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Food and nutrition education in the professional exercise of nutritionists in the national school food program: a brazilian overview

Educação alimentar e nutricional no exercício profissional do nutricionista atuante no programa nacional de alimentação escolar: um panorama brasileiro

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Abstract

A national study that aimed to characterize the nutritionist profile in the National School Food Program (NSFP) and analyze food and nutrition education (FNE) actions, as well as the factors that motivate and make these practices difficult. Exploratory, quali-quantitative research conducted through telephone interview with 388 nutritionists (quantitative stage) and in person with 55 nutritionists (qualitative stage). Data are descriptively presented, and qualitative information was analyzed by the Discourse of the Collective Subject. The profile indicates that nutritionists have been acting in NSFP for less than a year (32.5%) and have a public bond (55.7%); 87.9% of the municipalities do not meet the numerical parameters of nutritionists by students according to the legislation, however, most of them have FNE actions (85.1%). These actions are developed predominantly by lectures (72.5%), with semiannually frequency (38.8% in schools and 40.1% in kindergartens). The development of healthy eating habits and school food acceptability stimulate FNE. The discourses express difficulties such as lack of time, work conditions, professionals and training of subject; low FNE articulation at the school curriculum; incipient awareness of the school community and non-recognition of food as a right.

Keywords: School food. Nutritionists. Food and nutrition education. Public policy.

Resumo

Estudo nacional que objetivou caracterizar o perfil de nutricionistas do Programa Nacional de Alimentação Escolar e analisar as ações de educação alimentar e nutricional realizadas, bem como os fatores que motivam e dificultam a realização dessas práticas. Pesquisa exploratória, quali-quantitativa, realizada por meio de entrevista telefônica com 388 nutricionistas (etapa quantitativa) e presencial com 55 nutricionistas (etapa qualitativa). A análise dos dados foi descritiva e as informações qualitativas foram analisadas por meio do Discurso do Sujeito Coletivo. O perfil dos nutricionistas indica atuação no programa há menos de um ano (32,5%) e vínculo por concurso público (55,7%); 87,9% dos municípios não atendem aos parâmetros numéricos de profissional por alunado conforme a legislação, mas em sua maioria são realizadas ações de educação alimentar e nutricional (85,1%). Essas ações são predominantemente palestras (72,5%), e com frequência semestral nas escolas e creches (38,8% e 40,1%, respectivamente). A formação de hábitos alimentares saudáveis e a aceitabilidade da alimentação escolar são fatores que estimulam a realização da educação alimentar e nutricional. Os discursos expressam dificuldades como falta de tempo, de condições de trabalho, de profissionais e de formação sobre o tema; baixa articulação do tema "alimentação e nutrição" no currículo escolar; falta de sensibilização da comunidade escolar; e não reconhecimento da alimentação como direito.

Palavras-chave: Alimentação escolar. Nutricionista. Educação alimentar e nutricional. Política pública.

Introduction

Food and nutrition education (FNE) is an important strategy to promote health and food and nutrition safety (FNS).[1] In Brazil, it represents one of the lines of action of the National School Food Program (NSFP) from a perspective of voluntary use of health food practices, favoring autonomy, learning, as well as the health and quality of life of the students.[2,3]

NSFP is the public policy whose aim is to offer school food to basic education students from public, philanthropic and community schools in Brazil.[2,4] It was created in 1955 and is considered the oldest and broadest program in the area of Food and Nutrition in the country, having as one of its goals to contribute for the biopsychosocial development, the academic performance and the creation of healthy nutritional practices for students, by offering meals and food and nutrition educational actions.[4,5]

The nutritionist is the professional in charge for the program, and one of his/her roles is to coordinate and conduct the FNE actions.[3] However, the lack of a theoretical-methodological reference to support such practices within the school context is a challenge.[6] Some gaps are observed, from the superficiality of the professional education of the nutritionist in relation to this field of action, as well as actions based on the biomedical interventional model, with a lack of articulation between theory and practice, and lack of problematizing pedagogical approaches.[7-10]

However, some initiatives in Brazil have progressed, in the sense of consolidating FNE as a governmental action. The creation of the FNE Reference Milestone for Public Policies is an advance to create a common ground for reflections and practice guidelines regarding FNE, indicating possibilities to qualify the Food and Nutrition agenda that would favor the intersectoriality of such actions.[1]

The school, as a social space, is the ideal environment to develop FNE.[11] According to the NSFP legal milestone,[2,3] FNE in the school environment is expected to be transversal, continuous, multi-professional and to make the Political-Pedagogical Project of the schools dynamic, using food as a pedagogical tool.

