REVISTA DE NUTRIÇÃO
Brazilian Journal of Nutrition

REVIEW ARTICLE

Public Policies for Food and Nutrition

Editor
Francisco de Assis Guedes de Vasconcelos

Data Availability
The research data are available in the body of the document.

Conflict of interest
The authors declare that there are no conflicts of interest.

Received
April 16, 2025

Final version
December 16, 2025

Approved
January 28, 2026

Nutritionists in the Brazilian Unified Health System: a perspective on their role in Primary Health Care

Maria Angélica Tavares de **Medeiros**[1,2], Gabriela Milhassi **Vedovato**[2], José Anael **Neves**[3], Mayline Menezes da **Mata**[4]

[1] Universidade Federal de São Paulo, Instituto de Saúde e Sociedade, Departamento de Políticas Públicas e Saúde Coletiva. Santos, SP, Brasil.
[2] Universidade Federal de São Paulo, Instituto de Saúde e Sociedade, Programa de Pós-Graduação em Nutrição. Santos, SP, Brasil. Correspondence to: GM VEDOVATO. E-mail: <gabriela.vedovato@unifesp.br>.
[3] Universidade Estadual do Ceará, Centro de Ciências da Saúde, Programa de Pós-Graduação em Nutrição e Saúde. Fortaleza, CE, Brasil.
[4] Instituto Nacional de Pesquisas da Amazônia, Coordenação de Sociedade, Ambiente e Saúde. Manaus, AM, Brasil.

How to cite this article: Medeiros MAT, Vedovato GM, Neves JA, Mata MM. Nutritionists in the Brazilian Unified Health System: a perspective on their role in Primary Health Care. Rev Nutr. 2026;39:e15431. https://doi.org/10.1590/1678-9865202639e15431en

ABSTRACT

To examine the trajectory of nutritionists' practice in Primary Health Care within the Brazilian Unified Health System. We conducted a narrative review, integrating scientific articles since the establishment of Unified Health System in 1988. The search was performed in the following databases: Scientific Electronic Library Online, National Library of Medicine, Latin American and Caribbean Health Sciences Literature, Scopus, and Web of Science. The material was organized into three thematic axes: historical overview of integration, professional training, and workforce sizing. Sixty-five studies published between 2002 and 2025 were analyzed. The role of nutritionists was limited during the first decade of Unified Health System implementation, expanding significantly with the establishment of the Family Health Support Centers. The 1999 and 2012 editions of the National Food and Nutrition Policy positioned nutritionists as key players in the development of interdisciplinary care strategies. We observed some efforts to align the training of nutritionists and continuing health education with Unified Health System care models and the health needs of the population. Successful training experiences were identified in university-service integration, despite curricular gaps in Collective Health. The insufficient number of nutritionists and working conditions hinder the implementation of actions in Primary Health Care. The work of nutritionists in Primary Health Care has advanced with improved public policies, including the interdisciplinary dimension. However, challenges remain regarding training, integration, and daily practices, which limit the strengthening of food and nutrition practices in the Unified Health System.

Keywords: Comprehensive health care. Healthcare models. Nutritionists. Nutrition policy. Primary health care. Unified Health System.

INTRODUCTION

Primary Health Care (PHC) is guided by the principles of *Sistema Único de Saúde* (SUS, Unified Health System) and constitutes the care model responsible for operationalizing universality, equity, and integrality, presupposing the right to health. Regarding food and nutrition issues, the *Política Nacional de Alimentação e Nutrição*

(PNAN, National Food and Nutrition Policy) represents the key locus for implementing these principles. Since its first edition in 1999, the PNAN and its subsequent unfoldings have guided Food and Nutrition (F&N) actions within the SUS, according to the health needs of populations in their respective territories. Aligned with the guiding principles of healthcare work, Nutritional Care (NC) is legitimized in this setting through the Multiprofessional teams (eMulti). In this context, nutritionists play a strategic role in the management and qualification of NC, which encompasses the provision of food and nutrition-related health care, including surveillance, promotion, protection, treatment, recovery, prevention, and control of health and nutritional conditions, especially emphasizing the promotion of adequate and healthy eating for the entire population. These actions are embedded within interdisciplinary and intersectoral practices to address the complexity involved in the health-disease-care process and ensure effectiveness within the *Redes de Atenção à Saúde* (RAS, Health Care Networks), considering the adversities imposed by the socioeconomic and political vulnerabilities of the contemporary Brazilian context [1-12].

The available scientific literature on the role of nutritionists in PHC recognizes the importance of these professionals in ensuring comprehensive health care. However, as far as is currently known, publications of a descriptive or documentary nature predominate, based on local experiences and focused on professionals' perceptions of their own work [8,13-15]. Given the undeniable validity of these contributions, this study aims to move towards a systematization of the scattered evidence concerning the practices of nutritionists at this care level. Considering the 85 years of these professionals' work in Brazil, this article aims to analyze their incorporation and trajectory within PHC, based on a literature review, highlighting historical milestones, advances, challenges, and perspectives for strengthening formative and professional practices within the RAS.

METHODS

This study consists of a narrative review of the scientific literature designed to answer the following guiding question: How is the role of nutritionists in PHC within the SUS characterized?

Based on this question, keywords were defined for the bibliographic search in the following databases: Scientific Electronic Library Online (SciELO.br), National Library of Medicine (PubMed), Latin American and Caribbean Literature in Health Sciences (Lilacs), Scopus, and Web of Science.

The following search terms were used: "nutritionist" AND "primary health care" OR "basic health care" OR "Brazilian unified health system" OR "delivery of health care" OR "health care" OR "integrality in health" OR "comprehensive health care" OR "nutritional care" OR "health of indigenous populations" OR "*quilombola communities*" OR "food and nutrition actions" OR "technical area of food and nutrition" OR "food and nutritional surveillance" OR "health promotion".

We employed the Rayyan software to consolidate search results and screen records. Two authors independently and blindly performed duplicate removal and screening based on title and abstract review. Inclusion criteria comprised original articles, reviews, essays, and scientific notes published in indexed scientific journals in Portuguese, English, or Spanish. Exclusion criteria included duplicate articles, documents without full text, and texts with no reference to the role of the nutritionist in PHC or lacking description or analysis of the period from the creation of the SUS until 2025.

After the initial screening of the scientific literature and the preliminary analysis of eligible articles, the full texts of selected studies were read and discussed among the authors to establish thematic axes for data extraction. These documents were systematized by authorship, year, objectives,

methodological approach, main results, and study location. Axis 1 addressed the trajectory of nutritionists' incorporation and practice in PHC since the creation of the SUS (1988), with temporal landmarks based on the two editions of the PNAN (1999 and 2012). Axis 2 analyzed the educational dimension of nutritionists within the SUS, including the academic training and permanent health education in PHC. Axis 3 examined the sizing of the health workforce, emphasizing the number of nutritionists in PHC. The discussion across these three axes was guided by official documents and by major national [4,5,16-19] and international [20,21] agendas in the field of Food and Nutrition in Collective Health [22,23]. This process enabled the development of an analytical model of nutritionists' professional practices in PHC.

RESULTS

Figure 1 presents an analytical model interrelating the thematic axes and the main findings from the literature on the work of nutritionists in PHC. At the center of the model are the dimensions of professional incorporation and training, connected to three domains: (1) structuring references and frameworks for professional practice (including public policies, educational guidelines, and national and international agendas); (2) challenges; and (3) perspectives for the implementation of NC and the strengthening of F&N actions within PHC.

A total of 140 references were identified, 45 of which were excluded due to duplication and 30 for not meeting the eligibility criteria, resulting in 65 articles selected for this review. In Chart 1, the articles published between 2002 and 2025 are listed chronologically, organized by the three thematic axes that emerged from the search process.

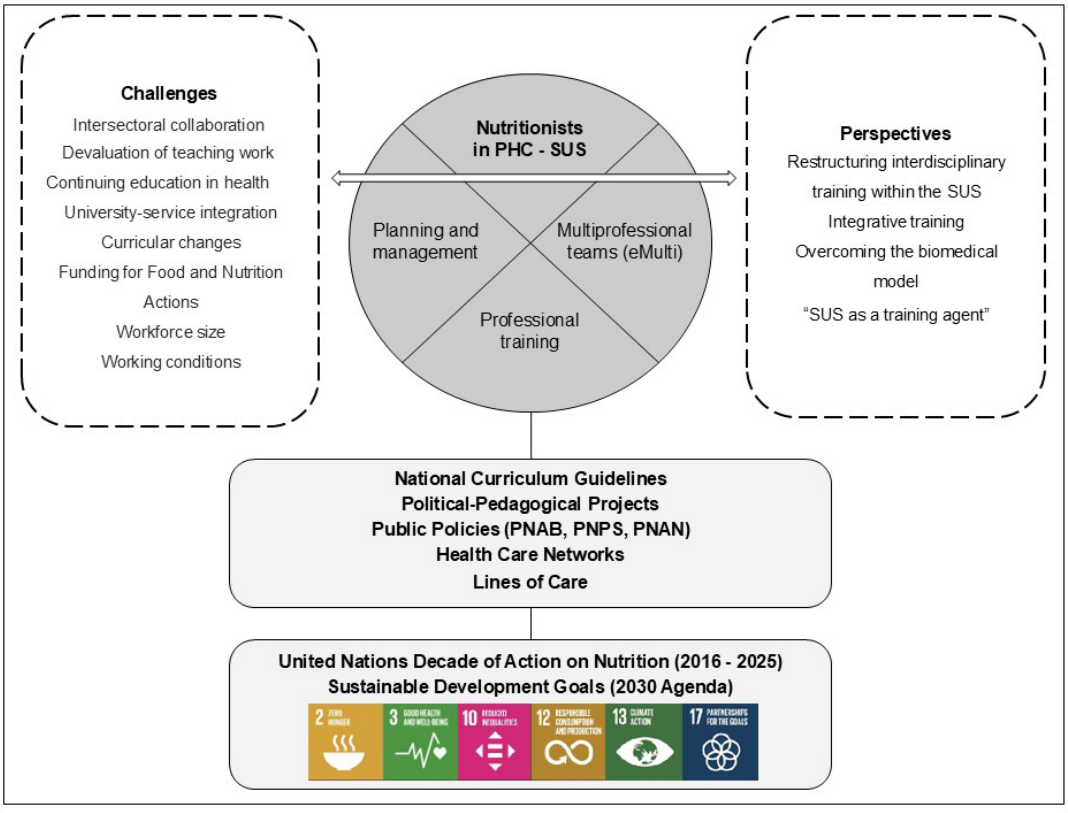

Figure 1 – Analytical model of nutritionists' professional practices in Primary Health Care (PHC) within the Brazilian Unified Health System (SUS), based on a literature review. Brazil, 2025.

