

Evolution of nutrition actions in primary health care along the 20-year history of the Brazilian National Food and Nutrition Policy

Evolução das ações de nutrição na atenção primária à saúde nos 20 anos da Política Nacional de Alimentação e Nutrição do Brasil

Evolución de las acciones de nutrición en la atención primaria en salud en los 20 años de la Política Nacional de Alimentación y Nutrición de Brasil

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Abstract

This study aimed to systematize food and nutrition actions developed in primary health care (PHC) from 1999 to 2019, identifying advances in this period and current perspectives. This is a qualitative study that analyzed documents published between 1999 and 2020, available in scientific databases and in the gray literature. In addition, a quantitative analysis was conducted using information systems from the Brazilian Ministry of Health, such as the Food and Nutrition Surveillance System and the Health Information System for Primary Care, and microdata from the National Program for Improvement of Access and Quality of Basic Care (PMAQ-AB). The actions and regulatory milestones identified were categorized as federal administration, food and nutrition surveillance, promotion of proper healthy food, nutritional care – multiple burdens of poor nutrition and training. The results showed food and nutrition actions followed the pace of the epidemiological scenario, considering the multiple burdens of poor nutrition. The first decade was more focused on handling issues involved in hunger, malnutrition and micronutrient deficiency and, in 2006, it started to emphasize prevention and care for people with obesity and other non-communicable chronic diseases and promote proper healthy food, developing actions in the period with a strong intersectoral character and understanding PHC as a priority field of action in the Brazilian Unified National Health System (SUS). The universalization of food and nutrition actions in PHC is still a current challenge.

Nutrition Programs and Policies; Primary Health Care; Nutrition Programs; Public Policy

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Introduction

In Brazil, the right to food, just like health, is guaranteed in the constitution and recognized as a determinant of health, which must be ensured through public policies ¹. Since 1999, the Brazilian National Food and Nutrition Policy (PNAN) has regulated food and nutrition actions under The Brazilian Unified National Health System (SUS), aiming to improve the conditions of food, nutrition and health of the Brazilian population through the organization of food and nutrition surveillance, promotion of adequate healthy food, prevention and comprehensive care of complications related to food and nutrition, particularly in primary health care (PHC) ^{2,3}.

Due to its capillarity, PHC has an important role in PNAN consolidation at the local level; however, the consolidation, expansion and universalization of nutrition actions proposed for PHC in Brazil are challenges in the health sector ⁴. Then, this study aimed to systematize the history of food and nutrition actions in PHC along the 20-year history of the PNAN, identifying advances in this period.

Methods

Documents published between 1999 and 2020 were analyzed in this study, such as regulations, technical materials, and administration reports produced by the General-Coordination of Food and Nutrition (CGAN) of the Brazilian Ministry of Health or documents with CGAN contribution, in addition to scientific articles, theses and dissertations that described or analyzed food and nutrition actions actions from the Federal Government.

Searches were conducted in scientific databases PubMed, LILACS and Web of Science and the gray literature, including official government websites, the SUS Food and Nutrition Network, as well as the Brazilian Digital Library of Theses and Dissertations (Box 1).

The documents and their descriptions were inserted in a spreadsheet. They were divided among the authors. After reading the documents, each author categorized the actions by type (federal administration, food and nutrition surveillance, promotion of adequate healthy food, nutritional care –

Box 1

Terms used in database search.

DATABASE	SEARCH STRATEGIES
LILACS	("primary health care" OR "health center" OR "basic health service" OR "family health" OR "family health strategy") AND ("Food and Nutrition Security" OR "Nutritional Surveillance" OR "Nutritional Status" OR "anthropometry" OR "nutritional assessment" OR "Food and Nutrition Education" OR "food habits" OR "food consumption" OR "diet" OR "feeding" OR "nutrition" OR "nutrition policy"). Date range: 1999-2020
PubMed and Web of Science	("primary health care" OR "community health services" OR "family health") AND ("Nutritional Status" OR "nutrition assessment" OR "anthropometry" OR "food habits" OR "food intake" OR "diet" OR "feeding behavior" OR "food security" OR "nutrition policy") AND "Brazil". Date range: 1999-2020
Brazilian Digital Library of Theses and Dissertations	"primary health care" OR "community health services" OR "family health") AND ("nutrition policy" OR "Nutritional Surveillance" OR anemia OR Micronutrients OR Food and Nutrition Education OR Obesity). Date range: 1999-2020

multiple burdens of poor nutrition and training), according to the PNAN guidelines (2011) ³. After that, these classifications were discussed by all authors for alignment and definition by consensus. In addition, the evolutionary trajectory of PHC and PNAN was analyzed.

Food and nutrition actions were also assessed by the Food and Nutrition Surveillance System (SISVAN), based on microdata from an external evaluation of the National Program for Improvement of Access and Quality of Basic Care (PMAQ-AB), of 2011, 2013, and 2017, and coverage of nutritional status monitoring (2008 to 2019). Coverage was assessed in an ecological analysis stratified by age group, based on follow-up in PHC. Temporal trend by linear regression considered coverage as a dependent variable and the follow-up year as an independent variable, with significant variation of a regression coefficient when statistically different from zero (p value ≤ 0.05).

Table 1 and Supplementary Material (Box S1. http://cadernos.ensp.fiocruz.br/static//arquivo/supl-e00152620-ingles_4620.pdf) show the main milestones found in the results. The documents are mentioned in the Supplementary Material (Box S2. http://cadernos.ensp.fiocruz.br/static//arquivo/supl-e00152620-ingles_4620.pdf).

