

## The Importance and Challenges of School Feeding: Literature Review

Mayra Telles Souza<sup>1</sup>, Paula Raimunda Araújo Teixeira<sup>1</sup>, Jamilly Monteiro Sanches<sup>1</sup>, Salatiel da Conceição Luz Carneiro<sup>1</sup>, Samantha Cecília Vera Cruz da Cunha<sup>1</sup>, Madson Matheus Garcia Costa<sup>1</sup>, Luís Henriques Martins<sup>1</sup>, Gabrielle Silva de oliveira<sup>1</sup>, Adadely Françoise Maria Moura Ribeiro<sup>1</sup>, Kaory Brito Ohaze<sup>1</sup>, Layla Sandia Cezário Alves<sup>1</sup>, Izabella Syane Oliveira Pereira<sup>2</sup>, Luísa Margareth Carneiro da Silva<sup>3</sup>, Vânia Maria Barboza da Silva<sup>3</sup>

<sup>1</sup>Institute of Health Sciences, Faculty of Nutrition, Federal University of Para, Brazil

Email: [mayratelles99@gmail.com](mailto:mayratelles99@gmail.com) / [paula.teixeira@icb.ufpa.br](mailto:paula.teixeira@icb.ufpa.br)

<sup>2</sup>Postgraduate Program in Neuroscience and Behavior

Email: [izabella.pereira@ntpc.ufpa.br](mailto:izabella.pereira@ntpc.ufpa.br)

<sup>3</sup>CECANE/PA, Federal University of Para, Brazil

Email: [vaniabarboza@ufpa.br](mailto:vaniabarboza@ufpa.br) / [luisamargarett@gmail.com](mailto:luisamargarett@gmail.com)

Received: 10 May 2022,

Received in revised form: 02 Jun 2022,

Accepted: 07 Jun 2022,

Available online: 15 Jun 2022

©2022 The Author(s). Published by AI Publication. This is an open access article under the CC BY license (<https://creativecommons.org/licenses/by/4.0/>).

**Keywords**— School food, School health, Healthy eating, Nutritional education, School feeding.

**Abstract**— Objective: To select in the literature the importance and challenges of food for the development and potential of the individual, related to growth, promotion and health. Method: This is a literature review of the databases: SciELO and Pubmed, in which 24 articles were found with the descriptors school feeding, 134 articles with the descriptors school health and 29 articles with the descriptors healthy eating, total of 188 selected articles. Results: After applying the defined inclusion and exclusion criteria, 14 articles were added up. Thus, dealing with this issue is essential, allowing children and adolescents to have access to healthy and quality food, guaranteeing their right to food as provided for in the Statute of Children and Adolescents (ECA). As a way of analyzing the interventions and practices applied in food and nutrition education that address school feeding as an educational strategy in the perspective that the lunch provided during the period when students are in the school environment, is of quality, positively reflecting on eating habits and the permanence of these students in this environment. Conclusion: Most studies concluded that there are several schools that do not offer adequate food to their users.

### I. INTRODUCTION

Adequate and quality food is a right of every citizen, as provided for in the Food and Nutrition Security Law, and it is the responsibility and duty of the public power to adopt public and social policies that are necessary to promote and guarantee food security [1]. Food and

nutrition are foundations for the promotion of the population's health, as well as for the protection of health. And together they help in the proper human development, improving their potential and improving the quality of life.

Food is understood as a conditioning and determinant factor of health, food and nutrition actions are conducted

to play their role in a transversal way to health actions, in a complementary character and with formulation, execution and evaluation within the activities and responsibilities of the health system [2].

Aiming at this scenario and due to the changes that Brazil has been going through, such as the Food and Nutrition Transition, the National School Feeding Program (PNAE) was created, which is a federal government program that offers financial resources for school meals. and food and nutrition education actions, ensuring that students have access to adequate and quality food, through the program's tools, another essential point of the PNAE is the appreciation and potential of family farming, encouraging several families to have their own resources and guarantee food, health, quality of life and well-being [3].

Since school meals are important for the growth and health promotion of children and adolescents, thus providing greater learning, biopsychosocial development, promoting food and nutritional security, quality health, increasing school rates and ensuring that they become citizens in fact. . For this, it is necessary that the State can intervene to guarantee this food, not only in the school environment, but also in their homes.