Chart 1 – Role of Nutritionists in Primary Health Care, according to thematic axes resulting from a narrative review of the scientific literature: (1) Historical panorama of incorporation; (2) Training; (3) Workforce sizing. Brazil, 2025.

Author(s) and year	Thematic axes	Objectives	Methodological approach	Setting	Main findings
Assis et al., 2002 [59]	3	To problematize the absence of nutritionists in the Family Health Program	Essay	Brazil	The inclusion of nutritionists is essential for the effectiveness of PHC
Pádua and Boog, 2006 [60]	3	To analyze the actions of nutritionists in PHC	Qualitative-quantitative study, semi-structured interviews	Eight municipalities in the Metropolitan Region of Campinas/SP	Low incorporation of nutritionists in PHC. The following stand out among their activities: individual dietary prescriptions and counseling, lectures, campaigns, supplementation programs, sanitary surveillance, and house calls
Boog, 2008 [24]	1, 3	To analyze the incorporation of nutritionists in Public Health	Literature review	Brazil	Incipient incorporation of nutritionists in Public Health, with a need for expansion and training aligned with SUS guidelines
De Geus et al., 2011 [25]	1, 3	To present the importance of including nutritionists in the ESF for ensuring comprehensive care	Essay	Brazil	The nutritionists are professionals qualified to work in the ESF; their absence limits the integrality in health
Jaime et al., 2011 [9]	1, 2, 3	To report the Brazilian government's experience in organizing F&N actions in PHC	Essay, data from the Ministry of Health	Brazil	The F&N actions in PHC were strengthened by the incorporation of nutritionists in NASF teams
Cervato-Mancuso et al., 2012 [61]	3	To analyze the role of nutritionists in PHC	Quantitative study, data from the Municipal Health Secretariat, and semi-structured interviews	Municipality of São Paulo/SP	Incorporation of nutritionists in São Paulo's NASF teams remained below the levels recommended by the Federal Council of Nutrition. Individual care predominated, alongside an expansion of group-based activities
Recine et al., 2012 [37]	2	To characterize public health training in undergraduate Nutrition programs, considering the profile of faculty members and the courses offered	Cross-sectional study, with questionnaires administered to all public and private institutions	Brazil	Most programs allocated up to 30% of the total course load to Public Health Nutrition courses, of which 82.2% were mandatory, and 25% corresponded to practical activities
Canella et al., 2013 [26]	1, 3	To map, systematize, and assess the scientific production on F&N in PHC	Literature review	Brazil	Growing scientific output on F&N in PHC, with a primary focus on assessing the nutritional status of children
Gomes et al., 2013 [27]	1, 3	To highlight the importance of nutritionists in the NASF	Literature review	Brazil	Insufficient availability of nutritionists given epidemiological and social demands
Medeiros and Diez-Garcia, 2013 [13]	2	To problematize the demands of nutritionist training and to reflect on the challenges for professional practice within the SUS	Essay, panel synthesis, interviews with key informants	Brazil	The work of nutritionists within the SUS requires the integration of knowledge in public policy management, food and nutrition surveillance, PHC, food and nutrition education, occupational health and the school environment, nutritional epidemiology, and nutrition in the human and social sciences
Menezes et al., 2013 [38]	2, 3	To report the experience of strengthening the teaching-service-community interface in the context of the NASF	Implementation of continuing education using active learning methodologies	Municipality of Maceió/AL	Thirteen meetings were held, with topics defined by managers and health-unit professionals, highlighting the legal instruments that structure work in PHC and F&N policies.
Watanabe et al., 2013 [62]	3	To identify the perception of professionals from a Teaching Health Center regarding practice in the field of Nutrition	Qualitative study, semi-structured interviews with professionals	Municipality of Botucatu/SP	Reduced number of nutritionists in the service. Health education is highlighted as a distinguishing feature across all areas of practice, including Nutrition
Aguiar and Costa, 2014 [39]	2, 3	To analyze the academic training and professional practice of nutritionists working in the NASF	Qualitative-quantitative study, self-administered questionnaire with nutritionists	State of Goiás	NASF nutritionists reported shortcomings in their academic training and professional qualification for working in family health, including difficulties in understanding the social reality of the population

Chart 1 – Role of Nutritionists in Primary Health Care, according to thematic axes resulting from a narrative review of the scientific literature: (1) Historical panorama of incorporation; (2) Training; (3) Workforce sizing. Brazil, 2025.

Author(s) and year	Thematic axes	Objectives	Methodological approach	Setting	Main findings
Junqueira and Cotta, 2014 [40]	2	To critically review studies guiding nutritionists' education and practice in PHC and assess the contribution of the Matrix of Food and Nutrition Actions	Literature review	Brazil	The Matrix guides the training of nutritionists and strengthens the skills required to meet the population's needs within the SUS
Medeiros et al., 2014 [41]	2	To report and analyze an interdisciplinary internship experience in Nutrition and Psychology at a federal university within Primary Care and Medium-Complexity Care in the SUS	Field notes	Municipality of Santos/SP	Interdisciplinary practices in Nutrition and Psychology internships within Collective Health promoted integrality in health and differentiated care for users
Rodrigues and Bosi, 2014 [28]	1, 2, 3	To analyze the perceptions and experiences of NASF nutritionists regarding their incorporation in the ESF	Qualitative study, in-depth interviews, and observation	Municipality of Fortaleza/CE	Nutritionists adopt individualizing, technicist, and minimally reflective practices, with a predominance of collective prevention and food and nutrition education
Silva et al., 2014 [29]	1, 3	To describe the evolution of PHC regarding the ESF, NASF, and F&N actions	Quantitative study, data from the Ministry of Health information systems	State of Alagoas	Adherence to the NASF, which includes the availability of nutritionists, increased the coverage of iron and vitamin A supplementation and SISVAN
Alves and Jaime, 2014 [2]	1	To problematize intersectorality and health promotion based on the presentation of the PNAN and its role as an interface between the SUS and the PNSAN	Debate article	Brazil	The experience of dialogue between the PNAN and the PNSAN, and between the SUS and the SISAN, contributes to the development of public policies for health promotion
Borelli et al., 2015 [42]	2, 3	To develop a proposal for matrix support actions for nutritional care targeting women and children within the ESF	Qualitative-quantitative study, territory mapping, family interviews, and development of field activities	Northwestern region of the municipality of Campinas/SP	Matrix support involves specific actions for individuals, families, and communities. In the experience described, requests for outpatient care were occasional, while demands were predominantly related to health education
Ricardi and Sousa, 2015 [43]	2, 3	To identify facilitators, barriers, and strategies for continuing education in F&N within the ESF	Qualitative study, visits, and interviews with professionals	Large Brazilian municipalities	The most frequently cited facilitators for continuing education in F&N were partnerships and the availability of resources. In contrast, the main barriers were the lack of available time in work schedules and the shortage of professionals responsible for managing F&N actions
Vasconcelos et al., 2015 [30]	1, 3	To identify the evolution of the number of nutritionists in PHC, emphasizing the ESF and the NASF	Quantitative study, secondary data from the Ministry of Health	Brazil	An increase was observed in the number of nutritionists in PHC and in the number of municipalities that hired these professionals, particularly within the NASF teams
Alves et al., 2016 [44]	2	To report the experience of nutritionists' work in a Multidisciplinary Health Residency Program within PHC and tertiary health care	Qualitative study	Municipality of Santos/SP	The high workload, the diverse practice settings, and the complex situations experienced by nutritionists during the residency program prepare them for professional practice within the SUS
Alves and Martinez, 2016 [45]	2, 3	To analyze and reflect on the education and professional practice of nutritionists for the SUS	Documentary study, content analysis of an undergraduate program's pedagogical project	Brazil	The competencies of "leadership" and "continuing education," which are essential for the training of nutritionists, were not identified in the pedagogical projects
Laporte-Pinfildi et al., 2016 [63]	3	To assess managers' perceptions regarding nutritional care during prenatal and postpartum periods	Quantitative and census-based study using interviews	Municipality of Santos/SP	The incorporation of nutritionists was the main insufficient component within the "structure" dimension. In the "process" dimension, there was low compliance regarding body mass index calculation, nutritional follow-up of pregnant women, and individualized nutritional counseling during prenatal care

Chart 1 – Role of Nutritionists in Primary Health Care, according to thematic axes resulting from a narrative review of the scientific literature: (1) Historical panorama of incorporation; (2) Training; (3) Workforce sizing. Brazil, 2025.