The studies on FNE within the scope of NSFP are recent and present differences as to their contents. Most use an epidemiological intervention methodology, evaluating the impact of FNE in the consumption of foods and/or in the changes to the anthropometric profile of the students before and after the intervention.[6] Few studies evaluate the FNE actions conducted, the factors that make it easier or harder to promote such practices in schools, as well as the role of the nutritionist in this process.[12,13]

Therefore, the aim of this nationally representative study is to characterize the profile of nutritionists who work on NSFP, and analyze the FNE actions in the program, making an overview of the five Brazilian regions on the educational approaches used that both motivate and hinder such practices.

Methods

This is a quali-quantitative exploratory research, whose data originates from the "Ações de educação alimentar e nutricional no Programa Nacional de Alimentação Escolar" research, developed by the Centro Colaborador em Alimentação e Nutrição do Escolar da Universidade Federal de Goiás (Collaborative Center in Food and Nutrition for Students of the Federal University of Goiás), financed by Fundo Nacional de Desenvolvimento da Educação (FNDE, National Education Development Fund).

The research was constituted by a quantitative and a qualitative stage, carried out consecutively, between April 2012 and November 2013. Its methodological grounds are based on the triangulation that articulates quantitative and qualitative methods. The use of this approach is based on a combination of perspectives, theories, research methods and techniques that increase the familiarity with the subject-matter as the fields are explored.[14]

Sampling

The studied population includes nutritionists and school food managers from the 5,565 Brazilian municipalities[15] existing in the initial phase of the research. The parameters considered for the probabilistic sampling were the total number of municipalities, an estimate of 50% of FNE occurrence,[16] confidence interval of 95% and sampling estimation error of 5%. The minimal sample calculated to ensure the national representativeness was 359 municipalities, stipulating as the sample a coverage of 10% of the municipalities, that is, 556 municipalities, proportionally distributed across the Brazilian regions and states.

The qualitative stage included municipalities that conducted FNE actions, according to the quantitative stage, covering, according to the convenience sampling, the 26 capitals and the Federal District, in addition to 30 municipalities randomly distributed across the states. Since two capitals reported they conducted no FNE actions in the quantitative stage, 25 capitals and 32 municipalities were included, with a total sample of 57 municipalities.

Research stages and data collection

During the quantitative stage, the data was collected by telephone interviews, with a structured questionnaire which had been previously tested in a pilot study. It was primarily directed at the school food nutritionist and, when no such professional was available, at the NSFP local manager, the school food coordinator or the Education municipal secretary.

For this research, only municipalities in which the nutritionist was the subject interviewed during the quantitative stage were included. In each municipality, at most ten attempts to make contact were made, in alternated days and hours, and one professional was interviewed by municipality. The interview did not present response options to the interviewees. To control the quality of the information, the content of the interviews was recorded. The quantitative variables included: a) characterization of the professional practice of the nutritionist: length of professional practice in years (< 1 year; >1 year to < 2 years; >2 years to < 5 years; > 5 years), type of employment relationship (public servant and non-public servant), work hours (<30 or >30 hours per week), dedication to other sectors of the town hall in addition to school food (yes or no), identification of

the practice sectors (health or others), presence of another nutritionist in the NSFP technical board (yes or no), adequate number of nutritionists in the technical board (yes or no); b) conduction of FNE practices (yes or no); c) FNE actions conducted; d) frequency of the FNE actions (monthly, biannually, annually, or not known); e) inclusion of FNE in the political-pedagogical project (yes or no). The interviewee was allowed to mention more than one response options for the variables, except for the dichotomic variables.

In order to calculate the adequate number of nutritionists by municipality, according to Resolution number 465/2010[17] of the Federal Board of Nutritionists, data from the School Census 2011 was used; this is the most current document related to the researched year.

During the qualitative stage, the nutritionist from the municipality was interviewed in person, using a semi-structured script and a recorder. The collection instrument was evaluated on a pilot study with two municipalities that were not part of the sample. In order to get to know the understanding of the nutritionists as to the aspects that facilitate and challenge FNE within the school context, the following questions were made: what factors motivate the conduction of FNE actions? And what are the difficulties found to conduct the FNE actions?

Data analysis

The quantitative data were entered twice on the Epi-info 3.5.4 software and analyzed on the *Data Analysis and Statistical Software* (Stata) SE®, version 12.0. The descriptive results were expressed in frequency and percentage.