Results

Trajectory of PHC AND PNAN

The first version of the PNAN was published a few years after the approval of the *Basic Operating Standards of 1996* (NOB 96) and the creation of the Community Health Agents Program (PACS) and the Family Health Program (PSF). PACS and the PSF guidelines included, among the assignments of the PHC professionals, food and nutrition actions for the population. In 2002, guidelines for infant food were developed, with steps to facilitate their adoption in PHC.

Between 2003 and 2006, the whole technical and operational regulatory framework of micronutrient supplementation programs and SISVAN were revised (Supplementary Material. Box S1. http://cadernos.ensp.fiocruz.br/static//arquivo/supl-e00152620-ingles_4620.pdf), monitoring the creation of the National Primary Care Policy (PNAB) and the consolidation of the Family Health Strategy (FHS), as a priority model for PHC expansion in states and municipalities.

The PNAB (2006) established the priority actions of eradication of child malnutrition, control of diabetes and hypertension, and emphasized the promotion of health and the health of children, women and the elderly as strategic areas for the PHC operations. In this context, in line with the nutritional profile of Brazilians, food and nutrition actions in PHC were focused on child malnutrition, nutritional deficiency, child health, and recommendations for healthy food, including promotion of breastfeeding and healthy complementary feeding. In parallel, the first recommendations and strategies for adequate food were developed for the Brazilian population, in line with the PNAB.

In the evolution of PHC, the creation of the Family Health Support Centers (NASF) in 2008 is also an important step for food and nutrition actions. This strategy set up multidisciplinary teams, with the possibility of including nutritionists, including food and nutrition actions among the assignments of all professionals. Then, the *Food and Nutrition Action Matrix* ⁵ and the *Primary Care Reports* ⁶ focused on NASF and nutritional care were published, addressing the main food and nutrition actions, and training strategies were developed, prioritizing NASF professionals and administrators (Supplementary Material (Box S1. http://cadernos.ensp.fiocruz.br/static//arquivo/supl-e00152620-ingles_4620.pdf)).

In 2011, PNAB and PNAN were updated. As part of the work process of the PHC teams, the PNAB defined actions focused on risk groups and factors, such as food, to prevent diseases and damage. The PNAN was revised according to the new guidelines of the PNAB, incorporating PHC in its provisions for the organization of nutritional care, which reinforces comprehensive care in the Health Care Network, with primary care as a priority space for the actions. Also in 2011, the PMAQ-AB was also created, which, even with few food and nutrition indicators with an impact on the transfer of resources, included assessment of administration, structure and actions that were directly or indirectly related to food and nutrition, contributing to encourage it in the territories.

Table 1

Evaluation of goals, actions and financial investment in food and nutrition activities, according to administration instruments published between 1999-2019.

Period	Program and objectives	Activities	2000	2001	2002	2003	Total 2001-2003
PPA 2000-2003	Healthy Food Program	0357 – financial support to families to complement family income for improved nutrition – Food Assistance Program	-	388,152.00	118,334,732.00	316,478,265.00	839,114,997.25
	Objective: reduce and control malnutrition, micronutrient deficiency in health services and promote healthy food in different life cycles	0603 – financial incentive to municipalities entitled to variable funds for primary health care (PAB) for actions to fight nutritional deficiency	149,236,461.00	158,576,795.00	89,187,182.00	-	
		3890 – studies and research about nutritional recovery and healthy food	-	-	1,992,396.00	90,536.00	
		3945 – promotion of technical events about nutritional recovery and healthy food	-	20,000.00	500,000.00	200,000.00	
		4294 – acquisition and distribution of micronutrients to children, pregnant women and elderly population living in areas with endemic malnutrition	950,000.00	757,918.00	1,041,963.00	1.360.597,00	
		Total 2001-2003	150,186,461.00	159,742,865.00	211,058,275.00	318,129,398.00	

(continues)

Table 1 (continued)

Period	Program and objectives	Activities	2004	2005	2006	2007	Total 2004-2007
PPA 2004-2007	Healthy Food Program aimed to promote healthy food in every life cycle and prevent and control nutritional disorders and diseases related to food and nutrition. It included strengthening of food and nutrition surveillance and monitoring of health-related responsibilities of the Brazilian Income Transfer Program	8519 – monitoring of nutritional status of the Brazilian population	1,555,000.00	837,302.00	3,653,860.00	-	32,572,945.57
		806 – support to studies and research about food and nutrition, with a focus on nutritional recovery and healthy food	2,007,645.00	112,260.00	750,303.00	8,654.00	
		2272 – program management and administration	10,000.00	1,350,880.00	-	100,000.00	
		4294 – prevention and control of micronutrient deficiency	869,059.00	1,350,237.00	5,470,315.00	10,022,653.00	
		4641 - public utility advertising	946,339.00	713,355.00	1,070,991.00	446,463.00	
		6449 – promotion of healthy lifestyle and food habits for the prevention of obesity and chronic noncommunicable diseases	-	466,000.00	831,630.00	-	
		Total 2004-2007	5,388,043.00	4,830,034.00	11,777,099.00	10,577,770.00	

(continues)

Table 1 (continued)

