



FOOD AND NUTRITION EDUCATION: PERCEPTIONS OF TEACHERS IN A PUBLIC EDUCATION SYSTEM

EDUCAÇÃO ALIMENTAR E NUTRICIONAL: PERCEPÇÕES DE PROFESSORES DE UMA REDE PÚBLICA DE ENSINO

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ABSTRACT: Food and nutrition education (FNE) in the school setting is of the utmost importance for health promotion. The aim of the present study was to investigate the perception of the importance and application of FNE by teachers at public schools in the municipality of Campo Redondo, state of Rio Grande do Norte, Brazil. A mixed cross-sectional study was carried out with the aid of a virtual instrument that included objective and subjective questions on FNE in the school setting. Quantitative data were analyzed using absolute and relative frequencies. Qualitative aspects were submitted to content analysis. Eighty-five teachers participated in the study. All recognized the importance of FNE and reported carrying out specific FNE actions. However, the perception of the majority was restricted to nutritional and biological aspects related to health, with no sociocultural factors of food addressed. In conclusion, continuing education actions at schools are needed to prepare teachers to include food-related topics in the school curriculum.

KEYWORDS: Health Promotion in School Environment. Basic education. Teacher training.

RESUMO: A Educação Alimentar e Nutricional (EAN) no ambiente escolar é de suma importância para promoção da saúde. O presente estudo objetivou investigar a percepção da importância e a aplicação da EAN por professores de escolas públicas de Campo Redondo/RN. Foi realizado estudo misto e transversal através de instrumento virtual que contemplou questões objetivas e subjetivas sobre a EAN no contexto escolar. Os dados quantitativos foram analisados através de frequência simples e absoluta e os aspectos qualitativos através da análise de conteúdo. Participaram do estudo 85 professores(as). Todos(as) reconheciam a importância e referiram realizar ações pontuais de EAN, entretanto a percepção da maioria se restringiu a aspectos nutricionais e biológicos relacionados à saúde, não sendo apontados fatores socioculturais da alimentação. Conclui-se que é imprescindível ações de educação permanente na escola para preparar os(as) professores(as) para trabalhar de forma transversal os temas de alimentação no currículo escolar.

PALAVRAS-CHAVE: Promoção da Saúde no Ambiente Escolar. Educação Básica. Capacitação de professores.

INTRODUCTION

Food and nutrition education (FNE) can be understood as a transdisciplinary, intersectoral, multiprofessional field of knowledge on continual, permanent practices linked to the promotion of the autonomous, voluntary practice of healthy eating habits. This practice should involve the use of educational tools that stimulate reflections and learning with regards to eating habits in all phases of life.¹

One of the guidelines of the National School Meal Program mentions the promotion of FNE as part of teaching-learning process that should make up part of the school curriculum, addressing food and nutrition topics with the development of healthy practices.² Moreover, Article 9 of Law nº 13.666 was issued on May 16th, 2018, which states that “food and nutrition education will be included among the crossover topics in the school curriculum”, underscoring the importance of FNE and its multidisciplinary nature in the school setting.³ For such, teachers must have knowledge on food and nutrition and include it within their teaching practices, as teachers are among the social actors that can exert a positive influence on the establishment of healthy eating practices among students.⁴

Despite the existence of legislation and knowledge on the various advantages of addressing FNE in the school setting, challenges need to be overcome.⁵ It is necessary to equip teachers with the tools necessary for FNE. The prioritization of academic performance with the configuration of basic education in Brazil still focused on compartmentalized curricular components constitutes an obstacle for the implementation of FNE, as it hampers the integration of crossover topics, as is the case with food and nutrition. Thus, an interdisciplinary approach is fundamental to integrating FNE as a central part of the school curriculum.⁶

Another important point is the lack of continuing education for teachers on the topic of FNE,⁷ which may be related to the insufficient number of nutritionists in the school environment due to the diverse attributes and excessive workload of these health providers, which underscores the need to value this category of worker in the National School Meal Program.⁸ For FNE to be incorporated into teaching plans, greater teacher autonomy is fundamental, with the inclusion of content related to food and nutrition even in the early educational process and in a continual manner, along with the availability of materials and teaching resources adequate for this purpose in the school environment.^{9,10}

