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# Perception of adolescents on healthy eating

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**Abstract** *The objective in this article is to analyze how adolescents at a school in the interior of the State of Pernambuco, Brazil, perceive healthy eating. A descriptive and exploratory study was undertaken, based on the qualitative method. Forty adolescents between 10 and 14 years of age were investigated, using a semistructured interview. The interviews were analyzed using the software Alceste, which evidenced two thematic axes: Eating practices, divided in two classes (routine eating diary and Eating at weekends); and Education practices, consisting of four classes (Factors interfering in and facilitating the maintenance of healthy eating, Role of the school in the education process for healthy eating, Knowledge on healthy eating, The family and the promotion of healthy eating). Although the interviewed adolescents are familiar with healthy eating, they do not always put it in practice, due to the multiple factors that interfere in their preferred diet. The school and the family play a fundamental role in encouraging healthy eating. The school needs to accomplish eating education practices that encourage the consumption of locally produced foods.*

**Key words** *Adolescent, Eating behavior, Eating habits, Health education*

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## Introduction

Adolescence represents a phase of transition between childhood and adult life, marked by significant changes in the biological, psychological and social dimensions[1]. This period is extremely important for the adolescents to choose a healthy lifestyle, as it is when habits and attitudes are established, including eating habits[2].

Monitoring the quality of the foods consumed during childhood and adolescence is important as little is known about the factors that promote changes in the eating behavior and as fasting, irregular and restricted diets, compulsive or frequent consumption of highly energetic foods, rich in sugar and fat are frequent to replace healthy food during this food[3-5]. These practices are the main factors responsible for the current epidemiological situation of overweight, obesity, nutritional deficiencies, non-transmissible chronic illnesses and risk behaviors for eating disorders during childhood and adolescence[6,7].

Dietary education practices can serve as a means to raise the children and adolescents' awareness about how and why to eat appropriately, as eating and nutrition are basic requisites to promote good health conditions[8]. Health actions focused on children and adolescents should be a priority for all social sectors, particularly in the school context[9,10].

The school environment represents an appropriate space for dietary education practices focused on children and adolescents, as they join most of these subjects[9] each day, including educators, students, lunch ladies, doormen, fathers, mothers, grandparents, among other subjects, taking the responsibility for education, offering part of the daily meals and directly influencing the students to achieve autonomy, construct personal values, beliefs, concepts and ways to know the world[2,9].

In partnership with the Ministry of Health, the Ministry of Education regulated Interministerial Decree No. 1010, issued on May 8th 2006, which set national guidelines for the Promotion of Healthy Eating in Child, Primary and Secondary Education Schools in the public and private networks[9]. In addition, through Presidential Decree No. 6286, on December 5th 2007, the School Health Program (SHP) was established[2,11]. Throughout the school year, this program holds activities focused on prevention, promotion and health care for students, using an intersectoral action and shared management proposal between health and education professionals[2].

The philosophy behind the interministerial strategy the SHP adopts is to minimize the fragmentation between the health and education sectors, permitting great transformations in schools, as it reduces the compartmentalized view of reality, strengthening the possibility to apply school knowledge in extra-school life, considering that the school exists not only as a space of knowledge reproduction, but also of knowledge transformation[12].

The assessment of the results of dietary education practices through monitoring, identification of knowledge, skills and practices constructed in the course of development represents a favorable aspect in the achievement of effective results[7]. That permits the planning, adjustment of the participants' learning process and offers the opportunity to identify the need for improvement for these education practices to achieve the expected objectives[13].

In the literature, studies on the adolescents' perception of healthy eating are still focused on places near big urban centers and with high human development indices, due to the greater consumption of industrialized foods. Nevertheless, nutritional disorders have also affected adolescents in areas distant from large urban centers, and studies with this approach remain scarce in these places, despite being necessary to enhance the incentive of appropriate eating practices, with a view to stimulating these subjects' critical and reflexive capacity on their dietary choices[14]. In this perspective, this study aims to analyze adolescents' perception about healthy eating at a school in the interior of Pernambuco.

This research was based on the theoretical framework of eating practices in adolescence, and dietary and nutritional education, that is, a focus on the adolescent and the school as a place to promote eating.

## Method

A descriptive and exploratory study was designed, using the qualitative method, to investigate how the phenomena are manifested, as well as other related factors[15].

The study was undertaken at the School Abdias João Inácio, located in Cupira - Pernambuco, a city in the mesoregion Agreste of the state, with a municipal area of 106 km2 and a population of 23,390 inhabitants. The city is distant from large urban centers, has a low Human Development index and agriculture and cattle raising are the

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main economic activities. The school participates in the School Health Program, developed in partnership between the Ministry of Health and the Ministry of Education[16].