The qualitative information was analyzed based on the social representation theory by Moscovici.[18] The recorded interviews that were later transformed into mp3 audio files were transcribed. Using the Collective Subject Discourse (CSD) technique, the raw discourses were subjected to an analysis using the Qualiquantisoft® software. Thus, in order to build the discourses, the following methodological figures were used: key expressions (KEXs), which are pieces, fragments or literal transcripts of the discourse, which must be highlighted by the researcher and that reveal the essence of the testimonial; central ideas (CIs), which are names or linguistic expressions that reveal and describe, in the most synthetic, precise and trustworthy was as possible the meaning of each one of the raw discourses analyzed and of each homogeneous set of KEXs; and Anchoring (AC), which is the explicit linguistic manifestation of a certain theory, or ideology, or belief, professed by the author of the discourse and that is being used by the enunciator to frame a specific stiuation.[19]

The Collective Subject Discourse technique, developed for social opinion researches, aims at investigating the notion of a certain collectivity from collected testimonials. It allows the recovery of thoughts, values and beliefs that were individually internalized through the discourse. This

synthesis-discourse is constituted by key expressions with the same central idea, that is, it is a way to allow the collectivity to speak directly through a discourse.[19]

Ethical Aspects

The project was approved by the Research Ethics Committee of Universidade Federal de Goiás (Federal University of Goiás), protocols 276/2011 during the quantitative stage, and 034/2013 during the qualitative stage.

During the quantitative stage, since it involved a telephone interview, the free and informed consent was replaced by the verbal consent obtained by telephone with the interviewees, being duly recorded. For the qualitative stage, the municipal Education secretaries signed the Consent Term for their participation. In addition, the interviewees signed the Free and Informed Consent Term.

Results and Discussion

Considering the losses and refusals during the quantitative stage, and excluding 49 municipalities where the nutritionist was not the interviewed professional, 388 municipalities remained in the study, randomly and representatively distributed across the regions as: 7.5% (n=29) of the municipalities belonging to the North Region; 30.9% (n=120) to the Northeast Region; 29.6% (n=115) to the Southeast Region; 23.7% (n=92) to the South Region; and 8.2% (n=32) to the Midwest Region. When calculating the Proportional Confidence Interval of the sample, the losses did not compromise the studied universe, and the sample met the proportionality by Brazilian region.

During the qualitative stage, in turn, representatives from two municipalities refused to participate. Thus, the qualitative information was collected in 55 municipalities, contemplating all states and regions.

Fromm the 388 nutritionists interviewed during the quantitative stage, 32.5% (n=126) worked on NSFP for less than one year, and the South (n=34; 37.0%) and Midwest (n=12; 37.5%) regions were the ones with the highest percentage of nutritionists who had been working for five of more years. In the total sample, more than half the nutritionists were public servants (n=216), however, in the Northeast region, 65.9% (n=79) of the participants mentioned another type of employment relationship (Table 1).

Table 1. Characterization of the professional practice of the nutritionist on the National School Food Program, Brazil and federative Regions (n=388), 2013.

Variables	North		Northeast		Southeast		South		Midwest		Brazil	
	n	%	n	%	n	%	n	%	n	%	n	%
Length of the work												
Up to 1 year	5	17.2	60	50.0	39	33.9	14	15.2	8	25.0	126	32.5
1 to 2 years	5	17.2	11	9.2	11	9.6	15	16.3	4	12.5	46	11.8
2 to 5 years	11	38.0	30	25.0	34	29.6	29	31.5	8	25.0	112	28.9
>5 years	7	24.2	17	14.2	29	25.2	34	37.0	12	37.5	99	25.5
Unknown	1	3.4	2	1.6	2	1.7	0	0.0	0	0.0	5	1.3
Total	29	100.0	120	100.0	115	100.0	92	100.0	32	100.0	388	100.0
Type of work relationship												
Public Servant	17	58.6	40	33.3	70	60.9	72	78.2	17	53.1	216	55.7
Non Public Servant	11	38.0	79	65.9	44	38.3	19	20.6	15	46.9	168	43.3
Unknown	1	3.4	1	0.8	1	0.8	1	1.2	0	0.0	4	1.0
Total	29	100.0	120	100.0	115	100.0	92	100.0	32	100.0	388	100.0
Workload												
<30 hours/week	9	31.0	54	45.0	38	33.0	44	47.8	11	34.4	156	40.2
≥30 hours/week	20	69.0	66	55.0	77	67.0	48	52.2	21	65.6	232	59.8
Total	29	100.0	120	100.0	115	100.0	92	100.0	32	100.0	388	100.0

to be continued

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Variables	North		Northeast		Southeast		South		Midwest		Brazil	
	n	%	n	%	n	%	n	%	n	%	n	%
Work in other sectors of the Town Hall												
Yes	6	20.7	22	18.3	27	23.5	29	31.5	8	25.0	92	23.7
No	23	79.3	98	81.7	88	76.5	63	68.5	24	75.0	296	76.3
Total	29	100.0	120	100.0	115	100.0	92	100.0	32	100.0	388	100.0
If so, which Health [a]												
Yes	5	83.3	19	86.4	24	88.9	28	96.6	6	75.0	82	89.1
No	1	16.7	3	13.6	3	11.1	1	3.4	2	25.0	10	10.9
Total	6	100.0	22	100.0	27	100.0	29	100.0	8	100.0	92	100.0
If so, which: Other sectors [a]												
Yes	3	50.0	3	13.6	3	11.1	5	17.2	2	25.0	16	17.4
No	3	50.0	19	86.4	24	88.9	24	82.8	6	75.0	76	82.6
Total	6	100.0	22	100.0	27	100.0	29	100.0	8	100.0	92	100.0
Presence of other nutritionists in NSFP												
Yes	8	27.6	22	18.4	24	20.9	16	17.4	7	21.9	77	19.9
No	21	72.4	97	80.8	88	76.5	76	82.6	25	78.1	307	79.1
Unknown	0	0.0	1	0.8	3	2.6	0	0.0	0	0.0	4	1.0
Total	29	100.0	120	100.0	115	100.0	92	100.0	32	100.0	388	100.0

