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Characteristics of school feeding in Brazil and Portugal

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Abstract

School feeding programs in developed and developing countries were created to provide meals during the time the child is at school. Brazil and Portugal have programs to promote healthy eating to improve health and learning of children and other students. This study has aimed to emphasize the main features of the programs implemented in both countries, due to their great social importance, providing suggestions based on their differences and weaknesses. The National School Feeding Program exists in Brazil since 1955. All public schools must offer school meals to students of basic education and must meet between 20% and 70% of the daily nutritional needs. Menus must be planned by a nutritionist, respecting local habits and food traditions. The amount of transfer to fund these programs is made by the federal government to municipalities. Portugal has the generalization of School Meals Program, since 2005, directed to students of the 1st cycle of basic education. It promotes widespread access of students to a balanced meal, which should provide 30-35% of energy intake. School Feeding Programs in Brazil and Portugal have great importance in meeting nutritional needs and food and nutrition education of students.

Key words: Nutrition Programs. School Meals. Brazil. Portugal.

Introduction

Adequate food is a human right included in the Universal Declaration of Human Rights since 1948 and its definition has been expanded in other provisions of international law, as in the International Covenant on Economic, Social and Cultural Rights and in the UN General Comment. As a result of a broad process of social mobilization in Brazil, already in 2010 Constitutional Amendment No. 64 was passed, including feeding in Article 6 of the Constitution.[1]

Interest in school feeding has started after the 2nd World War by means of the United Nations, Educational, Scientific and Cultural Organization (UNESCO) at the 14th Conference on Public Education and the International Bureau of Education in Geneva in 1951 to ensure full physical and intellectual development, after warning that children could have their academic performance limited by insufficient feeding.[2]

Initially, school feeding programs had a paternalistic character, articulated by the Catholic Church and volunteer groups. Gradually they were undertaken by the Brazilian government as a Human Right to Adequate Food (DHAA – *Direito Humano à Alimentação Adequada*). The DHAA is related to mobilization and organization of various sectors such as: encouraging family farming,[1] as an aid to sustainable food growth development in rural and urban areas;[3] promoting sustainable practices in food supply; health surveillance and basic sanitation; school feeding and equity of peoples, among others.[2] However, in Brazil at that time, the major concern was with the prevalence of malnutrition among children, a fact that has changed and contextualizes the nutritional transition, a situation in which the nutritional status of malnutrition has been gradually replaced by an increased incidence of overweight and obese children, a situation that is currently seen.[4]

The current public policies for school feeding are present in developed and developing countries, enabling food supply during the time in which the student remains in school. Countries like Brazil and Portugal have school feeding programs with multiple dimensions that participate in the formation of the individual. These programs include food, nutrition and health aspects implemented in order to contribute to the well-being, whilst benefiting concentration and learning.[5-7]

Schools have an important role in individuals' comprehensive formation, including health education, due to their social role and the possibility of developing a systematic and continuous work with students,[5-9] because they are the second environment for children's socialization[9-11] and the place where the majority of children and youth populations are.[12, 13] Public health policies

consider schools as the ideal place to promote the benefits of adopting healthy lifestyle habits in order to prepare the student to conscious choices and to exercise citizenship.[14, 15]

Going to school provides the child with situations of independence and autonomy in decision-making related to life practices and behaviors, but this reality requires attention because the dietary pattern adopted by students is not always considered healthy, as evidenced by the low consumption of potherbs and a sedentary lifestyle.[16, 17] These health risk behaviors are increasingly present in contemporary society and associated with the development of chronic noncommunicable diseases (NCDs) in adulthood.[17]

Nutritional requirements for school-age children must be met in all parameters to ensure proper growth and development conducive to health.[18] Micronutrient deficiency at this stage of life requires attention from public health care in Brazil, as in Portugal, for enforcement actions related to food and nutrition security, risk control for chronic noncommunicable diseases, prevention of nutritional deficiencies and promotion of food education initiatives in schools.[19]

In this context, the aim of this review study was to show the characteristics of programs in Brazil and Portugal and identify possibilities for progress that could benefit students. Knowledge and critical analysis of historical experiences in both countries could contribute to improving the existing public policies in order to guarantee the citizens' rights.