Considering the current situation, this literature review aimed to analyze studies on the subject: school feeding and its challenges and importance to society, seeking to contribute with a critical view on the subject.

## II. METHODOLOGY

The work consists of a bibliographic research carried out in the following databases: SciELO (Scientific Electronic Library Online) and Pubmed. For the research, the following descriptors in Portuguese were used: “school food”, “school health” and “healthy food”. These descriptors are listed in the descriptors tools in Health Sciences (DeCS) of the Virtual Health Library (VHL).

Articles written in Portuguese, available online in the selected databases and published between the periods from 2017 to 2022. Were adopted as inclusion criteria, which addressed the theme of the study at the national level. Among the exclusion criteria selected are studies that are duplicated in the aforementioned databases, gray literature, incomplete works, editorials and studies that are not related to the topic addressed in this article.

## III. RESULTS

The number of articles selected according to the eligibility criteria was 14 articles. Among the articles, all belonged to the Pubmed database and the SciELO database. The works were organized in a table containing the title of the article, authors, source, and conclusion, as described in Table 1.

Table.1: Summary of articles selected for review

Title	Authors	Conclusion
Background and elements of the link between Brazil's school feeding program and family farming. [4]	Schwartzman F; Mora C,A,R; Bogus C,M; Villar B,S.	The PNAE is a reference in relation to healthy and quality food that is offered to public school students, while at the same time valuing local food production. In the early 1990s, farmers fought for part of the program's financial resources to be used for direct purchases from producers close to schools. From that moment, municipal managers began to think about actions to strengthen and encourage family farming. Initially, the difficulty was a consequence of the lack of financial resources for this articulation. It was not until the beginning of 2000 that food and nutritional security was treated as a priority, and from that moment onwards the PNAE allocated resources to family farming.
It is necessary to continue with direct purchases from local family farming through the National School Feeding Program.	Schwartzman F; Mora C,A,R; Bogus C,M; Villar B,S.	The article presents the valorization of family farming, where the PNAE is linked to the practice of direct food supply. Where the process from planting to school lunch is observed, ensuring quality food for children and adolescents to reach full development

[5]		and improvement of their school performance. These actions reinforce the benefits that healthy eating provides, especially foods with a high nutritional content, strengthening the incentive of school gardens and public policies that favor the least assisted population.
The National School Feeding Program: the world is inspired, will we be able to maintain progress? [6]	Recine, E.	The analysis of the article showed that it is necessary to review the values provided by the PNAE, since the resources offered are not enough to supply and maintain the purchases of family farming. As examples of improvements, it is suggested the support and strengthening of the sustainable local production process, a priority for the most vulnerable groups, structuring of administrative processes compatible with the purchase of family farming, in addition to enabling food and nutrition education actions. Finally, the program remains an example to be followed, and that its actions need to be maintained and expanded.
Evaluation of the National School Feeding Program: literature review. [7]	Nadinne D,F; Melo L,S; Silva F,A.	The review highlighted the challenges that Nutritionists and School Feeding Councils face in purchasing food from family farming and in the composition of menus. However, it is essential that within this food planning, foods such as fruits and vegetables are valued, due to their high nutritional value. In view of this, greater attention to the execution of the PNAE is necessary to guarantee school meals within principles that promote food and nutritional security. New studies were suggested to evaluate the program, being fundamental to provide subsidies to public managers in order to improve its execution.
School meals and the constitution of schoolchildren's identities: from meals for the poor to the right to food. [8]	Silva E,O; S Santos L,A; Soares M,D.	Initially, the study discusses the persistence of discourses and practices of a welfarist nature that reduced school feeding to a welfarist act, targeting the poor. The meanings of this welfare character are contrary to the understanding that it seems to work as a tool to minimize poverty and inferiority.  It is understood that it is at school that students build their identities and autonomy and it is essential that food is present at that moment, providing these children and adolescents with resources and school performance, making them agents of their own identity processes. However, in relation to school meals, there are processes of acceptance, as well as processes of resistance and active construction of food identity. Even if there is divergence in this scenario, it is understood that they are inherent to the process of reflection between thinking and making school meals. All this leads to problematization for the reduction of social inequalities and promotion of the right to healthy food.