Forty interviews were held with male and female adolescents, between 10 and 14 years of age, enrolled in primary education, who participated in the nutrition meeting held by the School Health Program. Before collecting the information, the leading researcher had contact with the adolescents at the school to offer educational activities with thematic approaches related to health promotion. No themes related to dietary aspects were addressed so as not to induce any answers at the time of the information collection. Based on the educational activities, the intentional sampling criterion was used[17].

The adolescents' parents or responsible caregivers participated in a meeting at the school, when they received orientations on the objectives, risks and benefits of the study. After the orientations, the parents or responsible caregivers who agreed with the participation of the adolescents they were responsible for signed the Free and Informed Consent Form.

A semistructured interview script was used, including general data on the adolescents' characteristics (age, sex, grade and length of stay in school) and the following questions: how do you eat daily? What information have you received about healthy eating in the school context? What do you consider as healthy eating? What do you think helps to maintain a healthy diet? What makes it difficult for you to maintain a healthy diet?

The interviews with the adolescents were scheduled in advance, in a room at the school, so as not to interfere in their school activities. Only the researcher and the participating subject were present to guarantee privacy. The interviews were digitally recorded with the responsible caregivers/adolescents' consent, and were transcribed by the researcher.

To analyze the interviews, the software Contextual Lexical Analysis of a Set of Text Segments (Alceste), version 2010 was used[18]. This software develops quantitative lexical analyses by collecting excerpts from discourse, whose statements seem to differ but which are close in a relationship of meaning for a certain social group. In other terms, the software develops a descending ranking that permits the construction of a consensual discourse through the use of the relation among words, how frequently they appear and their associations in classes of words (calculation of Khi2)[19].

The fieldwork took place between May and July 2013. The project complied with National Health Council Resolution 466/12 and received approval from the Institutional Review Board of the Health Sciences Center at Universidade Federal de Pernambuco. To guarantee the anonymity, the participating adolescents had their names replaced by the letter P, followed by the sequence number of the interview (from P1 till P40).

## Results/discussion

As regards the interviewees' characteristics, 82.5% were between 12 and 14 years of age, 37.5% were male and 85% gained a monthly income between one and two minimum wages. Concerning education, 57.5% had finished primary education and 17.5% had been studying at the school for about eight years.

The lexical analysis using Alceste identified 40 initial context units (ICU), equivalent to the number of interviews included in the corpus. This set was divided into 503 elementary context units (ECU), dimensioned based on the punctuation in the discourse. In total, 393 ECU were classified, representing 78% of use of the material analyzed. The wealth of the vocabulary corresponded to 97.03%. The ECU were divided into classes that appointed the following thematic axes (Figure 1).

The tree diagram presents the ECU, the main thematic axes and the divisions. Thus, classes one and two have shared meanings that differ them from classes three, four, five and six, as they originate in the two groups resulting from the first segmentation of the ECU. At the same time, classes three and five also present shared meanings, despite specific senses and ideas that justify the separation into distinct classes, as they were divided in subsequent phases of the ranking. The words with a higher chi2 are observed, as well as greater representativeness of each class, due to the greater strength of the mutual association (Figure 1).