Author(s) and year	Thematic axes	Objectives	Methodological approach	Setting	Main findings
Fittipaldi et al., 2017 [46]	2, 3	To present the meanings attributed by ESF and NASF professionals to matrix support in F&N actions	Qualitative study, semi-structured interviews	Municipality of Rio de Janeiro/RJ	Educational activities conducted by nutritionists are relevant in daily work and are strategic for addressing complex F&N demands
Frutuoso et al., 2017 [47]	2	To discuss the training experiences of undergraduate Nutrition students regarding health work for the SUS	Qualitative study, focus group with nutritionists who graduated from a federal university.	Municipality of Santos/SP	Tensions emerged between actions specific to nutritionists and those shared with other professionals, as well as in the underlying conception of care and clinical practice
Neves et al., 2017 [64]	3	To describe and evaluate nutritional care for adults with overweight in PHC and Secondary Health Care	Qualitative-quantitative and census-based study using interviews with professionals	Municipality of Santos/SP	Nutritional care in PHC was limited to individual consultations, with referrals to other points in the health care networks; nutritional diagnosis and health promotion occurred only when overweight was associated with other diseases
Pedraza and Santos, 2017 [48]	2, 3	To describe the profile and activities of nutritionists in PHC/ESF	Quantitative study, structured interviews with nutritionists	Two municipalities in the State of Paraíba	Nutritionists in the basic health teams conducted more F&N actions, such as establishing protocols and providing vitamin A and iron supplementation, compared to those in the NASF
Almeida et al., 2018 [49]	2	To synthesize the scientific literature on the training of nutritionists in Public Health	Systematic review	28 countries, including Brazil	Public Health is a central area in the training of nutritionists, yet teaching was found to be traditional, biologically oriented, and with a fragmented curricular structure
Carvalho et al., 2018 [65]	3	To describe the growth and regional distribution of higher-level health professions registered in basic health units	Quantitative study, data from DATASUS	Five Brazilian macro-regions	Nutritionists are among the professional categories with the highest national growth rates in basic health units, alongside physical education teachers, occupational therapists, physical therapists, and pharmacists
Carvalho-Gebran et al., 2018 [50]	2, 3	To understand the role of health professionals in educational groups on F&N	Qualitative study, Interviews with ESF professionals	Municipality of São Paulo	Health professionals perceive themselves as organizers, facilitators, and evaluators of F&N groups, with nutritionists serving as key stakeholders in continuing education activities
Pava-Cárdenas et al., 2018 [51]	2, 3	To identify the implementation processes of food and nutrition education topics in two PHC models	Qualitative study, semi-structured interviews, and online questionnaires with professionals (including nutritionists)	Municipalities of São Paulo, Brazil, and Bogotá, Colômbia	The implementation of food and nutrition education topics was mediated by health professionals' social representations regarding service needs, training, professional practice, and relationships with community members
Recine et al., 2018 [52]	2	To report and critically examine experiences of changes in the training of nutritionists for the SUS in public and private higher education institutions	Socio-historical analysis based on bibliographic and documentary review, and workshops	Brazilian macro-regions	Strategies promoting the restructuring of professional training, such as PET-Saúde and Pró-Saúde, facilitated dialogue between higher education institutions, managers, and health professionals, as well as the integration of students into the health service network
Spina et al., 2018 [66]	3	To analyze the practice of nutritionists in PHC	Qualitative study, semi-structured interviews	Municipality of Santos/SP	The insufficient number of nutritionists in health services hindered teamwork and the quality of actions, which were predominantly group-based, conducted in waiting rooms, unplanned, and discipline-specific
Evangelista et al., 2019 [53]	2, 3	To examine the determinants of F&N actions in PHC, regarding professional training and service conditions	Qualitative study, validated questionnaire	65 municipalities of the State of São Paulo	Only 19% of basic health units employed nutritionists. Professional guidance and community partnerships were important for F&N actions, which were still incipient in PHC
Moura and Recine, 2019 [54]	2, 3	To analyze nutritionists' perceptions of the challenges in providing comprehensive care for people with overweight in PHC	Qualitative study, semi-structured interviews with nutritionists	Federal District, Brazil	Nutritionists face challenges in ensuring comprehensive care for people with overweight, including those related to professional capacity, weaknesses in teamwork processes, and their motivation to provide integrality in health

Chart 1 – Role of Nutritionists in Primary Health Care, according to thematic axes resulting from a narrative review of the scientific literature: (1) Historical panorama of incorporation; (2) Training; (3) Workforce sizing. Brazil, 2025.

Author(s) and year	Thematic axes	Objectives	Methodological approach	Setting	Main findings
Pedraza, 2019 [67]	3	To evaluate the implementation of F&N actions in child health care within ESF teams	Evaluative, quantitative study, scores, and PCATool	Two municipalities in the State of Paraíba	The work process and assessment of community members indicated fragmented care in the two municipalities studied, with deficiencies in promotion, prevention, surveillance, and teamwork practices
Nunes Pereira et al., 2018 [31]	1, 2, 3	To describe F&N actions in PHC from 2007 to 2016	Exploratory review	Brazil	The most prevalent topics are related to food consumption, nutritional status, and noncommunicable chronic diseases, with a predominance in the Southeast. The increase in the number of nutritionists in PHC can enhance F&N actions
Bortolini et al., 2020 [7]	3	To provide an overview of F&N actions conducted within the scope of PHC	Essay, SISVAN data	Brazil	The main F&N actions in PHC are in nutritional assessment, food and nutrition surveillance, promotion of adequate and healthy eating, prevention of nutritional deficiencies, and dietary management of obesity, diabetes, and hypertension
Magalhães and Amparo-Santos, 2020 [68]	3	To examine the processes of nutritional care in PHC, grounded in matrix support	Ethnographic study	Large municipality in the State of Bahia	The provision of nutritional care results from the coordination among multiple stakeholders within dynamic and interconnected health care networks. Care practices reflect the integration of food into the daily lives of professionals and community members, revealing paradoxes in mutual support and in expanding access to food within the territories
Marques et al., 2019 [69]	3	To analyze the work process of NASF professionals in the implementation of food and nutrition education actions	Qualitative study, semi-structured interviews with professionals (including nutritionists)	Municipality in the State of Minas Gerais	Collective activities on the promotion of adequate and healthy eating engaged professionals from different categories, promoting interdisciplinarity, team strengthening, and shared education
Melo and Medeiros, 2020 [70]	3	To characterize and analyze nutritional care for older adults in PHC	Quantitative and census-based study, semi-structured interviews with managers	Municipality of Santos/SP	Nutritional care actions followed the biomedical paradigm, were fragmented, and limited to disease management, placing responsibility for care on the older adult
Pedraza et al., 2020 [32]	1, 2, 3	To reflect on the Brazilian context regarding the United Nations Decade of Action on Nutrition	Essay, theoretical research based on a bibliographic review	Brazil	The 2030 Agenda aims to improve human needs and environmental conditions sustainably, with Nutrition linked to at least 12 Sustainable Development Goals
Vendruscolo et al., 2020 [71]	3	To analyze the characteristics and practices of nutritionists in NASF/PHC	Multicenter, mixed-methods study, surveys, and focus group interviews with teams	State of Santa Catarina	The work of NASF nutritionists involved shared care, group and individual activities, as well as participation in the coordination, regulation, or evaluation of referrals from PHC to other points in the health care networks
Vincha et al., 2020 [72]	3	To analyze the potential of operative groups in food and nutrition education based on professional practice	Qualitative, exploratory study conducted in two basic health units' groups coordinated by nutritionists	Municipality of São Paulo/SP	The operative groups strengthened bonding and trust, while in the communication dimension, they enhanced cooperation, learning, and relevance.
Azevedo et al., 2021 [33]	1, 2, 3	To evaluate the temporal trend of the integration of nutritionists into the SUS from 2009 to 2018	Observational and descriptive study, based on secondary data (IBGE and CNES)	Brazil	The number of nutritionists increased in the country, with faster growth in the Northeast and slower growth in the Southeast, which registered the highest density of professionals; the North had the lowest numbers
Bortolini et al., 2021 [6]	3	Systematize F&N actions in PHC from 1999 to 2019 to identify advances and prospects	Qualitative study, document analysis	Brazil	In the first decade, F&N actions focused on addressing hunger, undernutrition, and micronutrient deficiencies; from 2006 onward, they prioritized the prevention and care of obesity and other noncommunicable diseases, in addition to the promotion of adequate and healthy eating

Chart 1 – Role of Nutritionists in Primary Health Care, according to thematic axes resulting from a narrative review of the scientific literature: (1) Historical panorama of incorporation; (2) Training; (3) Workforce sizing. Brazil, 2025.

Author(s) and year	Thematic axes	Objectives	Methodological approach	Setting	Main findings
Brinco et al., 2022 [58]	2	To analyze the training changes induced by PET-Saúde and identify the assumptions of interprofessional education and collaborative practices	Qualitative case study, with interviews conducted with program stakeholders	State of Rio de Janeiro	There were compelling experiences of interdisciplinary education and collaborative practices, including curricular reforms and the creation of new courses; however, a consolidated policy has not yet been established within educational institutions
Fagundes et al., 2021 [1]	1, 2, 3	To reflect on the PNAN's decentralization process over 20 years	Debate article, based on institutional documentary sources, as well as bibliographic literature	Brazil	The PNAN, with its robust and up-to-date theoretical framework, strategic guidelines, defined roles for stakeholders, and dedicated funding, has enabled significant advances in the organization of F&N actions
Gonçalves et al., 2021 [34]	1, 2, 3	To analyze health professionals' perceptions of food and nutrition surveillance actions	Qualitative study, semi-structured interviews with managers and technical staff (including nutritionists)	Zona da Mata in the State of Minas Gerais	Low training levels and the lack of use of SISVAN data for management within the health care networks were identified, as well as the fragmented performance of nutritionists due to their insufficient numbers on the teams
Machado et al., 2021 [73]	3	To assess the structure and work processes for F&N actions in PHC	Quantitative study, PMAQ-AB data	Brazil	Low adequacy of structure and work processes for F&N actions, with better results in units that had nutritionists
Pedraza, 2021 [74]	3	To evaluate the structure and work processes of ESF teams in child nutrition care	Quantitative study, survey	45 municipalities in the State of Paraíba	Nutritional care was rated as intermediate, with the most significant gaps found in the availability of technical documents, the use of SISVAN and e-SUS, and the implementation of the Breastfeed and Feed Brazil Strategy. Large municipalities and teams with a nutritionist showed better structural and process conditions, respectively
Santos et al., 2021 [3]	1, 3	To examine aspects of the PNAN's formulation, updating, and implementation processes, from 1999 to April 2020	Debate article, based on institutional documentary sources, bibliographic and scientific literature.	Brazil	There were advances in the publication of the Food Guides; in the promotion of research on F&N; in the collective development of the regulatory agenda; and in the decentralized financial resources for the PNAN
Alves et al., 2022 [55]	2, 3	To develop a competency profile for nutritionists grounded in PHC	Exploratory qualitative study, based on a bibliographic review	Brazil	Competency-Based Education for training nutritionists enabled the development of a competency profile for practice in specific areas, such as PHC
Brandão et al., 2023 [10]	2, 3	To formulate recommendations for strengthening F&N in PHC	Exploratory study with experts	Five Brazilian macro-regions	35 recommendations were developed to strengthen F&N actions in PHC, encompassing structure; the F&N agenda; network organization; work processes; planning, monitoring, and evaluation; and information systems
Carvalho et al., 2023 [35]	1, 2, 3	To analyze the practice and training of nutritionists in PHC	Qualitative-quantitative study with nutritionists	Municipalities within the 10th Health Region of the State of Paraná	The practice of nutritionists included individual and collective health care in the implementation of F&N programs, such as SISVAN; however, planning and evaluation were the least frequent activities
Pedraza et al., 2022 [75]	3	To describe the profile and performance of municipal managers in F&N actions in PHC	Quantitative study, structured questionnaire with managers	Estado da Paraíba	Nutritionists consider themselves qualified as municipal managers of F&N actions, despite the lack of knowledge and the underuse of technical documents in the field
Santos et al., 2022 [8]	3	To comparatively analyze the organization of F&N care for the adult population in PHC in services with and without nutritionists	Quantitative study, structured interviews with professionals	Western region of the Municipality of São Paulo/SP	The availability of nutritionists was strategic, fostering university-service partnerships, scheduling appointments based on vulnerability criteria, developing Singular Therapeutic Projects, conducting group follow-ups, and planning, disseminating, and evaluating collective actions

Chart 1 – Role of Nutritionists in Primary Health Care, according to thematic axes resulting from a narrative review of the scientific literature: (1) Historical panorama of incorporation; (2) Training; (3) Workforce sizing. Brazil, 2025.