National School Feeding Program as a promoter of Local, Healthy and Sustainable Food Systems: an assessment of financial execution. [9]	Soares P; Martinelli S,S; Fabri R,K; Veiros M,B; Blanes M,C,D; Cavalli S,B.	The present study carried out a quantitative research on the rates of chronic diseases in children and adolescents, highlighting that many cases of obesity and malnutrition were found in students enrolled in public schools. These data reflect the current situation in Brazil, in which many families do not have access to healthy food, especially foods with a high nutritional content. This is not optional, but it shows the economic reality of families.
Good Practices in School Food and Nutrition Units in a city in the state of Rio de Janeiro – Brazil. [10]	Soares D,S,B; Henriques P; Ferreira D,M; Dias P,C; Pereira S; Barbosa R,M,S.	The study concluded that all School Food and Nutrition Units (UANE) were partially adequate. In general, the spaces are suitable for food preparation, as well as handling, hygiene of the place and equipment and temperature control. A regular health risk index was also found, indicating the need to carry out measures for Good Practices in UANE, aiming at offering safe meals to the school public.
Purchase of food from family farming by the National School Feeding Program (PNAE): cross-sectional study with the universe of Brazilian municipalities. [11]	Machado P,M,O; Schmitz B,A,S; Chica D,A,G; Corso A,C,T; Vasconcelos F,A,G; Gabriel C,G.	It was concluded through the study that in some capitals of Brazil, the resources made available and offered by the PNAE do not reach the family farm, and this food deficit is passed on to the school environment. It is important to encourage the need for supervisory bodies in the acquisition of food and in the rendering of accounts for funds and costs destined for family farming.
Food and nutrition education actions and nutritionists within the scope of the National School Feeding Program. [12]	Silva S,U; Monego E,T; Sousa L,M.	The article discusses Food and Nutrition Education (EAN) in the school environment and emphasizes the need for EAN to be part of the students' curriculum, as well as the importance of having a nutritionist at school, guaranteeing the quality and appreciation of food, guiding the food storage and preparation.
Interactions between food practices and identities: resignifying the public school and school food. [13]	Silva E,O; Santos L,A; Soares M,D.	The discussion in this article has shown that it is possible to develop food reeducation, so that this reflection occurs in a positive way within school environments, leading to awareness of healthy eating habits, which can occur gradually and through resources, such as community gardens, orientation and awareness, tree plantations and other actions.
School meals and family farming: analysis of resources used to buy food. [14]	Araujo L,R,S; Brito A,N,M; Rodrigues M,T,P; Mascarenhas M,D,M; Araujo R,S,R,M.	The authors carried out a study on the financial costs for family farming and concluded that a small portion invested adequately in the purchase of these foods. He highlighted the importance of inspection of the agents responsible for the purchase of food. Only the capitals of the North and Northeast of Brazil had the resources correctly.
National School Feeding Program: a healthy public policy. [15]	Kroth D,C; Geremia D,S; Mussio B,S.	It was observed that the PNAE contributes to health promotion and can be understood as a healthy public policy. The PNAE, by articulating actions from different sectors, makes public policy more effective

		and more efficient, as it generates positive results beyond health, maximizing returns for society. In this way, mechanisms are proposed for the improvement and strengthening of the PNAE, aiming to complement and reinforce actions carried out in the SUS.
Adherence to school meals and associated factors in adolescents from public schools in southern Brazil. [16]	Cesar J,T; Taconeli C,A; Osório M,M; Schmidt S,T.	The article showed a low rate of adherence to school meals, demonstrating that the universality of care is not being achieved. The mentioned factors can help to improve the execution of the program.
Adherence to school meals by Brazilian adolescents: individual and school context determinants. [17]	Vale D; Lyra C,O; Santos T,T; Souza C,V,S; Roncalli A,G.	The study results reinforce the need to contextualize and consciously address food and consumption in the school environment, especially by adolescents. The article carried out a mapping of families and students, in order to identify food acceptance and consumption. Information about the region and culture of the families was collected, as well as the quality of the meals made by them. A portion of the interviewees did not consume school lunches, because they did not like what was being offered, due to the quality and preferences. This study aims to provide opportunities for school agents and professionals about the quality and tastes of students.