Period	Program and objectives	Activities	2008	2009	2010	2011	Total 2008-2011
PPA 2008-2011	Primary health care program (budgetary action, food and nutrition for health) Objective: expand the family health strategy and the basic health network by implementing the primary care policy: a decisive, quality, comprehensive and humanized system.	Expand the coverage of SISVAN-web Reduce child malnutrition (underweight and short stature among children under five) Eliminate iodine deficiency disorders Reduce obesity among adults	29,616,642.00	17,144,750.00	27,999,150.00	17,365,459.00	92,126,001.00
Período	Program	Objectives	Goals/Activities			Total 2012-2015	
PPA 2012-2015	Program 2069: food and nutrition security Program 2015: SUS improvements	930 – control and prevent complications and diseases resulting from food and nutrition insecurity by promoting the PNAN, through the control and regulation of food and structuring of nutritional care in the health care network 713 – ensure population access to quality services with equity and in a timely manner to meet health needs, improving the primary care policy and specialized care. Expansion and qualification of access to healthy food 714 – reduce the risks and health complications through health promotion and surveillance actions 715 – promote comprehensive health care for women and children and implement the Stork Network, with special attention to high vulnerability areas and populations	100% of UBS equipped with scales and anthropometers Approval of the SUS National Food and Nutrition Policy update Increase to 35% population coverage of the Food and Nutrition Surveillance System (Sisvan). Development of the Intersectoral Plan for Prevention and Control of Obesity Implementation of a new strategy for the control and prevention of iron deficiency anemia Agreement to reduce sodium and sugar content in 100% of priority categories of processed foods Health at School Program expanded to daycare centers and preschools in 100% of the municipalities participating in the program Promote the adherence of 78% of Brazilian municipalities to the Health at School Program by 2015 Implement health gyms, reaching 4800 gyms in 2015 Expand the distribution of vitamin A doses to children aged 6 months to 5 years in UBS and in vaccination campaigns 60% of primary care teams reporting availability of ferrous sulfate in UBS to prevent anemia in children under 2 years old			96.078.139,16	

(continues)

Table 1 (continued)

Período	Program	Objectives	Goals/Activities	Total 2012-2015
PPA 2016-2019	Program 2015: strengthening of SUS	<p>1120 – improve and implement Health Care Networks in health regions, with an emphasis on the articulation of the Urgency and Emergency Network, the Stork Network, the Psychosocial Care Network, the Care Network for People with Disabilities, and the Health Care Network for People's with Chronic Diseases</p> <p>1126 – promote comprehensive care for people in their various life cycles (children, adolescents, young people, adults and the elderly), considering issues of gender, sexual orientation, race/ethnicity, situations of vulnerability, specificities and diversity in primary care, thematic networks, and health care networks</p> <p>713 – expand and qualify access to health services, in a timely manner, with an emphasis on humanization, equity and fulfillment of health needs, improving the basic, specialized, and outpatient care policy</p> <p>714 – reduce and prevent risks and health complications to the population, considering social determinants, through surveillance, promotion and protection actions, with a focus on the prevention of chronic noncommunicable diseases, accidents and violence, control of communicable diseases, and promotion of healthy aging</p>	<p>Implementation of the Overweight and Obesity Care Lines in at least 70% of the states and the Federal District – PPA</p> <p>Implementation of the National Strategy to Promote Breastfeeding and Complementary Feeding in SUS, in over 2,000 basic health units – PPA</p> <p>Provide supplemental feeding to 330,000 children from 6 to 48 months of age with sachets of NutriSUS, in daycare centers participating in the Health at School Program, on an annual basis</p> <p>Increase to 20 million students covered by the Health at School Program</p> <p>Agreement to reduce sugar in products of priority categories – PPA</p> <p>Fund 3,500 centers of the Health Gym Program.</p> <p>Agreement and monitoring of sodium reduction goals in processed foods in Brazil – PPA</p>	129,421,869.00

(continues)

Table 1 (continued)

Período	Program	Objectives	Goals/Activities	Total 2012-2015
	Program 2069: food and nutrition security	1109 – promote consumption of proper healthy food and control and prevent diseases resulting from poor eating habits	Reduce regular consumption of soft drinks and artificial juice from 20.8% to 14% of the population through articulated actions within the scope of the Interministerial Chamber for Food and Nutrition Security Increase from 36.5% to 43% the rate of adults who regularly consume fruits and vegetables through articulated actions within the scope of the Interministerial Chamber for Food and Nutrition Security Stop the obesity growth among adults through articulated actions within the scope of the Interministerial Chamber for Food and Nutrition Security Reduce by 50% the number of new beriberi cases reported through articulated actions within the scope of the Interministerial Chamber for Food and Nutrition Security	
		615 – fight food and nutrition insecurity that persists in specific groups, with an emphasis on traditional communities	Monitor in primary care at least 73% of indigenous and quilombola families that are beneficiaries of the Brazilian Income Transfer Program (Brazilian Ministry of Health) Record, through the health conditions of the Brazilian Income Transfer Program, nutritional data of at least 80% of indigenous and quilombola children under 7 years of age who are beneficiaries of beneficiaries of the Brazilian Income Transfer Program (Brazilian Ministry of Health)	
	Program 2019: social inclusion through Brazilian Income Transfer Program, the National Single Registry, and articulation of social policies	374 – reinforce and qualify equal access of the beneficiary families of the Brazilian Income Transfer Program to basic social rights through articulation with social policies, particularly in the areas of health, education and social care	Monitor, in primary care, at least 73% of families that are beneficiaries of the Brazilian Income Transfer Program (Brazilian Ministry of Health) Development of procedures to guide states and municipalities aiming to reduce the number of Brazilian Income Transfer Program families without health monitoring	

NCD: non-communicable diseases; NutriSUS: Strategy for Infant Feeding Fortification with Micronutrient Powders; PAB: Basic Care Floor; PNAN: Brazilian National Food and Nutrition Policy; PPA: Multi-annual Plan; SISVAN: Food and Nutrition Surveillance System; SUS: Brazilian Unified National Health System; UBS: basic health units.