Methods

The research was conducted to search for government articles and documents published from December 1984 to September 2015 in electronic databases *Scientific Electronic Library* Online Brasil (*SciELO*), Biblioteca Virtual em Saúde (BVS, Virtual Health Library, Ministry of Health, Brazil), Sistema de Legislação em Saúde (Legislation System in Health, Ministry of Health, Brazil) and Legislação em Vigilância Sanitária [Legislation in Health Surveillance; Agência Nacional de Vigilância Sanitária – ANVISA (National Health Surveillance Agency), Brazil], Brazil and Portugal Google Scholar, which had approaches to nutrition public actions and policies related to school meals (SM) in Brazil and in Portugal. Keywords that were used: "Nutrition," "students," "school," "programs" in Portuguese and their respective translations into English. By reading the documents found, those containing the information that met the objectives of this research were selected.

Origin, evolution, and conceptual frameworks of proposals of School Feeding Programs in Brazil and Portugal

Brazil

Brazil, from the 1930s, has been promoting the offer of snacks and soups in schools, funded by the (executing financial unit) School Fund. Meals could be made available to all or only to needy students, which would depend on individual criteria at each school community. This initial SM model would pursue a course of welfare policy.[20, 21]

The historical evolution of the program creation to the current design has had the following path: the Brazilian National School Feeding Program (*Programa Nacional de Alimentação Escolar* – PNAE), officially established in 1955, is a National Government Policy that includes, at present, the Food and Nutrition Security Program (*Programa de Segurança Alimentar e Nutricional*), according to the recommendations of the Brazilian National Food and Nutrition Policy (*Política Nacional de Alimentação e Nutrição* – PNAN), and associated to health education.[21]

The old mode of PNAE would centralize resources and provide meals that would meet the minimum nutritional value of 15% of total daily energy value. It used to be supported by the National Program for Food and Nutrition (*Programa Nacional de Alimentação e Nutrição* – PRONAN-I), which would define Brazilian SM as a food supplement.[21]

It was estimated that two-thirds of daily food came from lunch and dinner and the remaining one-third was divided between breakfast and snacks. The assumption was that the entire Brazilian population could have the first three meals at home and only 15% would need to be provided by the State. Another justification for this percentage of nutritional contribution would be that dividing 100% of needs by 24 hours of the day would correspond to the time when the child was at school, which would be four hours. Thus, they should receive one-sixth of the daily nutritional requirements.[21]

However, the fact that the Brazilian Federal Government centralized resources meant for PNAE frustrated class entities due to inefficient management, which would promote high financial costs and poor quality control of food. Students' eating habits were not considered and there was waste of food, also by deterioration of the products.[22]

The program began to be decentralized with the transfer of Brazilian government resources to states and municipalities from 1994 by means of agreements with municipalities and the involvement of the Departments of Education of the states and the Federal District, to which power was delegated to serve the students of the federal and municipal education networks of the municipalities that had not acceded to the decentralization.[1, 23]

The Ministry of Health and the Ministry of Education have established, by Administrative Regulation MS/MEC No. 1010/06, the guidelines for the Promotion of Healthy Feeding in kindergarten, elementary and high level schools of public and private networks, nationwide. They have considered that schools are a privileged space for health promotion and have formed the Intersectoral Chamber, which has the responsibility of drawing up guidelines to support the National Policy on Health Education in Schools.[24]

Administrative Regulation MS/MEC no. 1010/06 has promoted the suggestion of practices to favor healthy eating in schools by food and nutrition education; stimulating the production of school vegetable gardens; implementing good handling practices in school food services; restricting trade in the school environment of preparations with high saturated fat, trans fats, sugar and salt; encouraging the consumption of fruits and vegetables; and monitoring the students' nutritional status. However, to encourage the promotion of school health, the entire community of these institutions should be involved with training programs that are going to encourage such practices.[24]