FNE in the school setting is of considerable importance, as this is considered a potential environment for health promotion through the stimulation of healthy eating practices, as stipulated in the dietary guide for the Brazilian population.¹¹ Moreover, such actions contribute to knowledge and academic performance as well as the formation of healthy habits, contributing to the prevention of chronic noncommunicable diseases, which currently already emerge in childhood and adolescence.^{12,13} Moreover, the role of the school transcends the promotion of technical-scientific knowledge and is essential to the formation of individuals as social beings.¹⁴

Therefore, the aim of the present study was to investigate the perceptions of the importance of food and nutrition education on the part of teachers at public schools in the municipality of Campo Redondo, Brazil.

METHODOLOGY

A mixed cross-sectional study was conducted with teachers of the municipal and state-run public school systems in the municipality of Campo Redondo in the state of Rio Grande do Norte, Brazil. The municipality has a population of 10,215 residents, a Human Development Index of 0.626, Gini Index of

0.5644¹⁵ and 13 public schools (11 municipal with 117 teachers and two state-run with 30 teachers). All teachers in these schools were informed of the study. Most schools offer Primary I and II and only one offers high school.

Data collection took place from February to April 2023 in a virtual format using the *Google Forms* platform. The collection form was composed of 18 questions – 15 objective and three subjective. Due to restrictions with regards to time and logistics and a lack of funding, it was not possible to conduct a pilot study and sampling was by convenience. The objective questions addressed information on the professional background of the teachers, such as higher education course, time since graduation, time exercising the profession, teaching network (municipal or state), levels and grades taught, and curricular components taught. The subjective questions regarded knowledge of the term FNE, its purpose and how FNE could contribute to the education of the students.

A total of 85 teachers answered the questionnaire, but only 15 participated in the qualitative part of the study due to the occurrence of content saturation. Data collection is considered saturated when no further elements are identified and the addition of information does not alter the understanding of the characteristics under analysis,¹⁶ as occurred in the present study.

Quantitative data were analyzed considering the absolute and relative frequency of the answers to the multiple-choice questions. Content analysis based on Bardin was used for the assessment of the subjective items and was performed in three steps: pre-analysis, exploration of material and treatments of results.¹⁷ “Skimming” was performed in the first step, followed by a more in-depth reading. Descriptive codes were then created based on the participants’ answers. The codes were then grouped, creating thematic categories (union of descriptive codes similar to each other). Twenty-three descriptive codes were synthesized, giving rise to three thematic categories: knowledge of teachers on FNE, perception of the purpose of FNE and contributions of FNE to the education of the students. During the categorization of the data, reliability was checked by peers to ensure that the interpretation was faithful to the meanings presented in the answers.

To ensure anonymity of the forms used for the qualitative part, each respondent was identified with “*Teacher*” and number 1 to 15. This study received approval from the Human Research Ethics Committee of the Trairi School of Health Sciences of the Federal University of Rio Grande do Norte (presentation number: 65712222.80000.5568; approval certificate number: 5.846.613).

RESULTS

Among the 85 participants, most were women (n = 65; 76%) and had a teaching course degree (n = 47; 55%). The predominant time since graduation was < 10 years (n = 30; 35%) (Table 1). Most taught in the municipal school system (n = 62; 73%) and 68% (n = 58) taught in levels Primary I (1st to 5th grade) and Primary II (6th to 9th grade) (Table 1).

Table 1. Demographic and professional characterization of public school teachers in the municipality of Campo Redondo, Rio Grande do Norte, Brazil, 2023.

Variable	N (85)	%
Sex		
Male	20	24
Female	65	76
Academic background		
Teaching	47	55
Languages	12	14
Mathematics	09	11
Natural sciences	05	06
Human sciences	12	14
Time since graduation		
< 10 years	30	35
10 to 20 years	28	33
> 20 years	27	32
Time working as teacher		
< 10 years	28	33
10 to 20 years	51	60
> 20 years	06	07
School system in which works		
Municipal	62	73
State	18	21
Both	05	06
Level of teaching in which works		
Preschool I to IV	16	19
Primary I and II	58	68
High school	11	13

Source: Author (2023)

All respondents reported recognizing the importance of FNE (not presented in table). A total of 87% (n = 74) reported knowing the term “FNE”, 68% (n = 58) reported applying FNE in the classroom, 53% (n = 45) recognized the relationship between FNE and some disciplines that they taught, whereas 41% (n = 35) recognized the relationship between FNE and all disciplines taught. Lastly 58% (n = 49) of the respondents reported that FNE actions took place between the years 2021 and 2022 at the schools where they worked (Table 2).

