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# School feeding programs' role in forming eating habits

*O papel da alimentação escolar na formação dos hábitos alimentares*

*El rol de la alimentación escolar en la formación de los hábitos alimentares*

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## ABSTRACT

**Objective:** To identify teaching managers' perceptions regarding the relationship of school feeding and the promotion of healthy eating habits among students.

**Methods:** A descriptive study with a qualitative approach was developed in the city of Guarulhos (Southeast Brazil). Key informants from municipal public schools were interviewed. Public schools were selected (n=13) and classified as to the level of social exclusion, size and economic activity of the region where the school was located. Pedagogic coordinators and school principals were individually interviewed with semi-structured questions.

**Results:** From school principals and pedagogical coordinators' perceptions, three categories were identified: Food in the school context; School feeding program's role and the Concept of food and nutrition security, which indicate that they considered meals as part of school routine in order to attain physiological needs of energy and nutrients. Their answers also indicated that they did not consider school meals as a pedagogical action related to their specific responsibilities.

**Conclusions:** The relationship between the school feeding and the formation of eating habits is not a topic usually discussed between the different professionals involved with health and education. The implementation of health promoting policies will only be possible after a debate about how schools and their pedagogical team adopt the program guidelines and how the professionals decode these strategies in daily activities.

**Key-words:** school feeding; food habits; food security.

## RESUMO

**Objetivo:** Identificar as percepções dos gestores pedagógicos a respeito da relação da alimentação na escola e a promoção dos hábitos alimentares entre escolares.

**Métodos:** Estudo do tipo descritivo, com abordagem qualitativa, desenvolvido no município de Guarulhos por meio de entrevistas com informantes-chave de escolas públicas municipais. Selecionaram-se escolas públicas (n=13), classificadas quanto ao nível de exclusão social, tamanho e atividade econômica da região onde a escola se localiza. Entrevistaram-se coordenadores e diretores individualmente, a partir de um roteiro de perguntas semiestruturadas.

**Resultados:** Observaram-se três categorias temáticas relacionadas à percepção dos diretores e coordenadores pedagógicos: Alimentação no contexto escolar; Papel da alimentação na escola e o Conceito de Segurança Alimentar e Nutricional, evidenciando a alimentação escolar como parte da rotina da escola para atender às necessidades fisiológicas de energia e nutrientes. Entretanto, a alimentação na escola não foi percebida pelos entrevistados como uma ação pedagógica sob sua responsabilidade.

**Conclusões:** A relação entre a alimentação escolar e a formação de hábitos alimentares não é um tema usualmente discutido entre os diferentes atores sociais envolvidos. A execução de políticas promotoras de saúde em sua plenitude somente será possível com amplo debate sobre como cada escola e sua equipe pedagógica realizam efetivamente as diretrizes do programa e como os atores envolvidos as decodificam no seu dia a dia.

**Palavras-chave:** alimentação escolar; hábitos alimentares; segurança alimentar e nutricional.

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## RESUMEN

**Objetivo:** Identificar las percepciones de los gestores pedagógicos respecto a la relación de la alimentación en la escuela y la promoción de los hábitos alimentares entre escolares.

**Métodos:** Estudio de tipo descriptivo, con acercamiento cualitativo, desarrollado en el municipio de Guarulhos (SP, Brasil), mediante entrevistas con informantes clave de escuelas públicas municipales. Se seleccionaron escuelas públicas ( $n=13$ ), clasificadas respecto al nivel de exclusión social, tamaño y actividad económica de la región donde se ubica la escuela. Se entrevistaron coordinadores y directores individualmente, a partir de un guión de preguntas semiestructuradas.

**Resultados:** Se observaron tres categorías temáticas relacionadas a la percepción de los directores y coordinadores pedagógicos: Alimentación en el contexto escolar; rol de la alimentación en la escuela y el Concepto de Seguridad Alimentar y Nutricional, evidenciando la alimentación escolar como parte de la rutina de la escuela para atender a las necesidades fisiológicas de energía y nutrientes. Sin embargo, la alimentación en la escuela no fue percibida por los entrevistados como una acción pedagógica bajo su responsabilidad.

**Conclusiones:** La relación entre alimentación escolar y la formación de hábitos alimentares no es un tema usualmente discutido entre los distintos actores sociales implicados. La ejecución de políticas promotoras de salud en su plenitud solamente será posible con amplio debate sobre cómo cada escuela y su equipo pedagógico realizan efectivamente las directrices del programa y cómo los actores implicados las descodifican en su día a día.