to be continued

Variables	North		Northeast		Southeast		South		Midwest		Brazil	
	n	%	n	%	n	%	n	%	n	%	n	%
Suggested number of nutritionists on TB according to Resolution # 465 from 2010[c]												
Yes	0	0.0	5	4.2	11	9.6	26	28.3	5	15.6	47	12.1
No	29	100.0	115	95.8	104	90.4	66	71.7	27	84.4	341	87.9
Total	29	100.0	120	100.0	115	100.0	92	100.0	32	100.0	388	100.0

TB: technical board; NSFP: National School Food Program; FNE: food and nutritional education.

[a]Values calculated in relation to the total number of professionals that stated they performed other activities.

[b]Values calculated in relation to the total number of professionals who indicated the presence of another nutritionist on the TB for NSFP.

[c] Adequacy according to the recommendation of Resolution # 465/2010 from the Federal Board of Nutritionists.

Nutritionists were first institutionalized on NSFP through Act number 8,913/1994,[20] which was then established on the CD/FNDE Resolution number 32/2006,[21] which established the nutritionist as the technical professional in charge. According to Chaves et al.,[22] there is some inequality in the distribution of professionals across the regions, however, the longer time of work may indicate a gradual increase of the insertion of the nutritionists on NSFP, since from 2003 to 2011, the percentage of Brazilian municipalities with this professional in the program increased from 12% to 79%.

A research developed with 171 nutritionists observed that NSFP represents the first employment for 30% of the professionals,[23] which may support the information that, in Brazil, most of the professionals have been working on NSFP for less than one year. In relation to the employment relationship, Mello et al.[24] observed that 65% of the nutritionists on NSFP of the Northeast Region were public servants; such result differs from the one in this study.

Regarding the work hours of the nutritionists, 59.8% reported that their work hours were equal to or greater than 30 hours a week, varying from 52.2% in the South Region to 69.0% in the North of the country. From the interviewees, 23.7% (n=92) were dedicated to other sectors in the town hall, mainly Health (n=82, 89.1%).

The minimal numerical parameters of nutritionists by executing entity indicate that 87.9% (n=341) of the municipalities do not meet what is established by the legislation, and, in the North Region, none of the municipalities contemplates the professional/number of students relationship (Table 1).

As defended by the Federal Board of Nutritionists,[17] the minimal workload recommended for the technical professional in charge is 30 hours a week. Taking into consideration the complexity and the amount of assignments inherent to this professional, the inadequate workload, as well as the number of nutritionists in the technical board, may influence the conduction of the suggested actions.

A study conducted in the South Region observed that 54.3% of the nutritionists have a workload equal to or higher than 30 hours a week, and 26.7% work in other secretaries of the unicipality.[25] It also showed that 81.9% of the technical professionals work by themselves, since the executing entities do not meet the minimal parameters for professionals by number of students. Souza et al.,[26] when evaluating 77 municipalities in Minas Gerais and Espírito Santo, observed that 82% of the municipalities had over 500 students, but only 53.9% of them reported the existence of a technical board.

In this study, reports from the nutritionists indicate that 85.1% (n=330) of the municipalities conducted FNE actions on schools and daycare centers, with higher frequency in the South Region, 94.6% (n=87); and lower frequency in the Northeast Region, 79.2% (n=95) (table 2). From the municipalities that conducted FNE actions, in 92.4% (n=305), the interviewees informed which actions are developed more frequently; lectures represented 72.5% (n=221) and playful activities (games, plays and theaters), 57.4% (n=175). The frequency of lectures was higher in the North Region, and of playful activities, in the Southeast Region.

Table 2. Food and Nutritional Education Actions of the National School Food Program, Brazil and federative regions (n=388), 2013.