The Brazilian School Health Program, an intersectoral policy of Health and Education, was established in 2007. Its operating base is the coordination, in the same territory, between schools and the primary health care network, enabling the combination of procedures by Health and Education public bodies to combine integrated actions by both ministries in order to benefit the students' comprehensive health care in the Brazilian public basic education (kindergarten, elementary and secondary education, vocational and technological education and adult education), at school and/or basic health units of the Brazilian Unified Health System (SUS), carried out by Family Health teams.[25]

Brazilian National Fund for Education Development (FNDE – *Fundo Nacional de Desenvolvimento da Educação*) is responsible for collecting and distributing funds to various Elementary Education programs. The administration of these programs expands and promotes education for millions of Brazilian children.[1]

Portugal

Policies for the provision of meals to students in Portugal began with School Associations, which until 1936 provided free meals to economically disadvantaged students. This responsibility was later transferred to the Portuguese Youth and Mothers' Work for National Education.[26]

The Portuguese Student Welfare Institute (IASE) takes on this responsibility in 1971, supported by the current of the new educational policy. Adjustments were necessary in order to prioritize the right to school feeding, specially in terms of health care, by meeting the school population's nutritional needs at that time.[26]

The Rational Food Program in 1975 introduced the distribution of food supplement, but it was replaced in 1977 by the School Milk Program, which promoted the daily distribution of milk in schools. From 1992, food started having a central role in promoting children's physical well-being and intellectual development, prioritizing attention to healthy eating by including these two programs.[26]

IASE was abolished in 1993 and the responsibility for providing school meals for the 1st Elementary Education Cycle shifted from the Ministry of Education to the municipalities. Students from other cycles were under the administration of the Regional Education Boards (DREs – *Direções Regionais de Educação*). As a complementary strategy to promote good eating habits at the end of 2009, involving the Portuguese Ministry of Agriculture, Rural Development and Fisheries, Health and Education, the School Fruit Scheme was started, funded by the European Union.[25]

The children would receive in the classroom, free of charge and through the School Fruit Scheme, one serving of fruit or vegetables (apple, pear, tangerine, orange, banana, cherry, grape, plum, peach, carrot, tomato) twice a week[6, 25, 26]. This policy is currently in force in order to strengthen healthy eating practices and empower children and families to adopt skills that lead to higher consumption of fruits, as well as promote local economic sustainability due to purchasing fruit and vegetables from producers in the region, such as in Brazil, with the suggestion that SM food be purchased from family agriculture.[25]

Initial policies related to school feeding in Portugal were considered an important tool in the orientation to the current organization of the country's food system. In this context, the creation of EFSA or *European Food Safety Authority* in 2002 stands out with the purpose of regulating the quality of food in the European internal market, which contributed to promoting healthy habits in the school environment with the ban on trading alcoholic beverages near schools.[27]

A set of skills was transferred to the EFSA, which has partnered with the Veterinary General Directorate (VGD) to ensure compliance with European standards of hygiene and food safety in 2006. The Madeira Island created in 2001 the Healthy Schools Snack Bars Menus Network, which Continental Portugal joined just from 2006, when the Ministry of Health established the National School Health Program which, together with the school community, would be directed to promoting health, encouraging the children to healthier food choices.[27]

The Portuguese government, through the Ministry of Education, introduced the Generalization Program of School Meals (PGRE – *Generalização das Refeições Escolares*) only in 2005, designed for students of the 1st Elementary Education Cycle, who would remain in school full time.[27]

Objectives and Recipients of School Feeding Programs in Brazil and Portugal

PNAE, a Brazilian public policy initiative, aims to contribute to the students' biopsychosocial development, learning, school performance and formation of healthy eating habits by means of food and nutritional education activities, offering meals that meet the nutritional needs during the school year. It is intended for students enrolled in the educational institutions of the federal, state and municipal levels of public networks, including schools in indigenous peoples' areas and quilombo remnants.

