STATUS OF CHILDREN RECEIVING CARE WITHIN THE FAMILY HEALTH STRATEGY

Práticas alimentares e estado nutricional de crianças atendidas na Estratégia de Saúde da Família

Prácticas de alimentación y estado nutricional de niños asistidos por la Estrategia de Salud de la Familia

Artigo Original

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ABSTRACT

Objective: To describe the eating habits and nutritional status of children under one year old attended at the Family Health Strategy. **Methods:** This is a cross-sectional study developed in the city of Campina Grande, Paraíba. 633 mothers were interviewed and information included feeding practices (food eaten in the 24 hours preceding the survey) of their children. The nutritional status was analyzed using weight/age and length/age anthropometric indices. **Results:** Breastfeeding in the first hour of life was reported by 70.9% (n=443) of respondents. Foods most consumed were water and breast milk, followed by other types of milk. The high frequency of consumption of foods not recommended such as snacks, candies/chocolates/ lollipops and soft drinks was also reported. As for the anthropometric profile, weight and length deficits reached respectively 5.3% (n=32) and 11.9% (n=17) of children. **Conclusion:** Feeding practices of children under one year old disagree with the recommendations of the World Health Organization and the Ministry of Health of Brazil. Additionally, a high prevalence of stunting was also found in the context of public health.

Descriptors: Breastfeeding; Child Nutrition; Nutritional Status; Anthropometry; Body Height.

RESUMO

Objetivo: *Descrever as práticas alimentares e o estado nutricional de crianças menores de um ano atendidas na Estratégia Saúde da Família.* **Métodos:** *Tratou-se de um estudo transversal, desenvolvido na cidade de Campina Grande, Paraíba. Entrevistaram-se 633 mães, incluindo informações sobre as práticas de alimentação (alimentos consumidos nas 24 horas anteriores à pesquisa) dos seus filhos. O estado nutricional analisou-se por meio dos índices antropométricos peso/idade e comprimento/idade.* **Resultados:** *A prática da amamentação na primeira hora de vida foi referida por 70,9% (n=443) das entrevistadas. Os alimentos com maiores frequências de consumo foram água e leite materno, seguido de outros tipos de leite. Destacaram-se, ainda, altas frequências no consumo de alimentos não recomendados como salgadinhos de pacote, balas/bombons/pirulitos e refrigerantes. Quanto ao perfil antropométrico, os déficits de peso e comprimento atingiram, respectivamente, 5,3% (n=32) e 11,9% (n=17) das crianças.* **Conclusão:** *As práticas alimentares das crianças menores de um ano discordam da recomendação da Organização Mundial da Saúde e do Ministério da Saúde do Brasil. Encontrou-se também alta prevalência de baixo comprimento para idade no contexto da saúde pública.*

Descritores: *Aleitamento Materno; Nutrição da Criança; Estado Nutricional; Antropometria; Estatura.*

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RESUMEN

Objetivo: *Describir los hábitos de alimentación y el estado nutricional de niños menores de un año asistidos en la Estrategia de Salud de la Familia.* **Métodos:** *Estudio transversal desarrollado en la ciudad de Campina Grande, Paraíba. 633 madres fueron entrevistadas y la información incluyó las prácticas de alimentación (la comida de las 24 horas antes de participar de la investigación) de sus niños. El estado nutricional fue analizado utilizando los índices antropométricos de peso/edad y altura/edad.* **Resultados:** *El amamantamiento en las primeras horas de vida fue relatado por el 70,9% (n=443) de las participantes. Las comidas más consumidas fueron el agua y la leche materna seguidos de otros tipos de leche. La elevada frecuencia del consumo de comidas no recomendadas como los tentempiés, los caramelos/chocolates/piruletas y los refrescos también fueron relatados. Respecto el perfil antropométrico, los déficits de peso y altura alcanzaron el 5,3% (n=32) y el 11,9% (n=17) de los niños respectivamente.* **Conclusión:** *Las prácticas de alimentación de niños abajo de un año no están de acuerdo a las recomendaciones de la Organización Mundial de la Salud y el Ministerio de la Salud de Brasil. Además, la elevada prevalencia de enlentecimiento también fue encontrado en el contexto de la salud pública.*

Descriptores: *Lactancia Materna; Nutrición del Niño; Estado Nutricional; Antropometría; Estatura*

INTRODUCTION

Adequate nutrition is an element that has a great impact on child health. It is necessary for the promotion, protection and maintenance of health, and is a determining factor for growth and development[1,2]. Infant feeding has become an area of common interest to several professional fields related to child health[3]. The main contributor to adequate food intake in children under one year of age is breast milk, which is the most important source of energy and nutrients for infants[2].