Variables	North		Northeast		Southeast		South		Midwest		Brazil	
	n	%	n	%	n	%	n	%	n	%	n	%
Conduct FNE actions (n=388)[a]												
Yes	25	86.2	95	79.2	95	82.6	87	94.6	28	87.5	330	85.1
No	4	13.8	25	20.8	20	17.4	5	5.4	4	12.5	58	14.9
Total	29	100	120	100	115	100	92	100	32	100	388	100
FNE actions conducted in schools and daycare centers: (n=305)[b]												
Lectures	21	91.3	73	83.9	54	62.8	53	63.9	20	76.9	221	72.5
Playful activities	8	34.8	49	56.3	59	68.6	45	54.2	14	53.8	175	57.4
Gastronomy workshop	4	17.4	21	24.1	29	33.7	33	39.8	5	19.2	92	30.2
School gardens	6	26.1	15	17.2	15	17.4	22	26.5	5	19.2	63	20.7
Events	7	30.4	13	14.9	15	17.4	13	15.7	8	30.8	56	18.4
Qualification of the school community	5	21.7	18	20.7	10	11.6	9	10.8	1	3.8	43	14.1
Elaboration of informative	1	4.3	4	4.6	5	5.8	8	9.6	5	19.2	23	7.5
Informative walls and/or meetings with parents	3	13.0	10	11.5	6	7.0	3	3.6	1	3.8	23	7.5
Other actions	0	0	6	6.9	7	8.1	5	6.0	3	11.5	21	6.9
Other responses												

to be continued

Variables	North		Northeast		Southeast		South		Midwest		Brazil	
	n	%	n	%	n	%	n	%	n	%	n	%
Mentioned the educational resources and/or themes	4	17.4	10	11.5	19	22.1	29	34.9	8	30.8	70	23.0
Mentioned the roles of the nutritionist	6	26.0	17	19.5	8	9.3	9	10.8	5	19.2	45	14.7
Frequency of FNE actions conducted in schools (n=330)[c]												
Monthly (once a month or more)	8	32.0	28	29.5	36	37.9	19	21.9	6	21,4	97	29,4
Biannually (once a semester)	10	40.0	35	36.8	31	32.6	38	43.7	14	50.0	128	38.8
Annually (once a year)	6	24,0	10	10.5	7	7.4	13	14.9	4	14.3	40	12.1
Unknown	1	4,0	22	23.2	21	22.1	17	19.5	4	14.3	65	19.7
Total	25	100	95	100	95	100	87	100	28	100	330	100
Frequency of FNE actions conducted in daycare centers (n=262)[d]												
Monthly (once or more times a month)	7	35.0	26	32.5	28	40.6	20	28.2	4	18.2	85	32.4
Biannually (once a semester)	6	30.0	34	42.5	24	34.8	31	43.6	10	45.4	105	40.1
Annually (once a year)	6	30.0	2	2.5	3	4.3	11	15.5	4	18.2	26	9.9
Unknown	1	5,0	18	22.5	14	20.3	9	12.7	4	18.4	46	17.6
Total	20	100	80	100	69	100	71	100	22	100	262	100

to be continued

Variables	North		Northeast		Southeast		South		Midwest		Brazil	
	n	%	n	%	n	%	n	%	n	%	n	%
Introduction of FNE in the Political-Pedagogical Project (n=330)[c]												
Yes	8	32.0	33	34.7	43	45.3	41	47.1	13	46.4	138	41.8
No	10	40.0	37	39.0	37	38.9	37	42.6	8	28.6	129	39.1
Unknown	7	28.0	25	26.3	15	15.8	9	10.3	7	25.0	63	19.1
Total	25	100	95	100	95	100	87	100	28	100	330	100

FNE: Food and Nutritional Education. [a] Equivalent to the total n of the sample.

[b] n refers to the municipalities that conduct FNE actions and were able to mention the actions. This variable allowed the interviewee to report more than one response option, therefore, the total will not add up to 100 %. [c] n refers to the total number of municipalities that conducted FNE actions. [d] n refers to the municipalities that conducted FNE actions. n in relation to daycare centers differs from n in relation to schools, because, in some municipalities, the actions were developed only in schools.

Note: Playful activities: games, plays, theaters; school community:

teachers, principals, pedagogical coordinators, school food advisors and/or professionals that handle the food; other actions: individual follow-up and/or nutritional guidance, excursions to supermarkets and farmer's markets, obesity and healthy-eating projects e programs, articulation with projects from other sectors.

Gastronomy workshops were also mentioned (n=33; 39.8%) as well as school gardens (n=22; 26.5%), with a higher frequency in the South Region; and events involving the food week and Science fair, with emphasis to the Midwest (30.8%; n=8) and North (30.4%; n=7) regions.

Mistakenly, some nutritionists mentioned as an FNE action the educational resources and/or the theme worked (n=70; 23.0%), or even other attributions of the program, highlighting the anthropometric evaluation (n=45; 14.7%).