School Feeding Public Policy in Brazil complies with the School Census conducted by the Brazilian agency Anísio Teixeira National Institute of Educational Studies and Research (INEP – *Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira*) with the collection of data that constitute a complete source of information used by the Brazilian Ministry of Education (MEC) for the formulation of policies and the design and planning of programs. PNAE's role is primarily to keep children fed while at school.[14, 28, 29] The Brazilian school meal program is recognized by the United Nations Children's Found (UNICEF) as the world's largest feeding project.[25]

The Generalization Program of School Meals implemented in Portugal, has the central aim of promoting universal access of students of the 1st Elementary Education Cycle to a balanced meal. It promotes measures to combat social exclusion in order to contribute to food safety for the poorest students and the adequacy of children's eating habits.[27] Students of the 1st Cycle receive lunch at school.[30]

It is important to emphasize, however, that the concept of school feeding related to poor students can cause these students to depart, stigmatized by poverty. Meals should be associated with tasty and healthy food and a right for the students who remain at school.[31]

Composition of school meals

Brazil

According to the PNAE, the meals menus distributed in Brazilian public schools should be prepared by a nutritionist, respecting the eating habits, culture and food traditions of the region. Students enrolled part-time at schools, corresponding to 4 to 5 hours daily, should receive 20% of the daily requirements for a meal or 30% when two or more meals are offered.[14]

The students who remain at school full-time for seven hours or more, receive at least 70% of the daily nutritional needs. In both cases are included those enrolled in schools located in indigenous peoples' communities or quilombo areas. The use of at least 30% of family farming products and local organic farming is suggested to encourage regional trade and sustainability.[14]

Some studies have shown that including students at SM has a focused character, being higher among the younger ones, with lower family income per capita and worst nutritional status.[32, 33] These factors, which reduce meal acceptance by students, may be associated with the inadequacy of the food menus to the students' preferences.[32, 34] Cruz et al. [35] have found good SM acceptance in nine public schools in Brazilian city Itabaiana, SE, but the children's preference was to snack-type preparations at the expense of "the pot meal."[35]

FNDE recommends offering school meals of at least three servings of fruit and vegetables per week (200g/student/week) and that the distribution be 55-75% carbohydrate, 30% lipids and 25-35% protein. Restriction of some nutrients whose excessive intake is associated with a tendency for the development of chronic diseases in adulthood is suggested.[36] The characteristics of school menus in Brazil and Portugal, according to the indications of PNAE and PGRE, respectively, are described in Chart 1.

Chart 1. PNAE and PGRE recommendations for school menus. Brazil and Portugal, 2015.

Characteristics of the programs	PNAE		PGRE
Ages	6-10 years	11-15 years	6-10 years
Total Energy Value (TEV)	450 kcal	650 kcal	30-35% of the TEV for the age
Carbohydrate	73.1 g (55-75%) Added sugar up to 10% of the TEV	105.6 g (55-75%) Added sugar up to 10% of the TEV	Added sugar up to 35% of the TEV
Protein (g)	14 (25-35%)	20.3 (25-35%)	–
Lipid	11.3 g (30%)	16.3 (30%)	30-35% of the TEV or 7 g/meal
Saturated fat	Up to 10% of the TEV for the age		Ingestion less than 250 kcal; up to 10% of the TEV for the age; up to 2 g/meal
Trans fat	1% of the TEV VET for the age		–
Sodium	Up to 500 mg % (1.25 g of salt) in processed foods; 1 g of salt (400 mg of sodium)/meal		Up to 360 mg/meal (0.9 g of salt/meal)
Fiber (g)	8	9	–
Vitamin A (μg)	150	210	–
Vitamin C (mg)	11	18	–
Calcium (mg)	315	390	–
Iron (mg)	2.7	3.2	–
Magnesium (mg)	56	9	–
Zinc (mg)	2	2.7	–
School menus	Menus prepared by a nutritionist in charge		Entrée: soup (with potherbs, potatoes, vegetables or legumes); a protein dish: meat or fish on alternate days; only drink allowed: water; dessert: seasonal fruit; side dish: including raw or cooked potherbs (3 types); bread
Foods allowed	Varied food, safe, respecting the local culture and prioritizing healthy eating habits, and at least 30% coming from family farming		Milk: semi-skimmed/skimmed; plain or flavored; enriched with fresh or frozen fruit; beverages containing at least 50% fruit or vegetable juices. All preparations without the addition of sugar.
Controlled food	Canned goods, cured dry food, sweets, prepackaged preparations, concentrated or reconstituted powder.		Up to once a week: sweet, jelly, yogurt, milk ice-cream
Restricted foods			Individual packages: low-fat plain crackers with low sugar contents; low-fat plain cookies with low sugar contents; milk or fruit ice-cream; chocolate with plenty of cocoa, with no filling (50 g)
Forbidden foods	Beverages with low nutritional value, soda and artificial refreshments		Fried foods and pizza, puff pastry, hamburger, hot dog