**Palabras clave:** alimentación escolar; hábitos alimentares; seguridad alimentar y nutricional.

## Introduction

Guidelines for the promotion of healthy eating in schools have been recently established as an element to be considered in the pedagogical project of educational institutions<sup>(1)</sup>. The construction of this project implies the participation of education professionals and of the school and local communities with the purpose of bringing together school and community for a democratic management<sup>(2)</sup>.

In this sense, the Brazilian Ministries of Health and of Education are co-responsible for ensuring the implementation of the National Policy of Food and Nutrition<sup>(3)</sup> and thus of part of the National Policy of Health Promotion<sup>(4)</sup> in

schools, in consonance with the implementation criteria of the National School Feeding Program (Programa Nacional de Alimentação Escolar, PNAE). The latter, in turn, aims to meet students' nutritional needs during the school period and, in this context, to promote healthy eating habits<sup>(4)</sup>.

Additionally, School Feeding regulated by law no. 11.947/2009 includes food and nutritional education in the teaching and learning process that permeates the school curriculum, dealing with topics related to food and nutrition and to the development of healthy life practices, through the point of view of food and nutritional security<sup>(5)</sup>.

Considering the decentralized management of education, municipal governments begin to develop government plans and projects to translate regulations, which are still centralized, into actions<sup>(2)</sup>. In this process, there are many mediators which carry out the actions until they reach the school setting and, given the complexity of these actions, many professionals involved with this process do not make full use of the possibilities and opportunities of these actions.

This paper aimed to identify teaching managers' perceptions regarding the relationship of school feeding and the promotion of healthy eating habits among students.

## Method

A descriptive study with a qualitative approach was developed in the city of Guarulhos, Brazil. Key informants from municipal public schools were interviewed. A percentage of 20% of municipal schools were selected based on the combination of indicators related to socioeconomic issues, urbanization and school size, following strategic criteria designed to ensure the proportionality of indicators. From the combination of these three indicators, 13 schools were selected, each of them complying with the three combined criteria, as shown in Table 1.

Key informants, referred as teaching managers hereafter, were pedagogical coordinators and school principals. The definition of informants followed the criteria proposed by Minayo<sup>(6)</sup>, Nogueira-Martins and Bógus<sup>(7)</sup>. Twenty-six teaching managers were interviewed, including one principal and one pedagogical coordinator from each selected school. Individual in depth interviews were performed, which allowed us to get to know some interest facts related to the study subjects the way how these facts are experienced in subjects' daily life<sup>(6,8)</sup>. The instrument for data collection consisted of a semi-structured questionnaire that had been pretested in schools not included in the sample.

The interviews, scheduled and conducted in the school by trained interviewers, were recorded and transcribed. In order to ensure respondents' anonymity and protect their identities, schools were identified with numbers from

**Table 1** - Description of schools according to social exclusion index, regional production process, and school size. Guarulhos, 2007

School	Social Exclusion Index (SEI)*	Region**	Size***
1	Higher	Urban	Large
2	Higher	Urban	Large
3	Higher	Urban	Medium
4	Higher	Urban	Large
5	Higher	Urban with family agriculture	Medium
6	Higher	Urban with family agriculture	Medium
7	Higher	Rural agricultural	Large
8	Higher	Rural agricultural	Large
9	Higher	Rural agricultural	Small
10	Average	Urban	Large
11	Average	Urban	Medium
12	Lower	Urban	Medium
13	Lower	Urban	Small

\*The Guarulhos City Department of Health conducted a characterization study of the city using secondary data and, at the time of research, provided a socioeconomic, health and environmental diagnosis of the city, which was geoprocesed in administrative health sub-regions, allowing us to know the characteristics of the different territories as to socioeconomic, environmental and health issues. Thus, schools were classified according the social exclusion stratum of the region where the school was located, according to data from the city diagnosis provided by the Department of Health: higher social exclusion (index between -1.0 and -0.5), average social exclusion (index between 0.49 to 0.0) and lower social exclusion (index between 0.0 and 1.0); \*\*The administrative division of the Department of Education was different from that of the Department of Health, using as socioeconomic characterization criteria the location of the schools in an urban area with production process based mainly on business activities and services; urban area with production processes based on family agriculture; rural area with production processes based on agricultural production in medium and small properties. The categories defined by the prevailing production process in the areas where schools were located were: urban with business activities and services; urban with family agriculture, and rural with agricultural properties – medium and large properties; \*\*\*Schools were also categorized by the Department of Education into: small (up to 500 students), medium (between 500 and 900 students) and large (more than 900 students). School size was important in this matching, because this variable may make a difference in learning and in others related activities, such as nutrition and nutrition education.