Source: Authors, 2022

#### IV. DISCUSSION

The implementation of the PNAE has given rise to several agendas since the 1940s in underdeveloped countries, with the objective of implementing a program that would serve the least assisted population. However, several similar programs were planned to meet the demand of students in the school environment, but due to lack of federal funds, none of them had positive results. Currently, the program is necessary and essential, aiming at the autonomy and potential of students enrolled in public schools and stimulating the appreciation of family farming [12]. It fits within a new intersectoral and comprehensive vision of school feeding policy that is being adopted in Brazil and in other countries.

However, the challenges faced by the program and its link with Family Farming are notorious, reflected in the lack of logistics, difficulties in calculating prices and identifying and registering farmers, technical assistance to farmers, sanitary adequacy, training of nutritionists to work in the PNAE and lack of management by farmers.

And Schwartzman et al. [4] in yet another study on the subject, demonstrates the importance of strategies that link family farming to government purchases,

especially to a school feeding program such as the PNAE. The appreciation and importance of the incentive that the program offers to farmers is notorious, strengthening human rights and the quality of school meals.

The program has been undergoing several positive changes and covering even more municipalities and schools in terms of the quality of these foods, so it is essential to provide the social actors in this program with the human and financial resources necessary to continue to progress and ensure that there are no setbacks [9].

However, it is still alarming the number of families and individuals who are in a situation of vulnerability and social risk, and who use foods of low nutritional value or foods that harm their health, such as: artificial juices, soft drinks, compound foods, canned foods. and others. And adding to this scenario, we also have the considerable impacts of the Covid-19 pandemic in relation to the purchase of food through family farming, as well as a decrease in production due to social isolation. Such factors significantly corroborate the decrease in the purchase of food by the PNAE.

However, the research results did not show statistical significance, and municipalities with a higher school population had a higher frequency of non-



performance of EAN actions, which may be related to the fact that most of the investigated municipalities had an insufficient number of Nutritionists in the Technical Staff of the PNAE, also implying in the reduction of EAN actions in schools.

## V. CONCLUSION

From the presentation of the data of this review, it was possible to perceive that the number of publications on the subject is reduced. However, the limitations of the research to obtain the data, the inclusion and exclusion criteria and the limited use of research platforms were considered.

However, it was noticeable the importance of school meals as a strategy for changing eating habits, as well as encouraging family farming, discussed as the theme of the articles, thus reinforcing the studies on the PNAE. These researches are crucial for the understanding of the food acquisition process.

In this way, it is concluded that it will always be a great challenge to implement and execute the guidelines of the National School Feeding Program (PNAE), especially in pandemic periods. Likewise, how to reinforce the importance of preventive studies that evaluate the mode of action during periods of crisis, in order to guarantee the right to food for citizens.