PNAE – *Programa Nacional de Alimentação Escolar* (Brazilian National School Feeding Program)

PGRE – *Programa de Generalização das Refeições Escolares* (Brazilian Program of Generalization of School Meals)

Portugal

School lunches should provide approximately 30-35% of total daily energy intake to achieve the recommendations for macro and micronutrients and preparations are determined on the menu, such as the daily offer of soup as an entrée and water as the only drink allowed.[13, 27, 37]

Barbosa et al.[38] have described in their study that in Portugal most of the municipalities do not have a nutritionist in charge of school meals services. Paiva et al.[39] have demonstrated in their research that there is an offer of low-calorie school lunches with excess salt in eight schools of the 1st Elementary Education Cycle located in the metropolitan area of Portuguese city Porto.[39]

Martins[30] has addressed the topic of waste of school lunches in the 4th year in educational institutions in Porto and noted the nutritional inadequacy of the lunch provided, which is compounded with the high volume of preparations waste such as soup and potherbs.[30] An educational activity related to school meals, performed by a nutritionist, could foster the adequacy of school meals and acceptance by students, as suggested by Barbosa et al.[38]

Monitoring and supervising Food Programs in Schools

Brazil

Supervision of SM in Brazil is carried out by the Municipal Department of Education, the Executing Agency, the School Feeding Council (CAE), and other institutions designated by FNDE.[5] It takes place from the reports submitted by the Executing Agency in a Management Annual Report, in which shall be indicated if nutritional assessment diagnoses have been carried out or if students were weighed, measured and evaluated by a nutritionist and have underwent medical examinations and others.

CAE is an autonomous body, deliberative and participant of PNAE, which assesses management adopted by the city/state with the role of: analyzing the submission of accounts and other financial documents; participating in quality control stages of school meals; receiving the PNAE annual management report and informing the Brazilian Public Prosecutor's Office, the Court of Auditors in charge and FNDE of any irregularity noted in the program. Studies by Mello et al.[40] and Gabriel et al.[41] have indicated that there are inadequacies in the programs planning and management, with reduced efficacy in the students' nutritional assessment activities and educational actions.[41]

The financial value to be transferred to public educational institutions should be planned before the start of the financial year and presented to CAE for suggestions about necessary adjustments. The cost of meals in schools is: day care centers, BRL 1.00 (one real); preschool, BRL 0.50 (fifty cents); indigenous people and quilombo schools, BRL 0.60 (sixty cents); primary, secondary and

youth and adult education, BRL 0.30 (thirty cents); full-time education, BRL 1.00 (one real); students of the Brazilian More Education Program, BRL 0.90 (ninety cents); and students attending the Specialized Educational Service in extra classes, BRL 0.50 (fifty cents).[5]