Other studies showed different results as to the conduction of EAN actions. Mello et al.[24] observed that in the Northeast Region, only 33.8% of the municipalities frequently conducted these activities. Belik & Chaim[16] observed that 50% of the Brazilian municipalities conducted FNE actions in the school environment. In the South Region, more expressive percentages were found by Corrêa et al.[25] and Souza et al.,[26] where 66.2% and 90.5% of the municipalities, respectively, conduct FNE actions on NSFP.

On this research, discrepancies were observed between the South and Northeast regions, in relation to the conduction of FNE actions; this is supposedly due to the socioeconomic inequalities between the regions, which impact several areas, including education.[27]

The effects of such inequalities across the Brazilian regions affect, for example, the failure to observe of the requirement to hire nutritionists as the technical professionals in charge for the program in some municialities,[13] leading to discrepancies in the distribution of the professionals, with a lower percentage in the North region (59.4%) and higher percentage in the South (84.5%).[22]

The use of lectures as the main FNE strategy in schools and daycare centers corroborates a study[25] in which this approach was shown to be the prevailing approach. One criticism to this model considers that it is, mainly, a methodology based on the traditional education standards, with no possibility of dialogue, and which assumes a stratified view of the social, cultural, economic and psychologic relations, in which the individual is inserted, thus emphasizing the biological focus of nutrition.[9,11]

In this study, the use of a gastronomy workshop and of the school garden as an FNE strategy represents practices that allow, in addition to the sensorial contact with the foods, experiencing creativity, as well as values, feelings and experiences regarding health and culture.[28] The interaction between cooking and planting considers food as a reference for these actions, values the consumption of local and regional foods,[29,30] incorporates a playful aspect to the learning process and favors reflections, initiatives, and the association between the game and reality.[1]

When asked about the periodicity of the FNE actions in schools and daycare centers, the biannual frequency prevailed (n=128, 38.8%) and (n=105, 40.1%), respectively. The exception was the Southeast Region, where both in schools (n=36; 37.9%) and in daycare centers (n=28; 40.6%), the monthly frequency stood out (table 2).

Similar data was found in a research with 670 Brazilian municipalities, where the FNE actions were developed annually or biannually.[16] Observing, in the literature, the length of the FNE interventions, both in Brazil[31] and in other countries,[32,33] they are often limited to weeks or months.

A study conducted by Ramos et al.[6] observed that in the Brazilian scientific publications in the area of FNE, the methodological designs of the studies focus on the epidemiological aspects of the intervention, with the limitation of short-term methodologies between the intervention and the evaluation.

Considering the lack of theoretical-methodological references that support the FNE practices, an obsolete notion around this theme is observed, in which knowledge is something that is transmitted, and learning is an accumulation of information.[9]

In this study, the discourses reveal that the creation of healthy eating habits is a reason to develop FNE actions in the school environment.

> *We have increasingly noticed that nutritional education is an instrument, a tool to change habits and, more importantly, to create healthy habits. The fact that we see children changing their habits, that teachers say: oh, no, these children used to be like that, but they are changing, they no longer bring snacks from home, they eat what the school provides. [...] We notice that children need this guidance, they need healthy foods, the we feel like moving forward, persisting, never giving up ".*

According to Bourdieu,[34] individuals transform their *habitus* into habits, that is, *habitus* is what was acquired and incorporated as dispositions; it is a capital that makes individuals reproduce the social conditions of their own production, in an innate manner. The nutritional habit is a social construction, which reveals the culture, values and identities.[35]

The school is legitimately acknowledged as the learning *locus*; therefore, it becomes an extension from the home-house, which, in principle, must support and stimulate healthy eating habits.[36] According to Paiva et al.,[36] for the students "healthy food tastes bad, and junk food is good", therefore, it is up to the school to reconnect them with the *habitus* of eating out, based on the feeling of discovering something that is different, novelty and fun.

Motivations related to the importance of school in learning and how much the educational actions may favor the acceptance of the school food emerged from the discourses.

> *So, school is a place for leaning and, as such, this must be potentialized. During the break, students do not want the food the school provides, they want to buy soft drinks, snacks, popcorn from street sellers; they also bring from their home or their parents allow them to eat these unhealthy foods. [...] The result, which would be to see the children really eating salads, fruits, having fun with it, taking it home. [...] the satisfaction of seeing that the menu is being accepted. A menu that was created thinking about them".*

Regarding the acceptability of the school food, according to Silva et al.,[37] students that participate of the FNE activities present a 1.87-time higher acceptance rate of the school food. Paiva et al,[36] in a qualitative study on the theme, in turn, observed an aversion to hot meals during the break, and the perception of the students regarding the school food using expressions such as: "They talk so much about our health, and no fruits are offered", "They offer more pasta than fruits", "In think that if they offered... fruits once a month... the students would be more interested on the school meals than on the snacks that come from other places" (p. 2509).

Another factor that was shown to motivate the development of FNE actions was the fact that the educational actions are the role of the nutritionist.