Source: Brazilian Ministry of Economy (SIAFI). <https://www.gov.br/tesouronacional/pt-br/siafi>, accessed on 02/Jun/2020).

In 2017, the PNAB was updated again, highlighting health promotion as a principle for health care and reinforcing proper healthy food as a relevance aspect of its approach. In 2019, the PHC funding scheme changed with Previner Brasil, as it started to pay municipalities for service and performance indicators; however, until the time of writing this article, nutrition indicators had not been included. In 2019, a service portfolio was created, assuming the essential attributes and derivatives of PHC to guide the actions, inserting food and nutrition actions in PHC. These attributes can strengthen the food and nutrition actions in PHC, which in turn can strengthen the attributes, since the identification of individuals with nutritional problems and the monitoring for health promotion and disease prevention can expand the first contact access, leading to promotion of adequate healthy food actions and organization of nutritional care for these individuals, ensuring longitudinal and comprehensive care, family and community guidance, and cultural competences.

It should be noted that, in addition to the strategies adopted in PHC, a wide range of PNAN actions can cause an impact on the life of the Brazilian population by reducing the problems related to inadequate nutrition and the demand in PHC; for instance, with flour fortification with iron and folic acid, salt iodation, and the *Brazilian Regulation for Marketing of Infant and Young Child Formula, Nipple Protectors, Pacifiers, and Feeding Bottles*. In addition, efforts have been made for the adoption of national regulatory measures to protect healthy food, such as regulation of advertising and front-of-package nutritional labeling of foods, restricted sale of food in school cafeterias, and taxation of sugar-sweetened beverages, which, if adopted, can, in the long run, reduce obesity and other non-communicable diseases (NCDs) in the country; however, none of these measures had been approved by the end of 2019.

Specific actions performed in each area are described as follow.

Federal administration

The analysis of the study period showed food and nutrition actions were prioritized in instruments of federal administration. From 2000 to 2011, the actions were intersectoral, focused on fighting hunger and preventing malnutrition and nutritional deficiency, with PHC essential for the implementation of measures. In the second decade, the Brazilian Ministry of Health promoted more food and nutrition actions, with an expansion of measures for promotion of adequate healthy food and prevention of obesity. Due to the multiple burdens of poor nutrition in the country, the goals to reduce malnutrition and prevent nutritional deficiency were still present, but focused on specific groups (Table 1).

Other policies, such as the National Health Promotion Policy (PNPS) and initiatives like the Strategic Action Plan for NCDs, the National Food and Nutrition Security Plan, and the Intersectoral Strategy for Obesity Prevention and Control, also had food and nutrition actions, reinforcing PHC as a field of action.

At the same time, the CGAN budget also increased (Table 1). Despite presenting higher amounts between 2000 and 2003, a large part of this fund was allocated to the Food Assistance Program. With the incorporation of the federal income transfer programs into the Brazilian Income Transfer Program, this fund was transferred to Brazilian Ministry of Social Development and Fight Against Hunger, with the Ministry of Health responsible for monitoring health conditions and assessing the nutritional status of children and pregnant women.

In 2006, a financial transfer was instituted to structure food and nutrition actions in states and municipalities. In 2009, this resource was dedicated to the PNAN implementation, and continuously expanded starting in 2017 to include more states, covering, in 2019, 1,132 municipalities with more than 30,000 inhabitants.

The CGAN budget is one of pillars in the promotion of food and nutrition actions and initiatives in PHC by the federal government, either through direct federal actions or by transferring funds to states. The transfer of resources to states and municipalities, reinforcing PHC as a care provider and coordinator, can also induce the prioritization of such actions at local level.

In addition to financial support, a network of food and nutrition administrators was also created over the years, responsible for the PNAN administration in states and municipalities, involving PHC administrators locally in case of separate areas. This network is supported by the federal administration through virtual or in-person meetings or another communication system that enable constant debate about food and nutrition actions in PHC across the SUS network, without which, such implementation would not be possible.

Food and nutrition surveillance

Food and nutrition surveillance allows PHC teams to assess the health and nutrition conditions of the enrolled population and, based on a local diagnosis, organize required actions. The information recorded from the PHC health services, which comprised SISVAN, was initially linked with child malnutrition control actions and programs related to this condition. With the food and nutrition surveillance strengthening as a PNAN guideline, the concept of surveillance was expanded to incor-

porate food and nutrition surveillance actions into the PHC routine, including the evaluation of food and nutrition indicators.

Computerization of SISVAN (2003) was a milestone for the standardization and expansion of the system in PHC; however, the system received information from local health departments and then sent it to the national base. This system had the support from SUS professionals and administrators through training, but due to its limited coverage and operational issues, the SISVAN-web online platform was developed in 2008, fed directly at the primary health care units (UBS). The main milestones of SISVAN-web include the incorporation of food consumption markers and the use of anthropometric indices recommended by the World Health Organization (WHO) by age group; in addition to interfaces with other systems used in PHC, such as the Brazilian Income Transfer Program Health Monitoring System and e-SUS AB. Also, in order to support food and nutrition surveillance structuring in the municipalities, the acquisition of anthropometric equipment has been funded according to the local reality since 2011. By 2019, resources were invested to equip 24,742 UBS and 730 centers of the Health Academy Program.

Since SISVAN-web was launched, 98% of the municipalities have submitted at least one anthropometric record and, in 2014, all of them had these records. Regarding food consumption, 28% of the municipalities presented some data in the period, reaching 62% in 2019 (data not available). Table 2 shows a favorable and significant evolution in Sisvan coverage, with more data about children, especially those under five years of age, with an increase of two percentage points per year.