Portugal

The responsibility for school meals in preschool and 1st Elementary Education Cycle was transferred from IASE to the municipalities, pursuant to Ruling No. 399-A/84 of December 28.[42] Thus, the responsibility for ensuring the school cafeterias management is assigned to the municipality, integrating the provision of collective food.[43] Barbosa et al.[38] have identified in their study that in most municipalities the department responsible for school meals services was the one related to education. Much of the school meals services is in concession to private catering companies.[38]

Funding the school meals has a co-participation (€ 0.58) of the Ministry of Education and municipalities to the total value of the meal (maximum, € 2.5). The students, supported by welfare, may be exempt from payment of meals or pay a minimum amount (€ 0.65), according to their degree of financial need.[27, 44] The complete meal value is 1.46 euros.[30, 44]

Critical analysis: Similarities/differences, strengths/weaknesses, suggestions for improvement

Both School Meals Programs have similar goals. Brazil's PNAE aims to contribute to the students' biopsychosocial development, learning, school performance and the formation of healthy eating habits, and carries out an assessment of the students' nutritional status in order to evaluate the program effect. As for Portugal's PGRE, its central purpose is the promotion of a widespread access for students of the 1st Elementary Education Cycle (being or not financially needy) to a balanced meal and provides measures to combat social exclusion in order to promote the students' welfare. Therefore, both programs aim to contribute to food safety and promote food education.[24, 27]

PGRE adds other specific programs, considered as isolated initiatives, because they are not yet part of a national policy,[45] which emphasizes a big difference between the programs of the two countries since the PNAE is coordinated to a national policy. Thus, PGRE, to complement school lunches, breakfast or the first meal offered to low-income students in the school itself, coexists with the National Program for Food Reinforcement. There is the School Fruit Scheme, here mentioned, which is the complementary offer of fruit, besides the one offered at lunch, in order to encourage the consumption of fruit and potherbs.[2, 27] The School Milk Program promotes the distribution of a daily serving of milk for children aged three to nine who are from preschool to the 1st Elementary Education Cycle.[27]

The SM in Brazil is offered free of charge to the student, according to the principles of universality of the right to free and equitable school meals, comprising the constitutional right to school feeding, with an equitably access to food[24], while in Portugal the payment of the meal by the student may or may not take place, depending on socioeconomic conditions.[27]

PNAE, through FNDE, defines the macro and micronutrients of school meals, but unlike what happens in Portugal, it does not establish the preparations that should make up lunches, perhaps because the menus are necessarily planned by a nutritionist, [24, 27] assuming that they must meet nutritional principles of quantity, quality, harmony and adequacy. However, the name of the preparation could be a booster for the provision of proper meals to students, since it is not always that there is a supervising nutritionist at schools, and it would facilitate the cooks' works when unexpected situations would take place in the delivery of food planned for a certain meal.[20]

PNAE must overcome some limitations to improve the balanced food supply, such as ensuring the presence of a nutritionist in the school community and not only in the centralized operation of planning for several school units, as required by Resolution CD/FNDE no. 26 of June 17, 2013, in compliance with the guidelines provided by Act no. 11947/2009, which establishes that the nutritionist should participate in the program, from the acquisition of food to the distribution of the meals to the students, according to what determines the Federal Council of Nutritionists of Brazil.[14] Portugal PGRE has few nutritionists to oversee the provision of school meals by local authorities, according to a study published by the Portuguese Association of Nutritionists in 2009.[38] It is suggested that there be greater participation of these professionals, recognized as the technicians responsible for activities related to collective feeding, among others, for which they are known to be skilled.

Conclusion

The School Feeding Programs in Brazil and Portugal have great importance in meeting nutritional needs and, indirectly, for the students' food and nutrition education. They can contribute to the students' awareness for food choices since childhood, favoring the improvement of quality of life and reducing comorbidities related to chronic noncommunicable diseases, which reduces the quality of life and burdens health systems in both countries.

Thus, everyone involved in planning and producing school meals should efficiently participate in order to comply with determinations existing in the legislation governing them in order to guarantee the students' right to balanced and safe meals for an adequate nutritional status, with improved learning ability and enhanced cognitive system development for the students.

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