1 to 13, and subjects were identified as coordinator (C) and principal (P). After, a pre-analysis of statements was done, based on study's assumptions and objectives, a fluctuating and exhaustive reading of the material collected during interviews was performed. Afterwards, with the full statements, we looked for a way to take selected excerpts from the interviews, as well as to categorize and codify them, as emergent recurrent themes<sup>(6)</sup>.

The research project linked to the data reported herein was submitted and approved by the Research Ethics Committee of the School of Public Health at University of São Paulo.

## Results

All key informants from the 13 selected schools were interviewed and their statements were classified into three topics: Food in the school context, School feeding program's role, and the Concept of Food and Nutritional Security.

The first topic, Food in the school context, is directly related to school menu. This menu, according to respondents, has changed throughout the years as to the composition of the meals offered to students: "In formers times, meals were very precarious. Today, meals are really prepared with love and care" (7P). "I've been here for a long time, and those pastries had a lot of fat, a lot of preservatives and chemicals; but not now, now all the food is fresh" (10P).

Managers' statements confirm these changes: "School meals have everything to do with health, because, with more colorful, more attractive meals, students eat together with their little buddies" (7C). "Meals are delicious, couldn't be better, at least those from my school..." (7C).

On the other hand, some aspects need improvement: "... eventually, in that week, they serve rice and sausage every day, for example, like a repetition, because some other ingredient is missing ..." (5P). "The reality of the menu is one and the reality of the school is another. I think that it's a little far from what should be for the child, you know" (8C).

The acceptance of the menu among students was also mentioned in respondents' statements: "There are some foods that the kids refuse to eat at all, I think that because they aren't familiar with these foods at home" (1P); "...They ask to repeat what was served for breakfast and does not even want to taste lunch" (4C). "An apple and the kids don't eat, we realize that it's in the garbage, if they threw, you know, then we go from classroom to classroom to talk about it" (9C). "Actually, the teacher doesn't make the kids eat; the mother comes and says 'my kid doesn't want to go to school because they are making him/her eat'. Actually, it's not happening, they are just encouraged, that's all" (8C).

When discussing menu acceptance, it becomes clear that teacher's role is to be the one who encourages, guides and motivate the students during meals. This support may be contradictory when teachers make their meals at school: "And almost all of them [teachers] eat at school" (9C). "It's no good only when they have that TSP, which I found out this week that is soy protein!...this meat doesn't taste good at all" (12C).

According to respondents, children do not accept some foods due to lack of familiarity and to the differentiated timetables established by the school. Teachers, in turn, encourage students by eating together with them, standing by their side, watching and organizing. If there is much waste, they go from classroom to classroom to explain the importance of consuming foods. On the other hand, coordinators eat at school whenever they can, because, according to them, meals "make water at one's mouth". However, according to them, these meals still needs improvement, since so many different kinds of food are wasted.

Deepening the discussion on food in the school context, it was possible to identify differences in attributions and how the communication process occurs between the different professionals: "As I told you, the menu... it's not possible to work on the menu, to follow it to the letter, the menu includes some ingredient that sometimes is missing, so the girls [cooks] prepare something different" (8C). "And, sometimes, teachers make a lot of comments that they would need more time to dedicate to lessons and everything else and they need to stop their work because they have to offer the meals" (9P).

It can be observed that the communication between school professionals and those who work in school feeding is not always effective. In this environment, service involves routine tasks, professionals prepare what they are asked to or what is available on that occasion. Providing food is also considered as an obligation of the school with regard to students, which does not help in the development of the pedagogical aspects of meals.

Thus, it is worth emphasizing the importance of the communication between the social actors involved with the feeding process in order to make menu acceptance easier, providing suggestions and bringing food offered at school closer to classroom activities, given its potential as a pedagogical element.

The second topic identified in this research was School feeding program's role, which covers nutritional aspects. Schools meals have the role of contributing to meet the physiological needs of a community considered as deprived: "Since it's a deprived community, school meals are certainly contributing

to meet children's nutritional needs" (2P). "We still have a high number of students who lack food at home" (6P). "And a poorly-nourished child is not capable of studying" (6C).