The World Health Organization recommends that breast milk is given to infants as the only food for the first six months of life and complemented by other foods up to two years of age[4]. In order to reinforce these recommendations, the Ministry of Health of Brazil has made efforts to promote healthy and proper nutrition in the first two years of life, such as the production of the *Guia Alimentar para Crianças Menores de Dois Anos*[5] (Food Guide for Children under Two Years Old). Improving the quality of complementary feeding for children under one year old has been cited as one of the most effective strategies to maintain health and reduce morbidity and mortality in this age group[2,3].

Nutritional status is considered an important indicator of health, especially in children, and can be used as parameter for strategies aimed at protecting and promoting health[6]. It is closely linked to health conditions and plays a fundamental role in child growth and development[7]. Nutritional deficiencies or inadequate behavior in relation to nutrition expose children to potential health risks. In addition, deficit or excess alterations may influence the risk of infant morbidity and mortality[2]. The assessment of nutritional status includes analyzing the food situation, health conditions and health care offered to children and is an indispensable step to studying their health conditions[8].

To know the food profile and nutritional status of children is essential for decision making and for the proposal of more effective interventions[3]. Thus, this study aimed to describe feeding practices and nutritional status of children under one year old receiving care within the Family Health Strategy.

METHODS

This is a cross-sectional study that is part of the research titled "Neonatal Call", developed by the Sérgio Arouca National School of Public Health – FIOCRUZ / ENSP-SP in the first phase of the national immunization campaign on June 12, 2010. National Call aimed to obtain information on maternal morbidity, morbidity of children under one year old and actions of the *Pacto pela Redução da Mortalidade Infantil* (Pact for the Reduction of Infant Mortality) in a representative sample of mothers/children in 256 municipalities of the Amazon and Northeast Regions.

The method used, including the training, data collection instruments, quality control and sample loss, is described in detail in the official publication: *"Avaliação da atenção ao pré-natal, ao parto e aos menores de um ano na Amazônia Legal e no Nordeste, Brasil, 2010"* [9] (Assessment of prenatal and childbirth care and the care for children under one year old in the Legal Amazon and Northeast Regions of Brazil, 2010).

The calculation of sample size took into account an expected prevalence of 22% of some serious complications during childbirth (severe maternal morbidity indicator), error of 4% and confidence level of 95%, resulting in n=412 for a simple random drawing. As the investigation was developed by conglomerate with draw in two stages, the sample size was multiplied by the drawing correction factor (deff=1.5), which resulted in a sample of 750 pairs of mother/child. In the first stage, we drew vaccination locations. In the second stage, we defined a draw fraction for each location in order to perform the systematic selection in the vaccination queue.

The research enabled to calculate estimates for the seventeen states, their capitals and for the set of municipalities within each state. In this sense, the sampling design for the city of Campina Grande was defined to

calculate estimates as in the capitals. The total study sample consisted of 633 mother-child pairs, representing 55.5% of the 1,141 children under one year old vaccinated on the day of the immunization campaign.

The study included information on feeding practices and anthropometric nutritional status of children and also their birth weight. To evaluate the feeding practices, mothers were asked about breastfeeding in the first hour of life and about foods consumed by their children in the 24 hours preceding the study.

To assess the feeding of children, mothers were asked (with two response choices: yes or no) about the consumption of the following foods on the day before the interview: breast milk, other types of milk, porridge with milk, porridge without milk, tea, natural fruit juice, vegetables, legumes, cassava flour, saucepan family food, cookies/crackers/breads/cakes, snacks, soft drinks, candies/lollipops/chocolates/water. The proportion of each of these foods in children's diet was estimated.

Anthropometric measurements of weight and length were obtained from each child on the day of immunization and recorded in a specific form. Measurements were taken in duplicate by a pair of interviewers, one of whom was responsible for performing the first measurement and the other for the second. Length and weight values were recorded according to the accuracy of instruments: 1 mm for infant meter and 10 g for scales.

Weight was measured using pediatric scales, without standardization, present in health services (usually with a capacity of 16 kg and 10 g intervals). To improve accuracy, all scales used were verified during the training process in the municipalities. To measure weight, the child was placed at the center of the plate, lying or sitting, in order to distribute the weight evenly. Weight values were recorded according to the accuracy of instruments (10 g).

Length was measured by using a wooden infant meter with range from 10 to 99 cm and graduations in millimeters. To measure length, the child was placed lying on the center of the infant meter, barefoot, with the head free from ornaments and firmly supported against the fixed part of the equipment, with the neck straight and chin away from chest, arms extended over the body; shoulders, buttocks and heels in contact with the surface; knees slightly pressed down so as to be extended; feet together, making a right angle with legs. Length values were recorded according to the accuracy of instruments (1 mm).