Author(s) and year	Thematic axes	Objectives	Methodological approach	Setting	Main findings
Sato et al., 2022 [76]	3	Characterize and comparatively analyze the organization of F&N care during prenatal, postpartum, and breastfeeding in PHC	Quantitative study, interviews with professionals	Municipalities of Cubatão and Guarujá/SP	Guarujá had more F&N actions targeting the maternal-child group and achieved better indicators than Cubatão
Neves et al., 2023 [77]	3	To describe and compare the organization of F&N actions in PHC	Quantitative study, interviews with managers, PMAQ data	Two metropolitan regions in the State of São Paulo: Baixada Santista and Vale do Paraíba	Compared with Vale do Paraíba and Litoral Norte, Baixada Santista presented a higher frequency of individual dietary assessment, group activities, BMI measurement using the gestational curve, breastfeeding support, complementary feeding guidance, and multidisciplinary care for overweight individuals
Orué et al., 2023 [78]	3	To analyze the organization of the management of F&N actions	Quantitative study, questionnaire with managers	State of Mato Grosso do Sul	The availability of a municipal technical area for F&N was associated with formally appointed managers, a municipal F&N policy, defined goals, and the development of specialized materials
Pedraza, 2023 [79]	3	Compare performance patterns among nutritionists working in the ESF	Quantitative study, interviews with nutritionists	State of Paraíba	Deficiencies were identified in knowledge and use of technical documents, as well as in food and nutrition surveillance actions, vitamin A and iron supplementation programs, and care for Bolsa Família beneficiaries - especially among nutritionists without training in PHC
Zeminian et al., 2023 [56]	2	Analyze the training of nutritionists for PHC practice from the perspective of faculty members	Qualitative study with faculty from public universities	Brazilian Southeast	Public policies within the SUS promote the training of nutritionists for PHC practice, although stronger teaching–service integration is needed to address social demands
França et al., 2024 [57]	2, 3	Map educational actions conducted with PHC professionals, including nutritionists, during the COVID-19 pandemic	Scoping review	Brazil	The predominant educational interventions were training sessions, followed by continuing education in health and continuing professional development; nutritionists were among the least benefited groups
Bortolini et al., 2025 [36]	1, 2, 3	Develop recommendations for strengthening the PNAN	Qualitative study with experts	Brazil	Fifty-one recommendations were grouped into 14 themes; financing, the availability of nutritionists, and professional training emerged as cross-cutting themes
Leite et al., 2024 [80]	3	Explore factors associated with NASF-AB workload during the COVID-19 pandemic	Cross-sectional study, PMAQ data, and the IMPACTO-BR Scale (Assessment of Workload in Mental Health Services)	Municipality of Salvador/BA	Workload was associated with female sex (p<0.005), the existence of spaces for work-related reflection (p=0.027), and difficulties in moving around the territory (p=0.002)

Note: PHC: Primary Health Care; CNES: *Cadastro Nacional de Estabelecimentos de Saúde* (National Registry of Health Establishments); COVID-19: Coronavirus Disease 2019; DATASUS: *Departamento de Informação e Informática do Sistema Único de Saúde* (Information Technology Department of the Ministry of Health); ESF: *Estratégia Saúde da Família* (Family Health Strategy); F&N: Food and Nutrition; IBGE: *Instituto Brasileiro de Geografia e Estatística* (Brazilian Institute of Geography and Statistics); NASF: *Núcleo de Apoio à Saúde da Família* (Family Health Support Centers); PET-Saúde: *Programa de Educação pelo Trabalho para a Saúde* (Education through Work for Health Program); PMAQ-AB: *Programa de Melhoria do Acesso e da Qualidade da Atenção Básica* (Program for Improving Access and Quality of Primary Care); PHC: Primary Health Care; PNAN: *Política Nacional de Alimentação e Nutrição* (National Food and Nutrition Policy); PNSAN: *Política Nacional de Segurança Alimentar e Nutricional* (National Food and Nutrition Security Policy); SISAN: *Sistema Nacional de Segurança Alimentar e Nutricional* (National Food and Nutrition Security System); SISVAN: *Sistema de Vigilância Alimentar e Nutricional* (National Food and Nutrition Surveillance); SUS: *Sistema Único de Saúde* (Unified Health System).

In Axis 1, 17 studies were identified addressing the historical trajectory of professional incorporation, predominantly literature reviews, essays, and debate articles [1-3,9,24-36]. The trajectory of nutritionists' inclusion in PHC reveals progress associated with the development of the SUS and the consolidation of the field of Food and Nutrition in Collective Health. The participation of these professionals was limited in the first decade of the SUS, expanding significantly with the establishment of the *Núcleos de Apoio à Saúde da Família* (NASF, Family Health Support Centers) in the first decade of the 2000s. In both editions of the PNAN (1999 and 2012), the leading role of nutritionists in interdisciplinary practices focused on nutritional care was strengthened.

Axis 2 encompassed 33 studies related to the training of nutritionists for the SUS, using different methodological approaches [1,9,10,13,28,31-58]. The findings highlight the need to ensure professional training and continuing education processes aligned with the SUS care models, in order to meet the specific needs of population groups and territories. In this context, both educational gaps and successful experiences in linking teaching and health services were identified.

Most of the analyzed studies were concentrated in Axis 3, which focused on workforce sizing (n=55) [1,3,6-10,24-36,38,39,42,43,45,46,48,50,53-55,57,59-80]. The evidence points to an insufficient number of nutritionists in PHC and substandard working conditions across several contexts, factors that limit the implementation of F&N actions within the SUS.

DISCUSSION

Axis 1: Historical overview of the incorporation of nutritionists in PHC

It is assumed that the field of knowledge and practices in Food and Nutrition in Collective Health requires an interdisciplinary perspective. Its origin dates back to the 1970s, within the context of the health movement and the struggle for the human right to adequate food. Emerging from the intersection between Collective Health and F&N, it integrates the psychosocial, cultural, economic, and environmental dimensions related to food and nutrition, with biological, epidemiological, planning, and management aspects of actions, as well as attention to the social determinants of health and nutrition in the territories where population groups live and interact [11,12,22,23].

With the reframing of the field of Food and Nutrition in Brazilian Collective Health, within the broader context of the Brazilian Health Reform that culminated in the establishment of the SUS (1988–1990) [22], possibilities for the training and practice of nutritionists in the Health sector expanded, notably in PHC. This expansion, however, had limited expression on the PHC Network in the initial years, given the negligible number of practicing nutritionists [14,30] and the predominance of curative actions to the detriment of health promotion practices [59,60].

Despite the limited technical participation of nutritionists in the delivery of health care during the first decade of SUS implementation [24], a gradual increase was observed in their inclusion within planning, management, and social control bodies across the three governmental spheres [26]. Noteworthy is the availability of nutritionists working in the *Coordenação Geral de Alimentação e Nutrição* (CGAN, General Coordination of Food and Nutrition) since its origin in 1998. The same occurred at the state level, within the State Food and Nutrition Coordinations, and at the municipal level, as representatives of the category in the collegiate social control instances in SUS management [14,15,24].

In the dynamic of reorganizing the care model in PHC, in 1994, with the establishment of the Family Health Program, the nutritionist professional was not included in the minimum multiprofessional

team, despite their formative and technical-scientific relevance for integrating family health teams [59], and contrary to the advocacy of professional entities [15]. With the *Estratégia Saúde da Família* (ESF, Family Health Strategy), between 1991 and 1994, the process of expanding health actions to the territories was initiated, and, starting with the NASF, in 2008, the nutritionist professional was integrated into the teams. The expansion and diversification of the NASF teams, in 2011, guided by the demands of municipalities and territories, contributed to the growing number of nutritionists and, consequently, the population's access to F&N actions in PHC [25].

Advances were observed in the first edition of the PNAN (Brazil, 1999), with relevance to F&N actions in implementing SUS guidelines. Of note is the technical-scientific leadership of nutritionists in developing a F&N agenda within the health sector, committed to promoting adequate and healthy eating, Food and Nutrition Security (FNS), and the human right to adequate food [3]. From then on, the work of these professionals and other PHC practitioners began to involve care strategies extending beyond health services, in dialogue and coordination with other sectors, including civil society [8].

By establishing PHC as the coordinator of the RAS and health care, in the second edition of the PNAN (2012), the organization of NC emerges as the first guideline [3]. Thus, nutritionists assumed a relevant role in supporting other professionals in conducting F&N actions and managing integrated activities related to food and nutritional care. Furthermore, with the revision of the PNAN and its repositioning towards the cooperation and articulation in FNS, new challenges were incorporated into intersectoral collaborations in the PHC for the effectiveness of its nine guidelines, requiring the leading role of nutritionists [2,3,5,9,55]. Grounded on consultation with a panel of experts, Bortolini et al. [36] identified that funding guarantees, the availability of nutritionists, and training are cross-cutting themes in the recommendations for strengthening the PNAN guidelines.

Regarding the institutional framework that guides the practice of nutritionists and other professionals in PHC, the PNAN is integrated with the *Política Nacional de Atenção Básica* (PNAB, National Primary Health Care Policy, editions of 2006, 2011, and 2017) and the *Política Nacional de Promoção da Saúde* (PNPS, National Health Promotion Policy, 2006 and 2014), which recognize the centrality of food and nutrition issues in the health agenda. Concerning the defense of FNS, the *Política Nacional de Segurança Alimentar e Nutricional* (PNSAN, National Food and Nutrition Security Policy, 2010) and the *Planos Nacionais de Segurança Alimentar e Nutricional* (Plansan, National Food and Nutrition Security Plans 2012–2025, 2016–2019, 2024–2027) necessarily permeate the PNAN, which requires intersectoral coordination [2]. We should also mention political-institutional frameworks such as the *Marco de Referência de Educação Alimentar e Nutricional para as Políticas Públicas* (Food and Nutrition Education Framework for Public Policies, 2012) [81], the second edition of the *Guia Alimentar para a População Brasileira* (Dietary Guidelines for the Brazilian Population, 2014) [82], and the *Guia Alimentar para Crianças Brasileiras menores de 2 anos* (Dietary Guidelines for Brazilian Children Under Two Years of Age, 2019) [83], which are part of the PNAN spectrum.