Promotion of adequate healthy food

Food guides publications were used for the organization of actions in PHC, which for the first time defined Brazilian recommendations of healthy food, guiding the organization of promotion of adequate healthy food actions. The first *Food Guide for Brazilian Children Under Two Years*⁷ was published in 2002 and the first *Food Guide for the Brazilian Population*⁸, in 2006. In 2014⁹, the *Food Guide for the Brazilian Population* was updated with an innovation as it included a new classification based on food processing and broader approaches to food systems, commensality, and overcoming food-related obstacles to increase the autonomy of individuals. In 2019¹⁰, the *Food Guide for Brazilian Children Under Two Years* was also revised to align it with new scientific evidence and the new *Food Guide for the Brazilian Population*.

Table 2

National coverage * and temporal variation of nutritional status monitoring in Food and Nutrition Surveillance System (SISVAN) by age group (years). Brazil, 2008-2019.

Age group (years)	National coverage of nutritional status monitoring (%)												Temporal trend (%)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Linear regression coefficient **	95%CI
0-4	12.5	16.4	22.8	21.9	21.4	28.7	29.8	32.9	34.4	34.0	36.0	35.1	2.1 ***	1.6-2.6
5-9	12.1	11.7	14.4	14.4	15.3	19.9	22.8	26.4	24.4	25.4	27.7	29.0	1.7 ***	1.4-2.0
10-19	8.2	6.7	6.7	6.9	8.7	12.3	12.4	14.1	13.3	13.6	15.1	14.6	0.9 ***	0.6-1.1
20-59	5.0	5.6	5.9	6.2	7.5	8.9	8.7	10.3	11.2	11.8	13.1	11.7	0.8 ***	0.6-0.9
> 60	0.3	1.0	0.9	1.0	1.1	1.3	1.9	6.3	8.2	9.7	11.4	12.5	1.2 ***	0.8-1.5
Total	6.4	6.8	7.5	7.7	8.8	11.3	11.5	13.8	14.4	14.9	16.5	15.7	1.0 ***	0.9-1.2

95%CI: 95% confidence interval.

* The coverage indicator comprises the assessment of the total number of people with anthropometric records, according to public reports from SISVAN, divided by Brazilian Health Informatics Department (DATASUS) population estimates by age group multiplied by 100. SISVAN data was obtained from published reports, available at: <http://sisaps.saude.gov.br/sisvan/> and population estimates are available at: <http://tabnet.datasus.gov.br/>;

** Corresponding to the average variation in the coverage of nutritional status monitoring in the years and age groups analyzed;

*** Statistically significant results ($p < 0.05$).

In order to implement the *Food Guide for Brazilian Children Under Two Years* in PHC, the Brazilian Breastfeeding Program was created in 2008 and, in 2009, the Brazilian National Strategy for Complementary Healthy Food, which were unified in 2013 in the Brazilian Breastfeeding and Food Assistance Program, aiming to promote breastfeeding and healthy complementary food. In 2018, the Brazilian Breastfeeding and Food Assistance Program adaptation to indigenous people started and is still in progress. Several materials have also been published to drive *Food Guide for the Brazilian Population* implementation in promotion of adequate healthy food. The Programa Saúde na Escola, created in 2007, which promoted promotion of adequate healthy food actions in schools by PHC teams, and Healthy Childhood Growth Program, launched in 2017, also supported the adoption of promotion of adequate healthy food actions in PHC.

In 2011, a new version of the PNAN introduced an expanded concept of promotion of adequate healthy food, with actions related to food and nutrition education, food regulation and incentive to create promotion of adequate healthy food spaces, as well as intersectoral articulations promoted by the health sector. It also described the responsibility of health teams to go beyond the UBS limits to perform promotion of adequate healthy food actions.

The collective activities in PHC started to be registered in e-SUS AB; in 2019, of all 1,153,898 collective activities developed by the teams, 26.9% addressed the theme.

Nutritional care: multiple burdens of poor nutrition

- **Malnutrition**

The incentive to fight nutritional deficiency, created in 1998 as part of the variable Primary Care Floor (PAB), transferred resources directly to the municipalities for milk and oil acquisition and distribution in UBS to malnourished children. In 2001, the Food Assistance Program was created to replace the Incentive to Fight Nutritional Deficiency (ICCN); it ensured a direct transfer of funds to beneficiary families for the food acquisition (in 2003 it was incorporated into the Brazilian Income Transfer Program).

For malnutrition management in PHC, the recommendations of the Integrated Care to Childhood Illnesses (AIDPI) strategy were considered. In 2005, a protocol was published for treating malnutrition in children in hospitals. Complementary protocols for PHC and outpatient care were developed at the time, but were not officially published.

In 2012, the agenda for Scaling Up Nutritional Care of Childhood Malnutrition (ANDI) was created to address malnutrition in 256 municipalities that had a prevalence of underweight above 10% through fund transfer, definition of goals, and qualification of actions. This strategy had the publication of support material for the teams, including the organization of malnutrition care. The evaluation of nutritional care for child malnutrition assessment showed the municipalities presenting the best performance in goal achievement were those with the highest PHC and food and nutrition surveillance coverage, among other factors¹¹.

- **Prevention of micronutrient deficiency**

Strategies to control micronutrient deficiency in PHC have been performed in a focused manner in the country since the 1970s. With the publication of PNAN, it was defined as a priority theme, assuming a Social Commitment for the Prevention and Control of Anemia in Children, which, at the time, affected 50% of children and was reduced to 20% in 2006. In 2005, supplementation programs were implemented across the nation: the National Supplementation Program for Iron (PNSF) and the National Supplementation Program for Vitamin A (PNSVA), both in PHC.