The mean value between the two weight and length measurements was calculated to estimate anthropometric assessment. Data on gender and age were used to calculate the Z-scores of weight-for-age and length-for-age, according to the World Health Organization growth standards[10]. Weight and length deficits for age were considered for the Z-score values below -2 standard deviations of the respective indices. Overweight-for-age was indicated for children with weight for age above + 2 standard deviations. The Anthro application[11] was used for the calculation of the Z-score values.

The completed questionnaires were scanned using the database and images construction technology "Intelligent Character Recognition". Data consistency analysis was performed for each question on the form. Implausible values were checked with the amounts recorded using the bank of the questionnaires images. Proportion of food intake and anthropometric deviations were calculated using the program Rv2.10.0[12].

The research was approved by the Research Ethics Committee of ENSP / FIOCRUZ (CAE: 0058.0.031.000-10).

RESULTS

Table 1 shows the distribution of children according to socioeconomic characteristics. It was observed that only 12.7% of mothers of children had higher education and the proportion of families benefiting from the *Programa Bolsa Família* (Family Allowance Program) was 75.3%.

The distribution of children under one year of age according to feeding practices is presented in Table II. Breastfeeding in the first hour of life was reported by 70.9% (n=443) of the respondents. The items with higher prevalence of consumption were water (70.4%, n=445) and breast milk (67.6%, n=425), followed by other types of milk (53.9%, n=339), porridge with milk (48.8%, n=307), natural fruit juice (44.0%, n=278), fruits (42.1%, n=265), and cookies/crackers/bread/cakes (40.1%, n=252). Consumption of the saucepan family food (35.9%, n=226), vegetables (33.9%, n=206), legumes (22.2%, n=136) and cassava flour (1.4%, n=9) showed lower proportions. The consumption of tea (10.3%, n=65), snacks (6.8%, n=43), sweets/candies/lollipops (6.2%, n=39) and soft drinks (2.7%, n=17) was also reported.

Regarding anthropometric status, the prevalence rates of underweight and overweight among the children assessed were 5.3% (n=32) and 4.8% (n=29), respectively. The frequency of children classified as stunting was 11.9% (n=71) (Table III).

Table I - Percentage distribution of children under one year old according to socioeconomic characteristics. Campina Grande, Paraíba, 2010.

Socioeconomic characteristics	n*	n	%
Sex	633		
Female		297	47
Male		336	53
Maternal education	624		
Incomplete elementary school		178	28.5
Complete elementary school		32	5.1
Incomplete high school		83	13.3
Complete high school		252	40.4
Higher education		79	12.7
Family Allowance Program	628		
Yes		473	75.3
No		155	24.7

*Valid values (question answered). Cases in which the total number of observations differs from the total number of children who completed the survey are due to the lack of valid information (when mother could not inform).

Table II - Prevalence of feeding practices among children under one year old. Campina Grande, Paraíba, 2010.

Feeding practices	n*	n	%
Breastfeeding in the first hour of life	625	443	70.9
Breast milk consumption on the day before the interview	629	425	67.6
Consumption of other types of milk (cow's milk or artificial milk)	629	339	53.9
Consumption of porridge with milk	629	307	48.8
Consumption of porridge without milk	614	19	3.1
Consumption of tea	632	65	10.3
Consumption of fruit juice and fruits	632	278	44.0
Consumption of fruits	630	265	42.1
Consumption of vegetables	607	206	33.9
Consumption of legumes	612	136	22.2
Consumption of cassava flour	629	9	1.4
Consumption of saucepan family food	629	226	35.9
Consumption of cookies/crackers/bread/cakes	629	252	40.1
Consumption of snacks	629	43	6.8
Consumption of soft drinks	628	17	2.7
Consumption of sweets/candies/lollipops	629	39	6.2
Consumption of water (n = 632)	632	445	70.4

*Valid values (question answered). Cases in which the total number of observations differs from the total number of children who completed the survey are due to the lack of valid information (when mother could not inform).

Table III - Prevalence of nutritional status according to World Health Organization cut-offs among children under one year old. Campina Grande, Paraiba, 2010.

Nutritional status indicators	n*	n	%
Length/age (Z-score)	594		
With stunting (< -2)		71	11.9
Without stunting (≥ -2)		523	88.0
Weight/age (Z-score)	605		
Low weight for age (< -2)		32	5.3
Adequate weight for age (- 2 |-| 2)		544	89.9
Overweight for age (> 2)		29	4.8

*Valid values (measure obtained). Cases in which the total number of observations differs from the total number of children who completed the survey are due to the lack of valid information (when measure could not be obtained).

DISCUSSION

The results presented in this study allow us to know the food profile and nutrition status of children under one year old receiving care within the Family Health Strategy of Campina Grande, Paraíba. The data presented here confirm the findings of other recent studies conducted in several locations in Brazil, although the methods and techniques used are different and should be considered in the context of this study.