The social role of the feeding program is noted, because it provides access to food and favors the integration between students: "We know that many children come here primarily to eat and then to study" (6C). "The girls working in the kitchen caress the kids, children eat to please the cook, it's really nice" (8C). "The involvement of children with school meals, with their little classmates... the affective, the emotional side of the child as well" (10P). "Teacher's encouragement is essential, because students do not have this reference and school is covering this lack of reference a little bit more each year, you know" (13P).

School meals help in the development of children's eating habits and they, in turn, may become multipliers of these habits at home, encouraging their parents to consume foods different from the usual ones: "As schools meals influence children's eating habits, this influence could happen at home too" (3P). "It's difficult for you to change parents' habits, changing the child is easier than changing the adult" (8C).

The third topic identified during the analysis of respondents' statements was the Concept of Food and Nutritional Security, both from the point of view of safe food and of the nutritional quality of this food.

One of the functions attributed to the respondents was controlling the quality of the food offered to children. In this sense, a concern that emerged in most statements referred to the issue of safe food, i.e., Food and Nutritional Security (FNS) focused on the possibility of the food being physically, chemically or biologically contaminated: "In the vegetable garden, we use only organic fertilizers, no pesticides, no poison" (2C). "If there is a little cockroach in the kitchen, a little mouse, if the cook is washing that food well" (6P). "Sometimes we end up eating white or red meat and one get very poisoned..." (8P).

Ensuring that the child is fed with high-quality products is responsibility of the school and its managers: "In the sense of being a well sanitized food, of having the proper storage conditions and being appropriate to children's age with regard to the presence or absence of preservatives" (11C).

Respondents' statements made it clear that FNS is directly related not only to safe food, but also to aspects of food and meal nutritional quality. Thus, it was possible to find that food security is related to ideas "... that this food brings welfare to them" (2P). "It's what the food contains in terms of vitamins, mineral salts, this kind of things" (7C). "...It's the child being fed so that it promotes health and welfare, you know?" (13P).

## Discussion

Thus, it was possible to observe that school meals have changed. Today, food distributed to schools is *in natura* and highly diversified, similarly to what happens at the national level, since the National Fund for the Development of Education (Fundo Nacional de Desenvolvimento da Educação, FNDE) determined, in 2006, that 70% of PNAE resources should be used in the purchase of basic products<sup>(4)</sup>, increasing the amount of foods such as rice, beans, greens and vegetables.

With the decentralization and autonomy in program implementation, planned by the FNDE<sup>(4)</sup>, in which the school is the institution that implements the School Feeding Program, local managers take the responsibility for receiving and using financial resources. However, in the city of Guarulhos, it is the municipal government, through the Division of School Feeding (*Divisão de Alimentação Escolar* – DAE) of the Department of Education, that plans and manages the menu offered to students. It is interesting to observe that this choice for the local political policies may not be very clear to those working at educational institutions, giving the false impression that they do not participate in the process and that the school should only look after menu acceptance.

Food acceptance is influenced by several factors, such as familiarity with the food, which results from children's experiences with it, being necessary to expose them to the rejected food several times<sup>(9)</sup>. Sullivan and Birch<sup>(10)</sup> showed that acceptance of a novel food increases after repeated exposures, possibly requiring from eight to 15 exposures for children from four to five years old before achieving definite changes in their diet. The PNAE emphasizes that the rate of menu acceptance among students should be above 85%<sup>(4)</sup>, i.e., it is an aspect to be considered and that appeared in respondents' statements.

The teacher who encourages and supports the students in their choices, sitting by their side, as reported by respondents, promotes the opportunity of performing motivational activities integrated to students' daily experiences. Thus, feeding may integrate topics related to the school curriculum, becoming the pedagogical instrument proposed by the PNAE<sup>(4)</sup>.

Along with the teacher, other professionals are involved with student's feeding at school and, in this sense, it is important to point out studies conducted on the work of the school feeding team and its relationship with the educational institution. School meals are interconnected with the activities

developed by all school professionals, both in the role of feeding itself — when there is concern about students' health and food preferences —, and in the pedagogical part, when they are included in lesson plans. Caniné and Ribeiro<sup>(11)</sup>, by interviewing nutritionists of the School Feeding Program from the city of Rio de Janeiro, found that, in order to establish a partnership with school, nutritionists should act so as to “win” the confidence of principals, sensitizing them to the importance of the program, but the authors also found that this is limited by the large interval between visits due to the insufficient number of professionals.

The school feeding program is acknowledged as a program to meet community's nutritional needs. This perspective corresponds to the goals of the PNAE, which, being a national government policy, aims to supply at least 15% of students' nutritional needs during their stay at school<sup>(4)</sup>. It is observed that school provides varied and carefully prepared meals, which helps children's development, giving support for a better school performance as well as for a healthy growth and development.