> *"it is one of the roles of the nutritionist, right? I think the own legislation establishes that. It is mandatory, the NSFP legislation establishes that. What really motivates me is my work, I go after this, I think it is important, not only because it is required, right? I do it because I like it, because this is what I majored in, we know we must to do this".*

Considering the effective legislation, it is the responsibility of the nutritionist to coordinate and conduct, together with the school principal and the pedagogical coordination, FNE actions. Therefore, in order for FNE to be a transformative and permanent practice, partnerships with other sections also need to be created, as well as the articulation with the school principals and teachers.[1-3]

The social agents in school need to recognize the importance of their actions, which implies information and qualified instructions to approach this theme. The nutritionist, as the technical professional in charge of the program, needs to create awareness and allow the creation of FNE, in an active manner, and through the use of innovative methodologies. However, studies with this audience show the incipience of such practices; overlapping of the nutritionist to other professionals, and a mistaken notion by the own nutritionist of "power decentralization", generating lack of communication and difficulty to realize the importance of the "other".[38,39]

In order to allow the socialization of such knowledge in schools, NSFP establishes the inclusion of FNE in the political-pedagogical project of schools and daycare centers. The introduction of the "food and nutrition" theme on the school curriculum allows the creation of a democratic mechanism to organize the educational actions in the pedagogical space and broadens the perception of this theme by the students.[23]

The introduction of FNE in the curriculum of schools and daycare centers in this study showed that in 41.8% (n=138) of the municipalities that conducted FNE actions, nutritionists stated that the "food and nutrition" themes are worked within the school curriculum. The lowest frequencies occurred for the North (n=8; 32%) and Northeast (n=33; 34,7%) regions, according to 2). FNE

is discussed in the following disciplines: Sciences (n=64; 91.4%), Mathematics (n=30; 77.8%), Portuguese Language (n=22; 31.4%) and Physical Education, (n=11; 15.7%). Other disciplines, such as Geography, History, Arts and Foreign Language, were mentioned, however, with frequencies below 10.0% (data not presented on the tables).

The challenges mentioned by the nutritionists to carry out the FNE practices also indicate obstacles regarding the inclusion of FNE in the school curriculum, as well as the importance of the qualification of teachers.

> *The school curriculum is a challenge, right? The teachers too, some of them are not open for this, they prefer to transmit the content in a more traditional manner, and they don't want to add any topics to the discipline [...]. If on the one hand there is a huge possibility because this is a transversal topic, on the other hand, we must be very careful, and the transversal contents must be discussed, explored, because one thing is also certain, a Portuguese Language teacher is not able to work on the food and nutritional education contents when this teacher has no idea what this is".*

A study conducted in the state of São Paulo[40] analyzed the approach of the "food and nutrition" theme in textbooks of public schools. The textbooks showed the themes and activities to be worked on; however, the texts used on the books oftentimes had no articulation with the local reality, and did not lead to transformative and effective actions.[10]

Recently, Brazil approved the Act number 13,666/2018, establishing the inclusion of FNE in primary and secondary education curriculums, for the Science and Biology disciplines.
This initiative indicates a mobilization toward the mandatory inclusion of FNE in the school curriculum, whose results may support possible changes and progresses.[41]

The FNE strategies are still related to prevention logics, with interventions aimed at avoiding the onset of specific diseases, which is the basis of the preventive and epidemiological discourse.[9] Considering this reflection, another challenge indicated on the discourses indicates the need for a solid academic background to conduct FNE actions.

> *We need a stronger academic background in the area of school food for nutritionists. There is a considerable difficulty in the post-graduation and graduation of nutritionists.*

According to Franco & Boog,[7] the practices related to FNE during the graduation in Nutrition are often restricted to the internships conducted over the last year of the course. The lack of reflection on the theoretical concepts by the nutritionist during the practice may impose difficulties to redirect the contents worked on and their application in the workplace. This information may support the confusion shown in this study by some of the nutritionists as to the FNE actions and their roles in NSFP.

The FNE teaching in Nutrition graduation courses still needs to transcend to a pedagogical approach that overcomes its superficial aspect and progresses into the qualification of a generalist professional who is able to understand the socio-anthropology of food.[42]

The discourses indicate a lack of support, partnerships, financial resources, materials and/or structure to conduct the actions; in addition to the lack of time and insufficient number of nutritionists, as obstacles to develop FNE practices.