Under these circumstances, planning and management mechanisms for teamwork began to guide the practice in PHC, establishing matrix support for the ESF reference teams [30,84]. The methodology for interdisciplinary health work management [84] modulated knowledge and competencies required for adequate matrix support of actions in PHC in general, and in NC in particular [68]. By integrating interdisciplinary teams, the nutritionist professional added specific skills to teamwork, bringing a technical-pedagogical repertoire to support care for individuals, families, and communities in their territories [25,27,42,46,68].

Local studies, primarily conducted in the Brazilian Southeast, confirm the strategic role of nutritionists across different care lines, such as pregnant and postpartum women [63,76], older adults [70], children [67,74], and adults [8,64]. This role was decisive in defining nutritional care protocols for the maternal and child population, with increased coverage of iron and vitamin A supplementation in municipalities in the Northeast [29,48]. Likewise, nutritionists are fundamental in coordinating Food and Nutrition Education programs [43,50,69,72,75] and Food and Nutrition Surveillance [34], underscoring their importance for effective, comprehensive health care in PHC.

However, barriers hinder professional practice in PHC and the implementation of F&N actions. The substandard working conditions, including employment arrangements that lead to turnover, low remuneration, and labor overload, stands out among these limitations. Additionally, the continuous demand for professional qualification and infrastructure issues, such as inadequate facilities, lack of equipment, supplies, and transportation for house calls, also emerge. Studies indicate that this set of reasons constrains the consolidation of qualified professional practices in the daily routine of health services [34,43,71,73,75,76].

Notably, the growing incorporation and recognition of nutritionists in NC [6,7,9,27,31,33] were adversely affected by the reforms to the PNAB (2017) and by changes in federal PHC financing, both implemented during the neoliberal agendas of the Michel Temer (2016-2018) and Jair Bolsonaro (2019-2022) administrations. In the new PHC financing model, the federal funding for the maintenance of the *Núcleos Ampliados de Saúde da Família e Atenção Básica* (NASF-AB, Expanded Family Health and Primary Care Centers) was withdrawn, and targets and resource allocation were modified to become performance-based [85]. This resulted in weakened employment relationships, with adverse effects on the performance of PHC professionals, including nutritionists [85]. In this regard, evidence on the impacts of the transition from NASF-AB teams to eMulti on local management and on the RAS appears to be lacking.

We should highlight that the dismantling of public policies began in 2016 with the implementation of fiscal austerity measures, resulting in significant budget cuts that affected social protection policies [86,87]. This backdrop, therefore, predates the Coronavirus Disease 2019 (COVID-19) pandemic, with consequences for health and FNS policies, as well as for the work processes of nutritionists in PHC [57,80], which persists to the present day [85,88].

Axis 2: Training Nutritionists for the SUS

The training of nutritionists, as Higher Education health professionals, aligns with SUS doctrinal principles, which implies a commitment to comprehensive health care in the defense of the right to health and food [52]. Collective Health is a specific field of practice for nutritionists and integrates the central axis for the ethical-humanistic and critical-reflexive training of professionals engaged in addressing the country's socioeconomic, environmental, cultural, and food-related realities [13,45,52 55,89].

The *Lei de Diretrizes e Bases da Educação* (LBD, Law of Guidelines and Bases of Education), the *Sistema Nacional de Avaliação da Educação Superior* (Sinaes, National Higher Education Evaluation System), and the *Diretrizes Curriculares Nacionais* (DCN, National Curriculum Guidelines) constitute the legal framework for developing the political-pedagogical projects of undergraduate Nutrition programs, which guide the construction of curricula oriented toward developing professional competencies and skills [18,19]. The DCN for Undergraduate Nutrition Programs guide the training

of nutritionists grounded in SUS doctrinal principles, namely, integrality in health, universality, and social participation [55,89].

Established in 2001, the DCN advanced regarding the then-current national minimum curriculum, which was predominantly theoretical, anchored in the biomedical model, and characterized by fragmented and technicist curricular organization [18]. These guidelines introduced innovations by fostering student leadership in the teaching-learning process and outlining a professional profile based on generalist training, with an expanded range of competencies and fields of practice [89]. Recently revised, the 2025 DCN emphasize the mobilization of cognitive, procedural, and attitudinal resources to build competencies that overcome persistent challenges and meet new demands in the SUS scenario, with an emphasis on practical experiences [19].

The competencies of nutritionists in PHC should encompass dimensions related to the care model, meaning they must include competencies in health care, humanistic and sociocultural abilities, communication, and technical and methodological skills [55]. The *Matriz de Ações de Alimentação e Nutrição na Atenção Básica de Saúde* (Matrix of Food and Nutrition Actions in PHC, 2009) and, more recently, the *Matriz para Organização dos Cuidados em Alimentação e Nutrição na Atenção Primária à Saúde* (Matrix for the Organization of Food and Nutrition Care in PHC, 2022) are fundamental instruments for guiding training processes and professional practices. A review study highlighted the contribution of the first matrix as a reference for interdisciplinary work aimed at achieving comprehensive health care [40].

Despite this trajectory, gaps in nutritionists' curricula to meet health needs were revealed, particularly in ESF territories [35,39,45,56]. This situation signals the scarce improvements in undergraduate Nutrition curricula nationwide [37,45,52]. In an analysis of nutritionist training in Brazil, Recine et al. [37] identified that most programs dedicated a maximum of 30% of the workload to curricular units in Public Health, such as Nutritional Assessment, Food and Nutrition Education, Public Health Nutrition, and Epidemiology, of which approximately 82% were mandatory. By analyzing the syllabi from the political-pedagogical project of an undergraduate Nutrition course, Alves and Martinez [45] noted the absence of essential competencies for work in the SUS (such as leadership, continuing education, and communication), along with a poorly articulated distribution of other relevant content for practice settings.

Despite recognition of the centrality of Public Health in academic training [49], a biologicist and fragmented perspective of nutritionists' practice in PHC predominates [34,70]. This reinforces the need for greater theoretical-practical integration and stronger university-service articulation to enhance the development of competencies and skills capable of meeting the practical demands of vulnerable territories [39,49,56].

In this context, inductive strategies aimed at restructuring interdisciplinary training within the SUS stand out, such as *Programa de Educação pelo Trabalho para Saúde* (PET-Saúde, Education through Work for Health Program) and *Programa Nacional de Reorientação da Formação Profissional em Saúde (*Pró-Saúde, National Program for the Reorientation of Professional Training in Health), implemented to promote teaching-service integration through intersectoral collaboration between Education and Health [58]. These pedagogical strategies, aligned with the "training SUS" proposal, have contributed to the early incorporation of undergraduates into the RAS, in public and private Higher Education institutions. However, barriers related to faculty work persist, such as difficulties in articulating different areas of knowledge, work overload, professional devaluation, and insufficient continuing education activities [52]. Added to this are obstacles in interactions with professionals

and service managers, which compromise the planning and sustainability of teaching-learning processes in the training of nutritionists for the SUS [52]. Analyzing curriculum changes guided by PET-Saúde in Rio de Janeiro, Brinco et al. [58] recognized the need for investments to sustain these initiatives, including the qualification of preceptors and faculty and the political-institutional support of universities.

From this perspective, theoretical-practical articulations that integrate teaching, research, and extension activities are noteworthy, as they promote professional training in Food and Nutrition in Collective Health capable of overcoming the biomedical, fragmented, and prescriptive model of health care [13,49]. Training experiences reveal potential in health work, promoting integrated approaches that affect nutritionist training and interdisciplinary actions in PHC [41,45,47].

Based on a proposal for shared training between Nutrition students and those from other health fields, Frutuoso et al. [47] identified tensions between common/interdisciplinary approaches and technical/specific aspects of Nutrition, such as nutritional diagnosis and dietary counseling. Nutritionists' specific practices should be critically analyzed, as interdisciplinary actions enable the development of shared technologies and strategies that are more innovative and effective. In the same public university, Medeiros et al. [41] reported a successful experience with an interdisciplinary curricular internship in Social Nutrition and Psychology, highlighting the potential of joint supervision and the joint construction of knowledge, practices, and bonds with services.

Furthermore, multiprofessional residency programs in the SUS are strategic for workforce development within the RAS, as they qualify newly graduated professionals and service preceptors in light of the complexity of practice settings [45]. In this regard, continuing education is a key mechanism for improving practices in care, management, and social participation in the daily work routine [38,43,58]. In large Brazilian municipalities, predominantly in the Southeast and Northeast regions, continuing education activities in F&N within the ESF more frequently occurred at the local level, involving planning and group-based educational activities [43]. These initiatives were fostered by partnerships and the availability of service infrastructure. However, barriers such as scheduling constraints and insufficient managerial staff hindered the full development of these work fronts [43].

Axis 3: Workforce sizing and the number of nutritionists in PHC

In this area, Resolution N°380/2005 of the *Conselho Federal de Nutrição* (CFN, Federal Council of Nutrition) was an advance in the field of Food and Nutrition in Collective Health, by establishing numerical parameters for the inclusion of nutritionists in different areas, based on the number of professionals per number of inhabitants. This is grounded in the principle of comprehensive health care, defining Collective Health as an area of practice within institutional policies and programs, PHC, and health surveillance. Specifically regarding professional responsibilities, further detail was provided with the repeal of CFN Resolution N°380/2005 and the incorporation of CFN Resolution N°600/2018, when the numerical parameters were guided by the legal framework of the NASF [55].

As previously mentioned, the early decades following the creation of SUS were marked by the incipient incorporation of nutritionists in PHC [24,60]. Between 2008 and 2013, with the implementation of the NASF, the number of nutritionists significantly increased across all Brazilian regions [30,33,65], making them the third most prevalent professional group, after psychologists and physical therapists [30]. Despite this growth, the number of nutritionists remained below the recommendations of professional regulatory bodies and the health needs of population groups in the various Brazilian territories [48,53,60-62,66,77,78].

A study conducted in 65 municipalities in the state of São Paulo found that only 19% of the 220 basic health units employed nutritionists [53]. In the 2010s, authors pointed to the low incorporation of nutritionists in PHC in metropolitan regions of the state of São Paulo [53,60,77], with evidence from the municipalities of São Paulo [61] and Santos [66]. Notably, most studies on workforce planning for nutritionists in PHC were conducted in the Brazilian Southeast [53,60,61,66,77], with fewer studies in the Northeast [29, 67] and Midwest [78].