## REFERENCES

- [1] BRASIL. Lei nº 11.346, de 15 de setembro de 2006. Cria o Sistema Nacional de Segurança Alimentar e Nutricional - SISAN - com vistas a assegurar o direito humano à alimentação adequada e dá outras providências. Diário Oficial da União 2006; 18 de setembro de 2006.
- [2] BRASIL. Lei 8.080, de 19 de setembro de 1990. Dispõe sobre as condições para a promoção, proteção e recuperação da saúde, a organização e o funcionamento dos serviços correspondentes e dá outras providências. Diário oficial da União 1990; 20 de setembro de 1990.
- [3] <https://www.fnnde.gov.br/programas/pnae>. Acesso em 20 de janeiro de 2022
- [4] Schwartzman F; Mora C,A,R; Bogus C,M; Villar B,S. Antecedentes e elementos da vinculação do programa de alimentação escolar do Brasil com a agricultura familiar. *Ciência & Saúde Coletiva* 2018. Disponível em: <https://www.scielo.br/j/csp/a/VZjhckwkwQDmmyqs7dp3kS/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [5] Schwartzman F; Mora C,A,R; Bogus C,M; Villar B,S. É preciso seguir com as compras diretas da agricultura familiar local pelo Programa Nacional de Alimentação Escolar. *Ciência & Saúde Coletiva* 2018. Disponível em: <https://www.scielo.br/j/csp/a/Jt696JcPsYkJfSxkY9Qt8mf/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [6] Recine, E. O Programa Nacional de Alimentação Escolar: o mundo se inspira, seremos capazes de manter os avanços?. *Ciência & Saúde Coletiva* 2018. Disponível em: <https://www.scielo.br/j/csp/a/7kV6ntfgqdbfpm38Z8pbkFN/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [7] Nadinne D,F; Melo L,S; Silva F,A. Avaliação do Programa Nacional de Alimentação Escolar: revisão da literatura. *Ciência & Saúde Coletiva* 2018. Disponível em: <https://www.scielo.br/j/csc/a/9SC5X6kS4Y8QCxH4gnzvPfB/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [8] Silva E,O; Santos L,A; Soares M,D. Interações entre práticas alimentares e identidades: ressignificando a escola pública e a alimentação escolar. *Ciência & Saúde Coletiva* 2019. Disponível em: <https://www.scielo.br/j/csp/a/bYfLMDdbfmrP6CyxcQsSdc/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [9] Soares P; Martinelli S,S; Fabri R,K; Veiros M,B; Blanes M,C,D; Cavalli S,B. Programa Nacional de Alimentação Escolar como promotor de Sistemas Alimentares Locais, Saudáveis e Sustentáveis: uma avaliação da execução financeira. *Ciência & Saúde Coletiva* 2018. Disponível em: <https://www.scielo.br/j/csc/a/SgQGHVyk9gFLCyjbcxcBtH/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [10] Soares D,S,B; Henriques P; Ferreira D,M; Dias P,C; Pereira S; Barbosa R,M,S. Boas Práticas em Unidades de Alimentação e Nutrição Escolares de um município do estado do Rio de Janeiro – Brasil. *Ciência & Saúde Coletiva* 2018. Disponível em: <https://www.scielo.br/j/csc/a/mHcCsBVCbXXqMnnsb39tLTJ/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [11] Machado P,M,O; Schmitz B,A,S; Chica D,A,G; Corso A,C,T; Vasconcelos F,A,G; Gabriel C,G. Compra de alimentos da agricultura familiar pelo Programa Nacional de Alimentação Escolar (PNAE): estudo transversal com o universo de municípios brasileiros. *Ciência & Saúde Coletiva* 2018. Disponível em: <https://www.scielo.br/j/csc/a/QdL4Yswv459pkKsWdvMBqt/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [12] Silva S,U; Monego E,T; Sousa L,M. As ações de educação alimentar e nutricional e o nutricionista no âmbito do Programa Nacional de Alimentação Escolar. *Ciência & Saúde Coletiva* 2018. Disponível em: <https://www.scielo.br/j/csc/a/K5cbPVhd3tn4gPwQqMYg5kM/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [13] Silva E,O; Santos L,A; Soares M,D. Alimentação escolar e constituição de identidades dos escolares: da merenda para pobres ao direito à alimentação. *Ciência & Saúde Coletiva* 2018. Disponível em: <https://www.scielo.br/j/csp/a/gdwmZwGHLwkPhX6wKBXk44B/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [14] Araujo L,R,S; Brito A,N,M; Rodrigues M,T,P; Mascarenhas M,D,M; Araujo R,S,R,M. Alimentação escolar e agricultura familiar: análise de recursos empregados na compra de alimentos. *Ciência & Saúde Coletiva* 2019. Disponível em: <https://www.scielo.br/j/csp/a/G9bppxXSRCZRPBLWnJCMXKk/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [15] Kroth D,C; Jeremia D,S; Mussio B,S. Programa Nacional de Alimentação Escolar: uma política pública saudável.

- Ciência & Saúde Coletiva 2020. Disponível em: <https://www.scielo.br/j/csc/a/7VCwpwHHvPb8KxQYdqBb35M/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [16] Cesar J,T; Taconeli C,A; Osório M,M; Schmidt S,T. Adesão à alimentação escolar e fatores associados em adolescentes de escolas públicas na região Sul do Brasil. *Ciência & Saúde Coletiva* 2020. Disponível em: <https://www.scielo.br/j/csc/a/GFrplNNGCd54NqGDTM4GwDB/?lang=pt> Acesso em: 13 de janeiro de 2022.
- [17] Vale D; Lyra C,O; Santos T,T; Souza C,V,S; Roncalli A,G. Adesão à alimentação escolar por adolescentes brasileiros: determinantes individuais e do contexto escolar. *Ciência & Saúde Coletiva* 2021. Disponível em: <https://www.scielo.br/j/csc/a/4wdxLvpcx4dpXKVvfv9Ly3G/?lang=pt> Acesso em: 13 de janeiro de 2022.