> *"Some bureaucratic obstacles, and lack of a vehicle for the services. All of a sudden, a lecture is scheduled and you have no car to get to it. Also, there is no support when we need to take a course locations, then we can't go due to financial reasons. It all gets in the way... There are no textbooks... Sometimes I have to plan something myself. The challenge relates to really having an adequate structure [...] I am the only one in this municipality, so we don't have time to conduct these activities. The main difficulty is the dimension, the size of the network. Other than that, there are also the other attributions. So, being by myself, it is complicated right now, but we try to do the best we can".*

According to Vieira et al.,[43] educational activities on organic foods in schools are related to the length of the work and the workload of the nutritionists who are the technical professionals in charge. It must be observed that the incompatibilities in carrying out such practices involve dimensions that range from not meeting the parameters that determine the number of nutritionists in relation to the number of students by municipality,[17] up to the excessive amount of administrative activities, in addition to the devaluation of the professional by the managers, overlapping the political-local dimension on the technical-professional dimension.[44]

Therefore, the nutritionist cannot be blamed for the low effectiveness of FNE. Other challenges are also involved in this process, such as the difficulty to adapt the theory to the reality, the lack of knowledge on the theme and the lack of interest of the school community.[24,25,44]

In this study, the low awareness of the school community and the non-acknowledgement of the school food as a right by the students are challenges to conduct FNE actions in the school.

> *Some resistance by some schools in relation to be willing to be opened to this... to embrace the idea. Having this available for all teachers, for the principals, and sometimes for the own students. It's not only that, it is about making students see that school food is a right they have, that that food is carefully prepared, and they don't see that.*

Santos et al.,[30] when developing a formative proposal for pedagogical coordinators on food and nutrition in the school environment, identified that, although the educational practices were dynamic and interactive, they still need to be perfected. The motivation and awareness of these social agents may become fragile on their daily work, due to a lack of a permanent and broad action.

In relation to acknowledging the school food as a right, there seems to be an assistentialist "stigma" within the NSFP contect.[45] Event when it is known that for some students, above all those under less favorable socioeconomic conditions, the school food is the main or the only meal they make during their day. On the other hand,[45] the study indicates that some students feel ashamed to get on the line and eating the meals served by the program, because they are associated to poor and underprivileged students.[36]

It is necessary to develop a culture of rights, the *habitus* that stablishes it as part of the daily routine. The meaning of the right to proper nutrition are built in the society and within the local reality, and it may be potentialized by FNE processes that are able to signify the actions among the school agents.[11]

This study presents limitations, such as the exclusion of the questionnaires answered by the NSFP managers, justified by the fact that some information is specifically related to the work of the nutritionist, and the data provided by the managers may represent a bias in the evaluation of the FNE actions. This is a pioneering study in investigating the understanding of school food nutritionists on FNE in all Brazilian macro-regions, through the use of in-person interviews.

Final considerations

The professional work of the NSFP nutritionists across the Brazilian regions shows some similarities. If, on the one hand, almost 90% of the municipalities do not meet the minimal parameters regarding the number of professionals by students, most of the Brazilian municipalities researched conduct FNE actions in the school context.

The FNE actions are developed mainly through lectures, with a biannual frequency, and the introduction of FNE to the political-pedagogical project was referenced by less than half the municipalities.

On the discourses, some factors that motivate the conduction FNE actions in the school environment include the creation of healthy eating habits, the acceptance of the school food, and the fact that this is a role of the nutritionist. In relation to the difficulties regarding this process, issues that emerged are related to the lack of time, to work conditions and to professionals; the low articulation of FNE in the school curriculum; the incipient qualification to work with FNE; the lack of awareness of the school community and the lack of acknowledgement of the food as a right.

The data presented here may contribute to discuss relevant aspects to management, aiming at making such practices related to NSFP advance. In addition, they are a warning to nutritionists regarding the need to mainstream their practices, using new strategies that favor the participation, critical analysis and creative ability; and the articulation with the different social agents in FNE

actions. This data may also motivate the school Community and the pedagogical team to realize the importance of the political-pedagogical project as an instrument for the democratization of activities on food and nutrition. Finally, it creates, within the academic and the scientific environments, the need to search for more consolidated theoretical and methodological references, stimulating changes to the structure of the academic qualification of the nutritionist in relation to this field.

This study reinforces the importance of new investigations on this theme, since FNE represents a vacuity in relation to several possibilities as an articulation/educational tool. One suggestion is to investigate FNE under the perspective of other professionals, as well as the academic qualification of the nutritionists in this field.

Collaborators

Almeida GM participated in the elaboration of the project, data collection and analysis, writing and discussion of the results, relevant critical review of the intellectual content and approval of the final version of the research. Silva SU participated in the elaboration of the project, data collection, manuscript writing and final approval of the version to be published. Soares GB participated in the data collection and analysis, writing of the results, review and approval of the final version of the research. Gregório NP participated in the elaboration of the project, data collection and analysis, writing of the results, review and approval of the final version of the research. Sousa LM participated in the elaboration of the project, data analysis, review and approval of the final version of the research. Monego ET participated in the elaboration of the project, data collection supervision, data analysis, review and approval of the final version of the research.

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