The insufficient number of nutritionists in PHC was commonly associated with precarious infrastructure and work processes in different settings, resulting in an overload of responsibilities for these professionals [61,66]. As a result, individual-based activities predominated, to the detriment of health promotion and protection actions [53,60,61,63 66,67,70]. These weaknesses hindered the fulfillment of work demands and the qualified delivery of F&N actions [54,61,63,66,79], compromising both health care and training processes within SUS [53].

On the other hand, the availability of nutritionists in PHC management and technical teams is associated with higher quality in the development of actions, in terms of structure, work processes, and user evaluation [29,67,73,78]. According to studies conducted in municipalities in the state of Paraíba, the level of implementation of F&N actions was higher in locations with greater workforce availability in PHC, and that included nutritionists in their ESF teams [67,74,90]. In municipalities of the state of Mato Grosso do Sul, from the perspective of managers, the incorporation of nutritionists into teams was related to greater involvement of these professionals in decision-making processes within the F&N technical area, with streamlined specific funding, including resource allocation, goal-setting, and development of materials [78].

Workforce sizing in PHC, emphasizing the adequacy of the number of nutritionists, interdisciplinary work, and qualification for F&N actions, aligns with Brazil's commitments to the global strategies for the United Nations Decade of Action on Nutrition (2016-2025) [20,32]. Therefore, inducing and ensuring the availability of nutritionists in PHC stands as an essential recommendation for strengthening the PNAN and consolidating food and nutrition care in SUS [36].

In this context, we should situate the Sustainable Development Goals (SDGs) of the 2030 Agenda regarding the role of nutritionists in PHC, highlighting: SDG 2 (zero hunger and sustainable agriculture); SDG 3 (good health and well-being); SDG 10 (reduced inequalities); SDG 12 (responsible consumption and production); SDG 13 (climate action); and SDG 17 (partnerships for the goals). Regarding the workforce indicators in the SUS to achieve SDG 3, only the number of medical and nursing professionals is considered, without including nutritionists [21]. Therefore, to ensure effective F&N actions in PHC and achieve the SDGs, we should reflect on the position of nutritionists within teams and on their contribution to training processes and workforce sizing.

This study has limitations due to the narrative nature of the literature review, which was addressed through methodological rigor by making explicit the inclusion and exclusion criteria for the materials and the consistency of database selection. Conversely, the originality of this study provides an analytical overview of the nutritionists' practices in PHC, which may support the improvement of policies and strategies within SUS. Other limitations include the lack of a more in-depth chronological analysis of the period from SUS implementation until 2002, the starting point of the included studies, and the impossibility of a broader regional analysis due to the scarce studies in some regions of the country (namely, North and South). Nevertheless, the findings identified literature gaps. They fostered new reflections on the role of these professionals, advancing the field of Food and Nutrition in Collective Health and the development of F&N actions in PHC.

CONCLUSION

This review analyzed the role of nutritionists in PHC, focusing on their professional incorporation, trajectory, and contributions to Nutritional Care, from the establishment of the SUS to the challenges faced more recently (2025). The findings revealed a complex formative and professional landscape, shaped by distinct competing interests related to the very trajectory of the SUS, within political changes and budgetary constraints. The two PNAN editions (1999 and 2012) and their implementation mechanisms were fundamental in consolidating the field of F&N within the Health sector, reaffirming the centrality of PHC as the organizer of care and strengthening the professional scope of nutritionists in Nutritional Care. Additionally, the inclusion of nutritionists in the NASF teams (2008) expanded the workforce and promoted integrality in health, interdisciplinarity, and intersectoral collaboration. However, to date, there is no knowledge regarding the effects of the implementation of eMulti in 2023 on the practices of nutritionists in PHC.

The availability of nutritionists in the planning and management of actions in PHC has driven advances in Nutritional Care, such as the implementation of policies and care lines, and the development of educational and surveillance initiatives. However, obstacles persist regarding the number of professionals, the necessary improvement in working conditions, and qualifications for F&N actions, issues associated with SUS underfunding. These challenges indicate that significant progress is still required to ensure greater incorporation, professional development, and recognition of nutritionists within the SUS.

Finally, we underscore the importance of conducting macro- and micro-political actions that converge with SUS doctrinal principles and the health needs in the territories where populations accessing PHC facilities live and work, in order to ensure more effective performance by nutritionists and other professionals. Only then will it be possible to align this theme with the global agenda, from the perspective of sustainability and the defense of health and adequate food as fundamental rights.

REFERENCES

1. Fagundes AA, Damião JJ, Ribeiro RCL. Reflexões sobre os processos de descentralização da Política Nacional de Alimentação e Nutrição nos seus 20 anos. Cad Saúde Pública. 2021;37:e00038421. doi: https://doi.org/10.1590/0102-311X00038421
2. Alves KPS, Jaime PC. A Política Nacional de Alimentação e Nutrição e seu diálogo com a Política Nacional de Segurança Alimentar e Nutricional. Ciênc Saúde Colet. 2014;19:4331-40. doi: https://doi.org/10.1590/1413-812320141911.08072014
3. Santos SMC, Ramos FP, Medeiros MAT, Mata MM, Vasconcelos FAG. Avanços e desafios nos 20 anos da Política Nacional de Alimentação e Nutrição. Cad Saúde Pública. 2021;37(Suppl 1):e00150220. doi: https://doi.org/10.1590/0102-311X00150220
4. Ministério da Saúde, Secretaria de Atenção à Saúde, Departamento de Atenção Básica (Brasil). Política Nacional de Alimentação e Nutrição. Série B. Textos Básicos de Saúde. 2. ed. rev. Brasília: Ministério da Saúde; 2008. p. 48.
5. Ministério da Saúde, Secretaria de Atenção à Saúde, Departamento de Atenção Básica (Brasil). Política Nacional de Alimentação e Nutrição. Série B. Textos Básicos de Saúde. 1. reimpr. Brasília: Ministério da Saúde; 2013. p. 84.
6. Bortolini GA, Pereira TN, Nilson EAF, Pires ACL, Moratori MF, Ramos MKP, et al. Evolução das ações de nutrição na atenção primária à saúde nos 20 anos da Política Nacional de Alimentação e Nutrição do Brasil. Cad Saúde Pública. 2021;37(Suppl 1):e00152620. doi: https://doi.org/10.1590/0102-311X00152620
7. Bortolini GA, de Oliveira TFV, da Silva SA, Santin RC, de Medeiros OL, Spaniol AM, et al. Ações de alimentação e nutrição na atenção primária à saúde no Brasil. Rev Panam Salud Pública. 2020;44:e39. doi: https://doi.org/10.26633/RPSP.2020.39

8. Santos LF, Neves JA, Medeiros MAT. Nutricionistas na Atenção Primária à Saúde eo cuidado nutricional à população adulta no município de São Paulo, SP, Brasil. Interações (Campo Grande). 2022;23(3):835-48. doi: https://doi.org/10.20435/inter.v23i3.3311
9. Jaime PC, Silva ACF, Lima AMC, Bortolini GA. Ações de alimentação e nutrição na atenção básica: a experiência de organização no Governo Brasileiro. Rev Nutr. 2011;24:809-24. doi: https://doi.org/10.1590/S1415-52732011000600002
10. Brandão AL, Casemiro JP, dos Reis EC, Vitorino SAS, de Oliveira ASB, Bortolini GA. Recomendações para o fortalecimento da atenção nutricional na atenção primária à saúde brasileira. Rev Panam Salud Pública. 2023;46:e119. doi: https://doi.org/10.26633/RPSP.2022.119
11. Saturnino MNG, Santos TP, Vale PRLF, Aguiar MGG. Modos de ver e de fazer: saúde, doença e cuidado em unidades familiares de feirantes. Ciênc Saúde Colet. 2019;24:1723-32. doi: https://doi.org/10.1590/1413-81232018245.10602017
12. Campos GWS. Saúde pública e saúde coletiva: campo e núcleo de saberes e práticas. Ciênc Saúde Colet. 2000;5:219-30. doi: https://doi.org/10.1590/S1413-81232000000200002
13. Medeiros M, Diez-Garcia R. Desafios para a capacitação no campo da alimentação e nutrição em saúde coletiva: notas preliminares. Demetra. 2013;11(8):349-54. doi: https://doi.org/10.12957/demetra.2013.5515
14. Vasconcelos FAG. O nutricionista no Brasil: uma análise histórica. Rev Nutr. 2002;15:127-38. doi: https://doi.org/10.1590/S1415-52732002000200001
15. Vasconcelos FAG, Bricarello LP, Costa NMSC, Moraes BA, Akutsu RCCA. The 80-year history of the professional associations of nutritionists in Brazil: a historical-documentary analysis. Rev Nutr. 2019;32:e180160. doi: https://doi.org/10.1590/1678-9865201932e180160
16. Ministério da Saúde (Brasil). Portaria nº 2.436, de 21 de setembro de 2017. Aprova a Política Nacional de Atenção Básica, estabelecendo a revisão de diretrizes para a organização da Atenção Básica, no âmbito do Sistema Único de Saúde (SUS). Brasília: Ministério da Saúde; 2017.
17. Ministério da Saúde (Brasil). Política Nacional de Promoção da Saúde: PNPS. Anexo I da Portaria de Consolidação nº 2, de 28 de setembro de 2017, que consolida as normas sobre as políticas nacionais de saúde do SUS. Brasília: Ministério da Saúde; 2018.
18. Ministério da Saúde, Conselho Nacional de Educação, Câmara de Educação Superior (Brasil). Parecer CNE/CES Nº 1.133/2001. Diretrizes Curriculares Nacionais dos Cursos de Graduação em Enfermagem, Medicina e Nutrição. Brasília: Ministério da Saúde; 2001.
19. Ministério da Saúde, Conselho Nacional de Educação, Câmara de Educação Superior (Brasil). Resolução CNE/CES Nº 2, de 15 de agosto de 2025. Institui Diretrizes Curriculares Nacionais do Curso de Graduação em Nutrição. Brasília: Ministério da Saúde; 2025.
20. Organização das Nações Unidas para a Alimentação e a Agricultura, Ministério do Desenvolvimento Social. Década de Ação em Nutrição. Compromissos do Brasil. Brasília: FAO; 2018 [citado 2025 jan. 30]. Disponível em: https://www.mds.gov.br/webarquivos/arquivo/seguranca_alimentar/caisan/publicacao/Caisan_Nacional/decada_versao_portugues.pdf
21. United Nations. The Sustainable Development Goals Report 2023: special edition. Towards a Rescue Plan for People and Planet. New York: United Nations; 2023 [cited 2025 Jan. 30]. Available from: https://unstats.un.org/sdgs/report/2023/The-Sustainable-Development-Goals-Report-2023.pdf
22. Vasconcelos FAG, Batista Filho M. História do campo da Alimentação e Nutrição em Saúde Coletiva no Brasil. Ciênc Saúde Colet. 2011;16:81-90. doi: https://doi.org/10.1590/S1413-81232011000100012
23. Bosi MLM, Prado SD. Alimentação e Nutrição em Saúde Coletiva: constituição, contornos e estatuto científico. Ciênc Saúde Colet. 2011;16:7-17. doi: https://doi.org/10.1590/S1413-81232011000100002
24. Boog MCF. Atuação do nutricionista em saúde pública na promoção da alimentação saudável. Ciênc Saúde. 2008;1(1):33-42. doi: https://doi.org/10.15448/1983-652X.2008.1.3860
25. Geus LMM, Maciel CS, Burda ICA, Daros SJ, Batistel S, Martins TCA, et al. A importância na inserção do nutricionista na Estratégia Saúde da Família. Ciênc Saúde Colet. 2011;16:797-804. doi: https://doi.org/10.1590/S1413-81232011000700010
26. Canella DS, Silva ACF, Jaime PC. Produção científica sobre nutrição no âmbito da Atenção Primária à Saúde no Brasil: uma revisão de literatura. Ciênc Saúde Colet. 2013;18:297-308. doi: https://doi.org/10.1590/S1413-81232013000200002