The PNSF first recommended universal supplementation in weekly preventive doses for children aged 6 to 18 months and daily supplementation for pregnant women and postpartum women across the country. In 2013, the program was reformulated, and its recommendation of daily dosing has been in force until now; it also decentralized acquisitions to the municipalities. In 2014, after a multicenter study that assessed the effectiveness of supplementation with multivitamins and minerals, the Strategy for Infant Feeding Fortification with Micronutrient Powders (NutriSUS) was launched to help

prevent anemia and other nutritional deficiencies by adding sachets of micronutrients for children enrolled in daycare centers.

The PNSVA first recommended that children aged 6 to 59 months and postpartum women should be supplemented with megadoses of vitamin A in the UBS of the municipalities of the Northeast Region, Vale do Jequitinhonha, Minas Gerais State, and Vale do Ribeira, São Paulo State, where hypovitaminosis A is endemic, with subsequent expansion to municipalities in the Legal Amazon, indigenous areas and priority municipalities of Frindly Brazil Action. In 2016, postpartum women supplementation was discontinued due to a lack of association with morbidity and mortality outcomes.

In 2006, cases of beriberi were reported in Maranhão, Tocantins and Pará; in 2008, among indigenous people in Roraima. Since then, 2,312 cases and 50 deaths have been reported, mostly of young black or indigenous adults from municipalities presenting low Human Development Index (HDI), low income and low educational level. The outbreak required the adoption of local intersectoral actions, with support from national and state administration, and a guide for the disease identification and treatment was developed for PHC, in addition to ensuring thiamine provision.

• Obesity

During the 20-year history, national surveys showed a reduction in malnutrition and a significant increase in obesity in all life cycles, forcing the PNAN to incorporate new actions for disease control. In 2019, over 60% of all adult individuals in Brazil were overweight ¹².

For PHC organization, early disease identification instruments were the first to become available through the food and nutrition surveillance. Between 2006 and 2007, the first milestones were published for structuring obesity prevention and control actions in the SUS and support to the prevention and treatment of individuals in this condition in PHC. With the creation of the Chronic Diseases Network and the Obesity Care Line (LCSO) in 2013, the organization process of overweight prevention and treatment was intensified, with materials updated with new approach strategies.

Data from PMAQ-AB, based on interviews with PHC professionals about obesity care, revealed in the first cycle (2011) that 39.9% of the teams planned care provision. In the second cycle (2013), 56.2% organized follow-up consultations, 54% invited individuals to participate in collective activities on healthy food and physical activity, and 55.3% used matrix support for such follow-up. In the third cycle (2017), 80.7% of the teams claimed to perform follow-ups, 75.5% offered actions focused on healthy food, and 72.2% used matrix support to monitor these individuals at the UBS. However, referral to a specialized service is still a common practice, reported by 80.2% of the teams.

In childhood obesity, health promotion actions have always been prioritized; however, in 2017, the Healthy Childhood Growth Program was launched to help PHC teams identify, through the Health at School Program, overweight children for care actions, by transferring resources and setting goals.

Training

The temporal analysis of training and qualification actions of SUS professionals shows a connection between the themes and types of strategies adopted in the different institutional, political and epidemiological contexts, in which the two versions of the PNAN were outlined. Three important periods can be identified, considering the different strategies:

The first period (1999-2006) was characterized by the provision of training to PHC administrators and professionals about the following themes: human right to adequate food, food and nutritional security, health promotion in the life cycle. It also included the adoption of child malnutrition control and prevention programs, nutritional deficiency, and PTR. The training strategies involved in-person workshops at all levels of administration. During this period, Collaborating Centers for Food and Nutrition (CECAN) were created, which conducted training about program management and FNS, in partnership with the Technical Areas of Food and Nutrition of the states and the Federal District, until 2011.

The second period (2007-2014) is marked by the provision of specialization courses to local health administrators and PHC professionals. In-person and distance training in management of food and

nutrition policies and nutrition in PHC, in partnership with the Oswaldo Cruz Foundation (Fiocruz). Other relevant milestones were: institutionalization of CECAN, formalizing the national collaborative network, and the creation of RedeNutri in 2003, which, in 2009, started to contribute to professional training through self-instructional courses. However, its last update was in 2017 as information was incorporated to the PHC and the Ministry of Health portal.

In the third period (2015-2019), other strategies were adopted, such as: public selection for research project funding, extension and training of PHC professionals to qualify the diagnosis, prevention and treatment of obesity; development of a course about the promotion of adequate healthy food actions in PHC; and free and specialization courses for training and qualification in obesity.

Discussion

In the last 20 years, PNAN has been the main guide for food and nutrition policies, programs and actions in SUS, also impacting other sectors due to its intersectoral character. In this sense, the PNAN update maintained most of its guidelines and priorities, but reflected the changes in the health sector and food and nutrition security, reinforcing nutritional care, expanding the insertion of nutrition actions in SUS and ensuring more visibility to the actions implemented in PHC.

In the first decade of PNAN, prevention of nutritional deficiency and malnutrition had emphasis in PHC, with the creation of training programs and actions focused on obesity and recommendations and materials for the PHC about promotion of adequate healthy food. The results were analyzed in a study that identified actions according to the epidemiological scenario in the country ¹³.