Table 2 – Knowledge and applicability of food and nutrition education by teachers at public schools in the municipality of Campo Redondo, Rio Grande do Norte, Brazil, 2023.

Variable	N (85)	%
Knowledge of teachers on FNE		
Yes	74	87
No	11	13
Application of FNE in classroom		
Yes	58	68
No	27	32
Sees relationship between FNE and disciplines		
Yes, with some	45	53
Yes, will all	35	41
No	05	06
FNE actions between 2021 and 2022		
Yes	49	58
No	11	13
Does not remember	25	29

Source: Author (2023)

Content analysis led to the determination of 23 descriptive codes from which three thematic categories were created (Table 3): understanding on the part of the teachers of the concept of FNE, perception of teachers on the purpose of FNE and contribution of FNE to the education of the students. Table 4 displays the propositions of each thematic category.

Table 3. Thematic categories and respective descriptive codes regarding knowledge of concept and purpose of food and nutrition education from answers of public school teachers in the municipality of Campo Redondo, Rio Grande do Norte, Brazil, Santa Cruz, 2023.

DESCRIPTIVE CODES	CATEGORIES
Health and quality of life	Knowledge on part of teachers about concept of food and nutrition education.
Healthy eating practices	
Promotion of knowledge and education on food	
Nutritionally balance diet	
Unawareness of the topic	
Promotion of the right to food	
Strategy for adequate school meals	
Awareness of parents and family members about healthy eating	Perception of teachers regarding purpose of food and nutrition education
Education and awareness of students	
Prevention of disease and promotion of health and quality of life	
Healthy eating habits	
Promoting good nutrition and adequate human development	
Quality of school meals and assurance of right to school meals	
Important action for food and nutrition education	
Right to adequate, healthy food	Contribution of food and nutrition education to education of students
Raise awareness regarding healthy eating habits	
Promotion of health and healthy lifestyle	
Proposes sensitization and re-education with regards to healthy eating practices	
Better growth, development and academic performance	
Positive contribution to education of students and replication of knowledge for family members	
Formation of autonomous, critically thinking students	
Avoid waste of food	

Source: Author (2023).

Table 4. Propositions of thematic categories of perceptions of teachers with regards to food and nutrition education, Campo Redondo/RN 2023.

CATEGORIES	PROPOSITION
Knowledge on part of teachers about concept of food and nutrition education	Considers awareness and unawareness on the part of teachers with regards to food and nutrition education; emphasizes how FNE can contribute to better health and quality of life through a nutritionally balanced diet.
Perception of teachers regarding purpose of food and nutrition education	Reflects perceptions of teachers on the objective of food and nutrition education in the school setting; proposes awareness with regards to the eating habits of students and families to obtain a healthy life; stresses that school meals are the right of students.
Contribution of food and nutrition education to education of students	Expresses the thoughts of teachers on how food and nutrition education can contribute to the education of their students, encouraging sensitization for the adoption of a healthy lifestyle through eating practices for health promotion, which exerts an influence on the academic performance of the students.

Source: Author (2023)

KNOWLEDGE ON PART OF TEACHERS ABOUT CONCEPT OF FOOD AND NUTRITION EDUCATION

The teachers understood the concept of FNE as a means to obtain a balanced, nutritional diet, highlighting the nutrients present in foods and their nutritional value as well as the influence of a healthy diet on the adequate physiological functioning of the body.

“A diet that can provide nutrients, which are fundamental to the good functioning of the human body” (Teacher 12).

“What is of the utmost important to our health, identifying the nutritional value of the foods that we consume” (Teacher 13).

“Make an analysis of the foods that are truly necessary. Identify the nutritional value and adequate quantity of each food for each meal. Also show the harm and risks that some foods cause in our body” (Teacher 15).