27. Gomes DR, Martins PC, Neres WC. O nutricionista e a atenção básica: importância de sua atuação no núcleo de apoio à saúde da família. Rev Baiana Saúde Pública. 2013;37(3):553-70.

28. Rodrigues DCM, Bosi MLM. O lugar do nutricionista nos Núcleos de Apoio à Saúde da Família. Rev Nutr. 2014;27:735-46. doi: https://doi.org/10.1590/1415-52732014000600008

29. Silva MAP, Menezes RCE, Oliveira MAA, Longo-Silva G, Asakura L. Atenção Básica em Alagoas: expansão da Estratégia Saúde da Família, do Nasf e do componente alimentação/nutrição. Saúde Debate. 2014;38:720-32. doi: https://doi.org/10.5935/0103-1104.20140066

30. Vasconcelos IAL, Sousa MF, Santos LMP. Evolução do quantitativo de nutricionistas na Atenção Básica do Brasil: a contribuição dos Núcleos de Apoio à Saúde da Família e da Estratégia Saúde da Família de 2007 a 2013. Rev Nutr. 2015;28:431-50. doi: https://doi.org/10.1590/1415-52732015000400009

31. Nunes Pereira T, Alves Monteiro R, Pacheco Santos LM. Alimentación y nutrición en atención primaria en Brasil. Gaceta Sanitaria. 2018;32(3):297-303. doi: https://dx.doi.org/10.1016/j.gaceta.2017.08.004

32. Pedraza DF, de Lima Lins AC, dos Santos EES, de Oliveira MM. Decade of Action in Nutrition: reflections on the Brazilian conjuncture/Decada de Acao em Nutricao: reflexoes sobre a conjuntura brasileira. Demetra: Food, Nutr Health. 2020;15:1-16. doi: https://doi.org/10.12957/demetra.2020.43167

33. de Azevedo LB, de Jesus TR, dos Reis EC. Tendência temporal da inserção de nutricionistas no Sistema Único de Saúde segundo regiões do Brasil no período de 2009 a 2018. Mundo Saúde. 2021;45:024-33. doi: https://dx.doi.org/10.15343/0104-7809.202145024033

34. Gonçalves ISA, Donateli CP, Cotta RMM, Moreira TR, Costa GD. Perception of the Food and Nutrition Surveillance System in the Zona da Mata Mineira region of Brazil: a qualitative approach. Science Progress. 2021;104(4):00368504211043365. doi: https://doi.org/10.1177/00368504211043365

35. de Carvalho FR, Rodrigues RM, Conterno SFR. Nutricionistas na Atenção Primária à Saúde: da formação à atuação. Temas Saúde. 2023;23(3):98-130. doi: https://doi.org/ 10.29327/213319.23.3-6

36. Bortolini GA, Basso C, Jaime PC. Recomendações para o fortalecimento da implementação da Política Nacional de Alimentação e Nutrição. Ciênc Saúde Colet. 2025;30:e1089023. doi: https://doi.org/10.1590/1413-81232025302.1089023

37. Recine E, Falcão Gomes RC, Fagundes AA, de Oliveira Pinheiro AR, Teixeira BA, de Sousa JS, et al. Public health training in undergraduate nutrition courses in Brazil. Rev Nutr. 2012;25(1):21-33. doi: https://doi.org/10.1590/S1415-52732012000100003

38. de Menezes RCE, Oliveira MAA, Costa EC, Longo-Silva G, Oliveira JS. Alimentação e nutrição na atenção básica à saúde: a educação permanente como instrumento de aproximação ensino-serviço. Rev Baiana Saúde Pública. 2013;37(4):1051. doi: https://doi.org/10.22278/2318-2660.2013.v37.n4.a661

39. Aguiar CB, Costa NMSC. Formação e atuação de nutricionistas dos Núcleos de Apoio à Saúde da Família. Rev Nutr. 2015;28:207-16. doi: https://doi.org/10.1590/1415-52732015000200009

40. Junqueira TS, Cotta RMM. Matriz de ações de alimentação e nutrição na Atenção Básica de Saúde: referencial para a formação do nutricionista no contexto da educação por competências. Ciênc Saúde Colet. 2014;19:1459-74. doi: https://doi.org/10.1590/1413-81232014195.11932013

41. Medeiros MAT, Braga-Campos FC, Moreira MIB. A integralidade como eixo da formação em proposta interdisciplinar: estágios de Nutrição e Psicologia no campo da Saúde Coletiva. Rev Nutr. 2014;27:785-98. doi: https://doi.org/10.1590/1415-52732014000600012

42. Borelli M, Domene SMÁ, Mais LA, Pavan J, Taddei JAAC. A inserção do nutricionista na Atenção Básica: uma proposta para o matriciamento da atenção nutricional. Ciênc Saúde Colet. 2015;20:2765-78. doi: https://doi.org/10.1590/1413-81232015209.13902014

43. Ricardi LM, Sousa MF. Educação permanente em alimentação e nutrição na Estratégia Saúde da Família: encontros e desencontros em municípios brasileiros de grande porte. Ciênc Saúde Colet. 2015;20(1):209-18. doi: https://doi.org/10.1590/1413-81232014201.20812013

44. Alves CC, Netto MC, Sousa APG, Devincenzi MU. Relato de experiência da atuação do nutricionista em Residência Multiprofissional em Saúde. Rev Nutr. 2016;29(4):597-608. doi: https://doi.org/10.1590/1678-98652016000400014

45. Alves CGL, Martinez MR. Lacunas entre a formação do nutricionista e o perfil de competências para atuação no Sistema Único de Saúde (SUS). Interface. 2016;20(56):159-69. doi: https://doi.org/10.1590/1807-57622014.1336

46. Fittipaldi ALM, Barros DC, Romano VF. Apoio Matricial nas ações de Alimentação e Nutrição: visão dos profissionais da Estratégia Saúde da Família. Physis. 2017;27:793-811. doi: https://doi.org/10.1590/S0103-73312017000300021

47. Frutuoso MFP, Junqueira V, Capozzolo ÂA. A experiência de formação (em) comum de nutricionistas na Unifesp, campus Baixada Santista. Saúde Debate. 2017;41(112):298-310. doi: https://doi.org/10.1590/0103-1104201711224

48. Pedraza DF, Santos IS. Profile and performance of nutritionists in Primary Health Care. Rev Nutr. 2017;30(6):835-45. doi: https://doi.org/10.1590/1678-98652017000600015

49. Almeida GM, Oliveira KHD, Monteiro JS, Medeiros MAT, Recine EGIG. Educational training of nutritionists in Public Health Nutrition: a systematic review. Rev Nutr. 2018;31(1):97-117. doi: https://doi.org/10.1590/1678-98652018000100009

50. Carvalho-Gebran FW, Vincha KRR, Cervato-Mancuso AM. The role of educator in food and nutrition by health professionals in the context of Family Health Care. Rev Nutr. 2018;31(1):71-81. doi: https://doi.org/10.1590/1678-98652018000100007

51. Pava-Cárdenas A, Vincha KRR, Vieira VL, Cervato-Mancuso AM. Promoting healthy eating in primary health care from the perspective of health professionals: a qualitative comparative study in the context of South America. BMC Nutr. 2018;4:1-11. doi: https://doi.org/10.1186/s40795-018-0244-9

52. Recine E, Alves KPS, Monego E, Sugai A, Melo ACM. Formação profissional para o SUS: análise de reformas curriculares em cursos de graduação em nutrição. Rev Av Educ Superior (Campinas). 2018;23:679-97. doi: https://doi.org/10.1590/S1414-40772018000300007

53. Evangelista M, Rossato S, Ferreira M, Negri F, Oliveira MR. Determinants of food and nutrition actions in primary healthcare clinics in the State of São Paulo, Brazil. Rev Chil Nutr. 2019;518-26. doi: http://dx.doi.org/10.4067/S0717-75182019000500518

54. Moura ALSP, Recine E. Nutritionists and the comprehensive care of overweight individuals in primary care. Rev Nutr. 2019;32:e190008. doi: https://doi.org/10.1590/1678-9865201932e190008

55. Alves CGL, Luz VG, Tófoli LF. Competências do nutricionista para a Atenção Primária à Saúde. Physis. 2022;32:e320304. doi: https://doi.org/10.1590/S0103-73312022320304

56. Zeminian LB, Sampaio SF, Aquilante AG, Vieira CM. Formação do nutricionista para atuação na Atenção Primária à Saúde: perspectiva de docentes. Rev APS. 2023;26:e262338156. doi: https://doi.org/10.34019/1809-8363.2023.v26.38156