School meals, besides feeding and nourishing children, also promotes social interaction between classmates and cooks. Teachers stimulate the development of good eating habits and teach how to sit at the table and eat properly. These moments are also important for children's affective and emotional development.

A strong affective relationship is developed between school cooks and children, making these professionals to play the role of caregivers, which extrapolates their specific function of preparing and distributing food<sup>(11)</sup>. Such affective relationship is potentiated by the fact that the beneficiaries of school meals are children who rely on this food to fulfill their dietary needs. Therefore, school cooks are key actors, since they provide the food required for children's health, especially fruits and vegetables, which reveals the importance of their role, because encouraging students to consume these foods is essential in forming healthy eating habits<sup>(12)</sup>.

Thus, factors such as school, social network, socioeconomic and cultural conditions are perceived as family partners, so as to contribute to the establishment of healthy eating habits among children<sup>(9)</sup>.

In this perspective, it is possible to observe the importance of introducing new foods — from the family unit — in the contribution for changes in dietary intake. Family has a determining role in forming healthy eating habits in childhood, since changing eating habits during adulthood usually have high failure rates<sup>(9)</sup>. Thus, family context has

shown to be a potent influencing factor in the adoption of eating habits among children, ratifying the importance of the participation of family members in educational activities performed in the school.

The topics Feeding in the school context and School feeding program's role are intrinsically related to the concept of food and nutritional security reported in the statements.

Food contamination is one of the aspects historically associated with the concept of FNS since its origin<sup>(13)</sup>. Recently, such concern has been reinforced due to environmental problems<sup>(14)</sup>. On the other hand, in an investigation to diagnose education actions in health and nutrition — based on organic food in a state public school from Santa Catarina, involving school feeding managers, principals, teachers and students —, it was observed that the use of products of organic origin in school feeding programs may be considered an advance towards the improvement in the quality of life of students and local producers<sup>(15)</sup>. Studies like these arouse the need of keeping teachers' training continued and "independent" of the commitment with principals; the nutritionist's role is to clarify the community about program guidelines and functioning<sup>(11,16)</sup>. In this sense, there is the need for integrating the different professionals responsible for implementing the School Feeding Program.

FNS has been a concept widely discussed in the last ten years and, according to some authors, is still under construction. It is important to define the perception of the professionals involved with health and education, in order to ensure the right to adequate food, because this understanding may be crucial for the planning of actions in the school environment<sup>(13)</sup>.

During childhood, at the same time that food is important for growth and development, it may also represent one of the main factors for the prevention of some adults diseases<sup>(9)</sup>. Additionally, FNS has two approaches: the feeding approach, related to food production and quality, and the nutritional approach, related to consumption and to the physiological effects of food<sup>(17)</sup>. Thus, it is possible to observe the complexity of school feeding and the need for bringing closer the social actors involved with this topic, in order to accomplish children's right to have access to adequate food<sup>(18)</sup>.

A study conducted by Boog<sup>(19)</sup>, based on an innovative experience in food and nutritional education, found that teachers offer resistance to the incorporation of the topic food into their activities, due to the fact that they do not have a sufficiently broad knowledge on the subject. This author suggest bringing teachers closer to nutrition experts to sensitize and support teachers in the teaching of cross-sectional topics, especially those related to feeding, incorporating activities in the school schedule so as to integrate this topic to the other ones that compose the curriculum.

The principles related to the constitutionally established social right and the human right to adequate food include other aspects, such as access to food and environmental, social and economic sustainability based on cultural diversity<sup>(20)</sup>. However, for local managers, school feeding is guided by issues related to aspects of the quality of the food itself, pointing out the need for implementing capacity building strategies for the professionals involved with the school feeding program.

Additionally, feeding in the school setting may be important for health promotion due to the increasing prevalence of childhood obesity<sup>(21)</sup>. Studies have been conducted to identify the most efficient strategies to prevent and control obesity and have found that the most effective ones were those including regular activities at school, the introduction of nutritional education into the regular curriculum and the supply of fruits and vegetables itself by school services<sup>(22)</sup>.

It can be concluded that the family environment, the school environment and the society are disconnected in terms of human right to food. The relationship between school feeding and the formation of eating habits is not a topic usually discussed among different professionals involved with health and education. The implementation of health promoting policies will only be possible after a debate about how each school adopts the program guidelines and how the professionals decode these strategies in daily activities.

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