PERCEPTION OF TEACHERS REGARDING PURPOSE OF FOOD AND NUTRITION EDUCATION

Some teachers stated that the purpose of FNE in the school setting would be to raise the awareness of the students for the adoption of healthy eating practices to obtain a better quality of life, replicate this knowledge to their families and provide incentive for the acceptance of school meals.

“To guide students to eat in a healthier way, choosing the inclusion of foods with nutrients” (Teacher 4).

“Raise the awareness of children, parents and guardians to acquire a healthier diet for the improvement of their health” (Teacher 10).

CONTRIBUTION OF FOOD AND NUTRITION EDUCATION TO EDUCATION OF STUDENTS

Concerning the contribution of FNE to the education of the students, the teachers mentioned the impact with respect to raising the awareness of adults to make adequate, healthy choices, diminishing the risk of diseases in the future as well as improving quality of life.

“Contributing to the holistic education of the students; when they have knowledge and understand the importance of a healthy diet, they will be able to make enlightened food choices, improving their quality of life” (Teacher 11).

“Through food and nutrition education, we can construct healthy habits, making these children enlightened adults and helping them make proper choices so that they can grow with adequate health” (Teacher 9).

DISCUSSION

Over the years, the profession of teacher has gone through a historical transformation, with the predominance of women when the position had previously been occupied only by men. Such a change is linked to changes in patriarchal relationships that have been restructuring society over the years.¹⁸ Thus, the predominance of the female sex among the participants of the present study represents these factors and reflects this majority female participation, especially in preschool and primary school education.¹⁹

With regards to the academic background of the teachers, the present findings are similar to those described in the study conducted by Magalhães and Porte,⁷ who found that most teachers had a teaching degree, with up to 17 years since obtaining the degree. This is characterized as a positive point, as the time working in the profession may exert a direct influence on practical maturity with regards to the teaching-learning process, reflecting in knowledge on particular subjects, such as the approach to the topic of food and nutrition with the students.⁷

Most of the teachers reported that FNE is related to the disciplines that they teach and reported applying the concept in the teaching plans. A recent study conducted in a city of in the state of Minas Gerais, Brazil, found that 93% of the teachers reported the existence of school projects on food and nutrition, making this setting a strategic place for discussing healthy eating practices based on nutritional and cultural knowledge.⁷ Thus, it is important for FNE to be present in the school environment – whether through classroom projects or specific actions.

The teachers reported that FNE actions are of the utmost importance to the educational process of the students, as such actions enable reflections on adequate eating practices, stimulating the adoption of a healthy lifestyle. Actions of this type must be coherent with the objectives of the National School Meal Program, which states that healthy eating habits should be formed through FNE and the offer of an adequate meal during the period in which students are at school. Therefore, the school setting is of extreme importance to health promotion and disease prevention and is one of the places in which FNE should be present in a strategic manner, as stated by the FNE Reference Mark for Public Policies.^{1,20,21}

Linking FNE with the disciplines taught, teachers of mathematics, physics, philosophy, history and Portuguese reported not seeing any relationship. Weirich and Menti²¹ also found the non-application of FNE among teachers with an academic background in languages and mathematics. The authors list possible barriers, such as insufficient knowledge on the topic, a lack of time and difficulty relating the content of these fields to food and nutrition.

Other studies have investigated the relationship between disciplines and FNE. In the study conducted by Silva and Garcia²², 92.3% of science teachers in Primary School II in the city of Petrolina, state of Pernambuco, Brazil, recognized the importance of including the topic of food and nutrition in their teaching plans, whereas teachers of mathematics and physical education addressed the topic

rather discretely and Portuguese teachers did not address the issue at all.²² Gomes and collaborators²³ surveyed Portuguese language teachers in the Araripe Semiarid region in the state of Pernambuco and found that all participants thought FNE to be important and reported a correlation between this field and the disciplines that they taught. Studies involving educators with a teaching degree found the inclusion of FNE in classroom planning and a relationship with the disciplines taught,^{21,7} which may be due to the general educational background that encompasses different fields of knowledge, as appears in the curricular guidelines of the teaching course.²²