57. França BD, Silva KL, Rezende LC, Lana FCF, Barbosa SP. Ações educativas realizadas na pandemia com profissionais de saúde da atenção primária: revisão de escopo. Rev Bras Enferm. 2024;77:e20230352. doi: https://doi.org/10.1590/0034-7167-2023-0352pt

58. Brinco R, França T, Magnago C. PET-Saúde/Interprofissionalidade eo desenvolvimento de mudanças curriculares e práticas colaborativas. Saúde Debate. 2022;46(spe6):55-69. doi: https://doi.org/10.1590/S0104-12902023230216en

59. Assis AMO, Santos SMC, Freitas MCS, Santos JM, Silva MCM. O Programa Saúde da Família: contribuições para uma reflexão sobre a inserção do nutricionista na equipe multidisciplinar. Rev Nutr. 2002;15:255-66. doi: https://doi.org/10.1590/S1415-52732002000300001

60. Pádua JG, Boog MCF. Avaliação da inserção do nutricionista na Rede Básica de Saúde dos municípios da Região Metropolitana de Campinas. Rev Nutr. 2006;19:413-24. doi: https://doi.org/10.1590/S1415-52732006000400001

61. Cervato-Mancuso AM, Tonacio LV, Silva ER, Vieira VL. A atuação do nutricionista na Atenção Básica à Saúde em um grande centro urbano. Ciênc Saúde Colet. 2012;17:3289-300. doi: https://doi.org/10.1590/S1413-81232012001200014

62. Watanabe LM, Almeida MAS, Morita I. Percepção dos profissionais de um Centro de Saúde Escola referente à atuação na área de Nutrição. Nutrire. 2013;115-23. doi: http://dx.doi.org/10.4322/nutrire.2013.012 P

63. Laporte-Pinfildi ASC, Zangirolani LTO, Spina N, Martins PA, Medeiros MAT. Atenção nutricional no pré-natal e no puerpério: percepção dos gestores da Atenção Básica à Saúde. Rev Nutr. 2016;29:109-23. doi: https://doi.org/10.1590/1678-98652016000100011

64. Neves JA, Zangirolani LTO, Medeiros MAT. Evaluation of nutritional care of overweight adults from the perspective of comprehensive health care. Rev Nutr. 2017;30(4):511-24. doi: https://doi.org/10.1590/1678-98652017000400010

65. Carvalho MN, Gil CRR, Costa EMOD, Sakai MH, Leite SN. Necessidade e dinâmica da força de trabalho na Atenção Básica de Saúde no Brasil. Ciênc Saúde Colet. 2018;23(1):295-302. doi: https://doi.org/10.1590/1413-81232018231.08702015

66. Spina N, Martins PA, Vedovato GM, Laporte ASC, Zangirolani LTO, Medeiros MAT. Nutricionistas na atenção primária no município de Santos: atuação e gestão da atenção nutricional. Demetra. 2018;13(1):117-34. doi: https://doi.org/10.12957/demetra.2018.30969

67. Pedraza DF. Implementation of food and nutrition actions in the context of family health strategy, Paraíba, Brazil. Rev Fac Nac Salud Pública. 2019;37(3):98-109. doi: https://doi.org/10.17533/udea.rfnsp.v37n3a11

68. Magalhães LM, Amparo-Santos L. Multiplicidade, heterogeneidade e coordenação: a produção do cuidado em alimentação e nutrição a partir das práticas de apoio matricial. Cad Saúde Pública. 2020;36(7):e00127819. doi: https://doi.org/10.1590/0102-311X00127819

69. Marques RJR, Rezende-Alves K, Soares CS, Magalhães KA, Morelli LF, Lopes ACS. Análise do trabalho em equipe multiprofissional para ações de alimentação e nutrição na atenção básica. Trabalho, Educ Saúde. 2019;18:e0024172. doi: https://doi.org/10.1590/1981-7746-sol00241

70. Melo CL, Medeiros MAT. Nutritional Care for older adults in Primary Health Care, from the perspective of health professionals. Rev Bras Geriatr Gerontol. 2020;23(06):e200168. doi: https://doi.org/10.1590/1981-22562020023.200168

71. Vendruscolo C, Metelski FK, Maffissoni AL, Tesser CD, Trindade LL. Characteristics and performance of professionals of the Expanded Family Health and Basic Healthcare Centers. Rev Esc Enferm USP. 2020;54:e03554. doi: https://doi.org/10.1590/S1980-220X2018033003554

72. Vincha KRR, Bógus CM, Cervato-Mancuso AM. Possibilidades de atuação profissional em grupos educativos de alimentação e nutrição. Interface. 2020;24:e190028. doi: https://doi.org/10.1590/Interface.190028

73. Machado PMO, Lacerda JT, Colussi CF, Calvo MCM. Estrutura e processo de trabalho para as ações de alimentação e nutrição na Atenção Primária à Saúde no Brasil, 2014. Epidemiol Serv Saúde. 2021;30(2):e2020635. doi: https://doi.org/10.1590/S1679-49742021000200015

74. Pedraza DF. Family Health Strategy: contributions of health teams in the nutritional care of children. Ciênc Saúde Colet. 2021;26:1767-80. doi: https://doi.org/10.1590/1413-81232021265.04622021

75. Pedraza DF, dos Santos EES, Oliveira MM. Perfil e atuação de gestores das ações de alimentação e nutrição no estado da Paraíba, Brasil. Gerencia Políticas Salud. 2022;21:1-20. doi: https://doi.org/10.11144/Javeriana.rgps21.paga

76. Sato Y, Mata MM, Medeiros MAT. Food and nutrition actions for the maternal and child population in primary healthcare: comparative analysis of municipalities in the Metropolitan Region of Baixada Santista, São Paulo, Brazil. Rev Nutr. 2022;35:e210230. doi: https://doi.org/10.1590/1678-9865202235e210230

77. Neves JA, Borysow IC, Furtado JP, Medeiros MAT. Atenção nutricional na Atenção Primária à Saúde: um estudo comparativo de duas macrorregiões do estado de São Paulo, Brasil. Cad Saúde Colet. 2023;31:e31020411. doi: https://doi.org/10.1590/1414-462X202331020411

78. Orué AL, Araújo KD, Bello H, Rafacho BPM, Pastorello CCVG, Macedo MLR, et al. Profile of food and nutrition technical areas in Mato Grosso do Sul, Brazil: decision making organization. Ciênc Saúde Colet. 2023;28:1525-38. doi: https://doi.org/10.1590/1413-81232023285.12192022EN

79. Pedraza DF. Work of nutritionists from the Family Health Support Center in the state of Paraíba, Brazil. ABCS Health Sci. 2023;e023215-e. doi: https://doi. org/10.7322/abcshs.2021078.1814

80. Leite C, Sato T, Maia HF, Neto JC. Work overload and associated factors in healthcare professionals during the COVID-19 pandemic. J Healthc Qual Res. 2024;39(5):291-8. doi: https://doi.org/10.1016/j.jhqr.2024.05.001

81. Ministério do Desenvolvimento Social e Combate à Fome, Secretaria Nacional de Segurança Alimentar e Nutricional (Brasil). Marco de referência de Educação Alimentar e Nutricional para as Políticas Públicas. Brasília: Ministério do Desenvolvimento Social e Combate à Fome; 2012.

82. Ministério da Saúde, Secretaria de Atenção à Saúde, Departamento de Atenção Básica (Brasil). Guia Alimentar para a População Brasileira. 2a ed. Brasília: MS; 2014.

83. Ministério da Saúde, Secretaria de Atenção Primária à Saúde, Departamento de Promoção da Saúde (Brasil). Guia Alimentar para Crianças Brasileiras Menores de 2 Anos. Brasília; Ministério da Saúde; 2019. p. 265.

84. Campos GWS, Domitti AC. Apoio matricial e equipe de referência: uma metodologia para gestão do trabalho interdisciplinar em saúde. Cad Saúde Pública. 2007;23:399-407. doi: https://doi.org/10.1590/S0102-311X2007000200016

85. Massuda A. Mudanças no financiamento da Atenção Primária à Saúde no Sistema de Saúde Brasileiro: avanço ou retrocesso? Ciênc Saúde Colet. 2020;25:1181-8. doi: https://doi.org/10.1590/1413-81232020254.01022020

86. Salles-Costa R, Segall-Corrêa AM, Alexandre-Weiss VP, Pasquim EM, Paula NM, Lignani JB, et al. Rise and fall of household food security in Brazil, 2004 to 2022. Cad Saúde Pública. 2023;39:e00191122. doi: https://doi.org/10.1590/0102-311XEN191122

87. Neves JA, Machado ML, Oliveira LDA, Moreno YMF, Medeiros MAT, Vasconcelos FAG. Unemployment, poverty, and hunger in Brazil in Covid-19 pandemic times. Rev Nutr. 2021;34:e200170. doi: https://doi.org/10.1590/1678-9865202134e200170

88. Chioro A, Costa AM. A reconstrução do SUS e a luta por direitos e democracia. Saúde Debate. 2023;47(136):5-10. doi: https://doi.org/10.1590/0103-1104202313600

89. Soares NT, Aguiar AC. Diretrizes curriculares nacionais para os cursos de nutrição: avanços, lacunas, ambiguidades e perspectivas. Rev Nutr. 2010;23:895-905. doi: https://doi.org/10.1590/S1415-52732010000500019

90. Pedraza DF, Oliveira MM. Estado nutricional de crianças e serviços de saúde prestados por equipes de Saúde da Família. Ciênc Saúde Colet. 2021;26:3123-34. doi: https://doi.org/10.1590/1413-81232021268.14582020

CONTRIBUTORS

Conceptualization: MAT MEDEIROS, GM VEDOVATO, JA NEVES, and MM MATA. Data Curation: MAT MEDEIROS, GM VEDOVATO, and JA NEVES. Formal Analysis: MAT MEDEIROS, GM VEDOVATO, and JA NEVES. Investigation: MAT MEDEIROS, GM VEDOVATO, JA NEVES, and MM MATA. Methodology: MAT MEDEIROS, GM VEDOVATO, JA NEVES, and MM MATA. Project Administration: MAT MEDEIROS. Resources: MAT MEDEIROS. Supervision: MAT MEDEIROS and GM VEDOVATO. Validation: MAT MEDEIROS and GM VEDOVATO. Visualization: MAT MEDEIROS, GM VEDOVATO, JA NEVES, and MM MATA. Writing - original draft: MAT MEDEIROS, GM VEDOVATO, JA NEVES, and MM MATA. Writing - review & editing: MAT MEDEIROS, GM VEDOVATO, JA NEVES, and MM MATA.