Addressing the multiple burdens of malnutrition requires a stronger participation of the health sector in articulation with other sectors ¹⁴, reflecting the need for larger PHC teams. They must develop health promotion actions for the treatment of diseases, consider territory particularities, identify factors that impact the health of individuals, and establish intersectoral articulation to support the assembly of spaces to promote healthy food ¹⁵. In addition, the territory requires diagnosis and monitoring of the food and nutritional situation ¹⁶.

Based on data from services, investigations, and surveys, the actions in PHC have already impacted nutritional outcomes and increased SISVAN coverage. For example, reduction in child malnutrition rates between 1996 and 2006 was due to universalization of health care, with the expansion of PHC ¹⁷, among other factors. The increase in SISVAN coverage occurred as a result of Brazilian Income Transfer Program monitoring and funding for UBS structuring and computerization. A broader coverage of nutritional status was positively correlated with the FHS coverage between 2008 and 2013 ¹⁸.

Federal income transfer programs, designed to contribute to the food and nutrition security, incorporated conditions related to food and nutrition in health care, which explains a larger amount of SISVAN data coming from pbf, indicating a possibility to universalize coverage beyond this population. Regular monitoring of Brazilian Income Transfer Program beneficiaries in PHC proved to be a protective factor against malnutrition, anemia and child overweight ¹⁹, reinforcing the positive impact of PHC while ensuring the right to health and adequate food for families in situation of social vulnerability ^{14,20}.

The adequacy of nutritional deficiency prevention programs depends on a continuous production of evidence, inherent to expanded food and nutrition surveillance. However, population surveys and national surveys have not been developed with proper frequency to monitor the changes in population diet and nutrition and guide a reformulation of these programs in a timely manner; the last survey with data about the prevalence of micronutrient deficiency in children was conducted in 2006, and in adults, in 2013 ²¹. The Brazilian National Study of Infant Food and Nutrition (ENANI. <https://enani.nutricao.ufrj.br/>), conducted between 2019 and 2020, presents an updated profile of nutritional deficiency among Brazilian children, allowing improvements in these actions.

Regarding promotion of adequate healthy food, food guides were the main milestones and guided recommendations, development of materials, and creation of programs implemented in PHC in the period. The current version of the *Food Guide for the Brazilian Population* changed how meals and foods are seen, strengthened the sociocultural dimensions of food, with a focus on cooking practices, food and commensality ²². Promotion of adequate healthy food in PHC requires adaptation to local reali-

ties, considering food systems and food supply in the territories, going beyond guidance and food and nutrition education to include intersectoral articulations in its practice.

National studies reported promotion of adequate healthy food actions in 72% of UBS, and PHC team guidance about food in care routine²³ in more than 30% of respondents²⁴. However, the impact of these approaches was not assessed. Local data show that when PHC teams prioritize promotion of adequate healthy food actions according to national guides or strategies, benefits are reported in the health and nutrition of the population²⁵.

In Brazil, meals with *in natura* or minimally processed foods has been gradually replaced by ultra-processed foods²⁶, while the consumption of critical nutrients associated with NCDs has not decreased, leading to an increased risk of these diseases in the population²⁷. The prioritization of promotion of adequate healthy food themes, therefore, remains a challenge in PHC. Enhancing the implementation of the guides in PHC will significantly contribute to change the current food and nutritional profile of communities, complementing policies and measures for the protection of food environments²⁸.

The main issue resulting from these changes in food consumption in Brazil is overweight, requiring efforts from multiple segments to resolve it – with PHC playing a strategic role in the health sector. In 2007 and 2013, regulations and materials were published to qualify the actions and ensure intersectoral organization for the prevention and control of obesity, an innovative model for intersectoral policy coordination²⁹. However, despite the obesity care efforts of the teams over the years, the percentage of obese people referred to other health centers is high. In addition, of all over 105 million annual visits reported in PHC, only 2.85% were related to obesity, 10.51% to diabetes, and 26.38% to arterial hypertension, indicating that obesity may not be identified as a problem by PHC professionals³⁰.

Poor adherence of patients to therapeutic processes and the consequent feelings of frustration and helplessness experienced by professionals, working in a multidisciplinary team, and lack of preparation to deal with the complexity of the health/disease process related to obesity were reported by health professionals as their main challenges when providing care to people with obesity³¹. Limited knowledge of health professionals to provide nutritional guidance and control weight was found in a Brazilian study³², emphasizing investments should be made in training to improve the way obesity is approached in PHC. In recent years, efforts from the federal administration have developed training strategies for PHC professionals and administrators through partnerships with universities and the provision of courses about this theme.

In addition to training, the LCSO, as part of the Network of Non-communicable Diseases, was an administration strategy to ensure obesity care. Rearranging health services into networks and care lines favors a more integrated and intrasectoral approach to obesity, with the possibility of strengthening food systems that promote proper healthy food in a sustainable way³³. The proposal of the LCSO promoted the contact among health centers from different states and municipalities to ensure comprehensive care, but the end of mandatory care lines in 2017, approved for the provision of highly complex hospital care to individuals with obesity has been criticized¹³.

Despite the Brazilian effort to address obesity through international agreements and goals in health and food and nutrition security plans³⁰, obesity is still growing in the country, requiring the adoption of public regulatory policies that affect health environments and the food system³⁴. If no effective measure is implemented, the country will have more than 7 million obese children and adolescents by 2030, according to estimates³⁵. In 2018, around BRL 3.45 billion³⁶ had been spent with obesity, hypertension and diabetes, demonstrating how urgent this issue is, not only for the health of the population, but also for the country's economy.