Crossover FNE actions may be strategic for linkage with curricular components and could be the central axis of school planning, as stated by Law nº 13.666/2018.^{3,29} However, the transversality proposed in the National Curricular Parameters is not found in real-life school situations, as food and nutrition topics are nearly always addressed in the curricular components of the sciences, but absent from other disciplines.²² Thus, it is fundamental for the topic of food and human nutrition to be addressed in all disciplines. As Boog states,²⁶ teaching should not be focused only on one discipline or daily projects, as eating practices are established in day-to-day living. Therefore, a change is needed in the educational process of teachers, with the inclusion of the topic of FNE in the educational curriculum or continuing education and the assistance from the nutritionist of the National School Meal Program to promote greater confidence in subjects related to food and nutrition. It would thus be possible to overcome the barrier that emerges from the belief that the topic of food at school should only be addressed by nutritionists and the school meal staff in the school setting.²⁷

The understanding of the term and purpose of FNE on the part of the teachers was identified from answers restricted to the promotion of healthy eating habits, quality of life and with a strictly biological point of view, with no mention of social and cultural aspects related to food. In previous studies, as in the present investigation conducted in Campo Redondo, Rio Grande do Norte, Brazil, teachers recognized the importance of the topics for health promotion, but demonstrated little knowledge on the multifactorial characteristics that involve FNE, focusing on nutritional and health-related aspects.^{7,21,28}

Such perceptions are distant from what the FNE reference mark states, the principles of which are “valuation of local food culture and respect for the diversity of opinions and perspectives, considering the legitimacy of flavors of different natures” and “food and diet as references; Valuation of cooking as an emancipatory practice”, which address how dietary practices encompass diverse elements that express cultural, social, emotional and sensorial values.¹ Individuals do not merely consume nutrients, but rather foods and meals that are selected and combined in unique ways, taking into consideration characteristics such as aroma, color, temperature, texture and flavor.^{1,29}

Currently, one of the ways to acquire knowledge on food and nutrition is through content on the internet, which may be treated in an empirical manner. This practice may also be present among teachers. Thus, the lack of information on food and nutrition during higher education studies and during continuing education at the school itself may generate a lack of confidence, which may be a deterrent to the execution of FNE actions.⁵ Continuing education processes addressing the issue of food and nutrition are necessary so that teachers continue studying and enhancing their knowledge, seeking to assign new meanings to their daily practices, as the needs of the classroom are constantly changing.³⁰

With regards to the teachers’ perception of the purpose of FNE, raising awareness was pointed out as way to contribute to the formation of healthy practices by the students. This finding is similar to data described in the study conducted by Magalhães and Porte,⁷ who found that the awareness of students, parents and guardians promotes the adoption of healthy eating habits, consequently improving quality of life. Thus, the development of critical thinking throughout life and the capacity to

establish appropriate strategies for making adequate food choices are fundamental.¹ The promotion of self-care and autonomy is one of the principles of FNE. When individuals are aware of their choices, they are encouraged to make healthy food choices for self-care, which is fundamental to the change in behavior.¹

For such, the school plays a strategic role in the implementation of FNE by reaching a large portion of the population at a crucial time for the formation of individuals as subjects, including the establishment of eating habits. The existence of initiatives in this regard that involve teachers as key actors is fundamental to promoting the holistic development of individuals in order to contribute to the adoption of healthier dietary practices.⁵

The present study has some limitations related to the execution of the field work, as there was no specific funding for the study. Thus, it was not possible to reach all teachers in the municipality. Nonetheless, the results of this study serve as a basis for the implementation of interventions with the aid of municipal authorities addressing FNE for teachers of the public school system, which underscores the importance of academic research and community extension.

CONCLUSION

The school is a propitious environment for reflections on health and dietary habits. Teachers are part of this process as multipliers of knowledge. In the present study, despite recognizing the importance of FNE, the teachers understand the concept as being restricted to nutritional aspects, with occasional actions implemented at schools.

Thus, strategies are needed, such as actions of continuing education or periodic workshops that enable nutritionists to be increasingly included in the school setting to explain FNE to the school administration and teachers, expanding their gaze beyond the biological view of foods and giving them the tools to become multiplying agents of actions in this field.

It is also important for undergraduate courses to address the topic in order to prepare teachers for the execution of crossover FNE activities, relating the issues of food and nutrition to the disciplines of the school curriculum, as envisaged by the norms of the National School Meal Program.

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