According to the recommendations of the World Health Organization[13] and the Baby-friendly Hospital Initiative, in its step 4[14], the child should be breastfed in the first hour of life. This strategy is fundamental to the promotion, protection and support of breastfeeding in the country[15], bringing as benefits greater newborn-mother interaction in the first minutes of life, increased breastfeeding duration and reduced neonatal mortality[16]. In this study, it was found that mothers followed the above recommendations, with results higher than those found in the Breastfeeding Prevalence Research in Brazilian capitals and the Federal District, held in 2008[17] and "*Nascer no Brasil*" (Being Born in Brazil) research held in 2011 and 2012 in 191 Brazilian municipalities[18].

Although not recommended, and similarly to other studies[3,19], a considerable percentage of children (53.9%) received other types of milk, with possible negative consequences on nutritional status, especially in relation to iron[20]. Researchers believe that the main reason for the early introduction of other types of milk in infant feeding is that mothers consider their own milk weak and insufficient or due to medical advice[3,21].

Foods considered unsuitable for infant consumption, such as snacks, soft drinks and sweets, which can compete with nutritious food[5], were present in the feeding of children. In addition, foods considered healthy, such as fruit juice and fruits, were consumed by the minority of children, showing the onset of inadequate dietary patterns that can be maintained in other stages of life. These findings corroborate studies in other locations, where most children received complementary foods[2,3]. These results emphasize the need to promote exclusive breastfeeding up to six months of life, introducing appropriate complementary feeding practices, as nutritional deficiencies or inadequate feeding practices in this age group may increase the risk of morbidity and mortality and affect infant growth and development[2].

The introduction of tea in the diet of children of this study is consistent with the findings of other authors[3,20,22]. The early introduction of tea can stop the production of breast milk and reduce nutrient intake and increase vulnerability to the development of infections[5,14]. These results may be related to a cultural factor that the consumption of tea is a form of medication, especially in the case of cramps[3].

Despite not having been subject to analysis in this study, possible explanations of inappropriate feeding practices may include the influence of socioeconomic conditions. In this respect, a recent study that aimed to identify the feeding practices of children under 24 months who attended primary health care units found the possibility of weaning associated with sociodemographic vulnerability (mothers with lower income and education levels and benefiting from the Family Allowance Program)[20], which is similar to the profile of the population assessed in Campina Grande.

There is, therefore, the need for surveillance, early identification of poor eating habits and promotion of healthy dietary practices during the first year of life focused on the behavior of those responsible for infant feeding, particularly the socioeconomically vulnerable families. In this sense, studies reinforce that the promotion of breastfeeding is still a practice with several gaps between the professionals of

the Family Health Strategy[23] and the importance of family involvement to enhance the success of health education actions[24].

Regarding nutritional status, comparing the findings of this study with national data for children under five years old[25], it was observed that the prevalence of stunting and underweight in the children assessed is above the national average. These data confirm the findings of studies that analyzed the nutritional status of children by age groups, pointing to the highest prevalence of malnutrition in the younger age groups and suggesting a decrease of such prevalence with increasing age[26,27].

Similar results have been found in studies with children at the same age of those of Campina Grande; a population-based study in Acrelândia found a prevalence of 12.3%[2] of stunting, and for low weight, the findings corroborate those presented by the Neonatal Call in the Amazon and in Northeastern Brazil, which is 3.9%[9]. Thus, despite the considerable decline in malnutrition rates in the country due to factors related to improved living conditions and health services[28-31], there is a biological vulnerability associated with malnutrition that may cause health damages to younger children. These data are of great importance because the period from birth to the age of two is the most significant stage and presents increased vulnerability to illness and socioeconomic factors; additionally, it is the stage of greater opportunities related to the physiological recovery of losses without damage to the child's health[32-34]. Thus, interventions to correct linear growth should be performed early in life concurrently with socioeconomic and social improvements.

This study did not analyze the relationship between eating habits and nutritional status of children, since the sample design was not intended for such purposes. In this regard, it is noteworthy that a study based on information from several countries found an association between anthropometric indicators and infant feeding, markedly breastfeeding[35]. Another possible limitation of this study relates to data collection: food consumption was assessed based only on response options such as yes or no and limited to the previous day. This can lead to misinterpretations of nutritional status, making it necessary that they are interpreted with caution. Nevertheless, the importance of the results presented is noteworthy given the lack of similar studies, especially in the context of complementary feeding practices[36].

CONCLUSION

Feeding practices of children under one year old disagree with the recommendations of the World Health Organization and the Ministry of Health of Brazil. Additionally, a high prevalence of stunting also found in the context of public health.

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