Improvements in food and nutrition in PHC must occur based on scientific evidence. However, a systematic review conducted in 2017 shows the academic production cannot generate enough evidence to support the public administration³⁷. Gaps are seen in the proposal for innovative, viable and effective interventions, in the evaluation of actions and programs, particularly those related to obesity, special dietary needs and nutritional therapy in PHC. Also few studies have addressed PHC articulation with other centers in the health care network and other sectors besides education. Regarding the PHC administration, the literature has no study that identifies its weaknesses and tools to help overcome them, proposes innovative methods of continuing education, or that assesses

the impact of actions and economic analyses related to this theme^{37,38}. These findings confirm the demand for studies in food and nutrition identified by the CGAN, as seen in research request for proposal launched in recent years.

This is the first study to systematize the 20-year history of PNAN in PHC, providing important contributions based on a collection of documents and scientific publications about this theme. However, it has limitations because it is only a documentary analysis. Interviews with the main actors involved could clarify issues not presented in the analyzed documents. In addition, all authors are directly involved with this theme as workers of the CGAN, from the Brazilian Ministry of Health, which may have generated bias in the analysis of food and nutrition evolution in PHC.

Conclusion

Food and nutrition actions in PHC evolved to respond to the main food and nutrition issues in the country – first they prioritized malnutrition reduction and, more recently, placed a stronger emphasis on obesity. Important milestones were identified, which contributed to the advancement of nutrition organization in primary care. However, the universalization of these actions at the local level is still an important challenge to be overcome. In addition, it is clear the multiple burdens of malnutrition demand intersectoral articulation, which can also be enhanced in PHC.

Contributors

G. A. Bortolini, T. N. Pereira, E. A. F. Nilson and A. C. L. Pires participated on the study concept and design, data analysis and interpretation, article writing, critical review, final approval of the version for publication. M. F. M. Alves, M. K. P. Ramos, S. A. Silva and M. F. C. C. Carvalho contributed on the data analysis and interpretation, article writing, critical review, final approval of the version for publication. L. A. Bressan participated on the article writing, critical review and final approval of the version for publication. L. A. Faller contributed on the critical review and final approval of the version for publication.

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Resumo

O objetivo do estudo é sistematizar as ações de alimentação e nutrição desenvolvidas na atenção primária à saúde (APS), de 1999 a 2019, identificando os avanços no período e perspectivas atuais. É uma pesquisa qualitativa realizada baseando-se na análise de documentos publicados entre 1999 e 2020, disponíveis em bases de dados científicos e na literatura cinza. Adicionalmente, realizou-se análise quantitativa valendo-se de sistemas de informação do Ministério da Saúde, como o Sistema de Vigilância Alimentar e Nutricional e o Sistema de Informação em Saúde para a Atenção Básica e dos microdados do Programa Nacional de Melhoria do Acesso e da Qualidade da Atenção Básica (PMAQ-AB). As ações e marcos normativos identificados foram categorizados em gestão, vigilância alimentar e nutricional, promoção da alimentação adequada e saudável, atenção nutricional – múltipla carga de má nutrição e formação. Os resultados revelam que as ações de alimentação e nutrição acompanharam o cenário epidemiológico, considerando-se a múltipla carga da má nutrição, estando a primeira década mais direcionada ao enfrentamento da fome, da desnutrição e carências de micronutrientes e; a partir de 2006, passou a dar ênfase à prevenção e cuidado de pessoas com obesidade e outras doenças crônicas não transmissíveis, além da promoção da alimentação adequada e saudável, desenvolvendo, durante todo o período, ações com forte caráter intersetorial e compreendendo o locus da APS como campo prioritário de atuação no Sistema Único de Saúde. A universalização das ações de alimentação e nutrição na APS, contudo, é ainda um desafio atual.

Programas e Políticas de Nutrição e Alimentação; Atenção Primária à Saúde; Programas de Nutrição; Política Pública

Resumen

El objetivo del estudio es sistematizar las acciones de alimentación y nutrición desarrolladas en la atención primaria a la salud (APS), de 1999 a 2019, identificando los avances durante este período y perspectivas actuales. Es una investigación cualitativa, realizada basándose en el análisis de documentos publicados entre 1999 y 2020, disponibles en bases de datos científicas y en literatura gris. Asimismo, se realizó un análisis cuantitativo, valiéndose de sistemas de información del Ministerio de Salud, como el Sistema de Vigilancia Alimentario y Nutricional y el Sistema de Información en Salud para la Atención Básica, así como de los microdatos procedentes del Programa Nacional de Mejoría de Acceso y Calidad de la Atención Básica (PAMQ-AB). Las acciones y marcos normativos identificados fueron categorizados en gestión, vigilancia alimentaria y nutricional, promoción de la alimentación adecuada y saludable, atención nutricional - múltiple carga de mala nutrición y formación. Los resultados revelan que las acciones de alimentación y nutrición acompañaron el escenario epidemiológico, considerándose la múltiple carga de la mala nutrición, estando la primera década más dirigida al combate del hambre, desnutrición y carencias de micronutrientes y, a partir de 2006, pasó a dar énfasis a la prevención y cuidado de personas con obesidad y otras enfermedades crónicas no transmisibles, además de la promoción de la alimentación adecuada y saludable, desarrollando, durante todo el período, acciones con un fuerte carácter intersectorial y comprendiendo el locus de la APS como campo prioritario de actuación en el Sistema Único de Salud. La universalización de las acciones de alimentación y nutrición en la APS constituye un desafío todavía actual.

Programas y Políticas de Nutrición y Alimentación; Atención Primaria de Salud; Programas de Nutrición; Política Pública

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