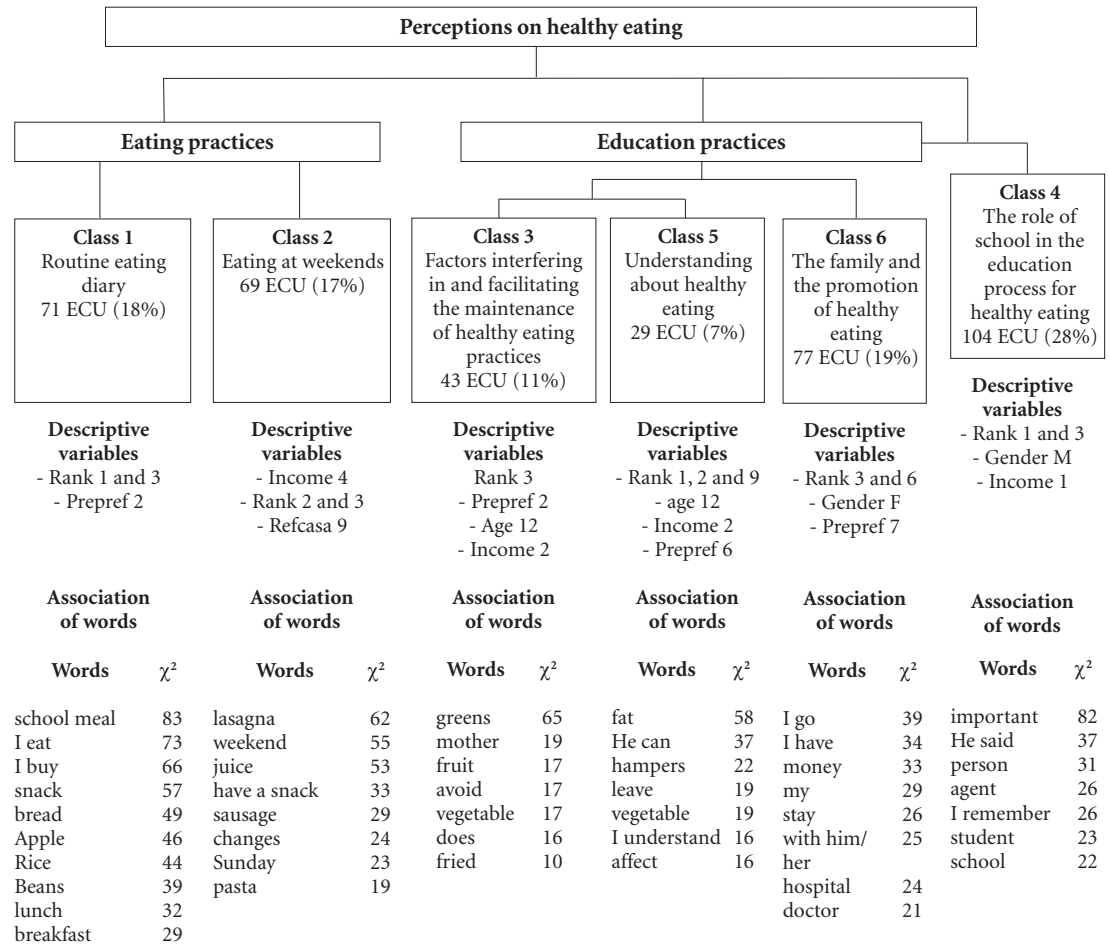


**Figure 1.** Descending hierarchical classification (tree diagram) of the analysis of the interviews with the adolescents who participated in the School Health Program. Cupira-PE, 2013.

**First axis – Eating practices**

**Class 1 – Routine eating diary**

This class pictures that the adolescents' routine meals are breakfast, lunch, dinner, school meal and snack. The words with the highest chi2 were the substantives school meal, snack, bread, apple and the verbs eating and buying.

The adolescents considered breakfast to be the main meal of the day, which needs to be varied and contain, besides calorie-rich foods, protein and vitamin-rich items. Nevertheless, in some subjects' discourse, it appeared that they skip this meal because they do not like it, do not have time, are not hungry and wake up late in the morning, skipping breakfast to take the next meal. It should be highlighted that skipping this meal may even be related to housework, according to the following statement: *sometimes, I don't have breakfast in the morning because there's no time, I need to put the house in order* (P. 24). The adolescents' high adherence to fasting, irregular and restricted diets may cause dietary monotony and greater risk of nutritional deficiencies, because the most healthy foods are consumed with little variety and low quantity[5,20].

Lunch was significantly represented in the reports and was strictly taken, even among adolescents who revealed skipping the other meals. This meal showed to be an appropriate time to consume healthy foods, as follows: *The best food to eat is what you eat at noon, because there are greens, vegetables, those things that are healthier*. (P. 2). Nevertheless, in this study, the limited

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variety of greens and vegetables the adolescents consume is evidenced, due to their higher cost and their taste, which is considered unpleasant, demanding a more dedicated preparation to become more palatable and accepted.

Dinner was another of the adolescents' main meals of the day. Nevertheless, it is frequently skipped, mainly due to a lack of appetite at night. Calorie-rich foods were more mentioned than protein-rich foods, although the adolescents know that these foods should be ingested less during dinner, due to the more limited energy spending at night.

Snacks were the preferred meal, even among the adolescents who mentioned that they hate eating, underlining the replacement of the main meals: *I hate eating, I only eat sometimes really, only when I'm hungry, I only like to eat a lot in the afternoon really*. (P. 20). The increased consumption of snacks favored the consumption of foods rich in sugar and fat: *In the afternoon I have a snack, sometimes I eat cookies, fruit hardly, because I don't like it much. I really like eating cookies, chocolate*. (P. 15). The explanation for these results may be linked to the dietary culture in the current society, in which the families tend to choose non-nutritive foods of easy access, replacing the consumption of fruits, vegetables and greens[21].

It is highlighted that the adolescents also mentioned fruit consumption, mainly among adolescents who brought the school snack from home or had this meal at home, as verified in the statement: *In the afternoon, after lunch, I really like to eat fruit, generally apple, guava and grapes*. (P. 28). The home environment represents a protection factor for adherence to healthy diets and weight control among adolescents, as it involves the family members' greater participation in the control of the choices, and in the purchase and preparation of foods[22].

**Class 2 – Eating at weekends**

This class demonstrates the change in the adolescents' eating habits at weekends, verifying the increase in the intake of hypercaloric and nutritionally inappropriate foods: *At weekends, sometimes, my sister makes lasagna, pasta, different food*. (P. 26). The words with the highest chi2 were substantives like lasagna, weekend, juice, pasta, besides the verbs having a snack, changing and eating.

The routine eating diary and the eating habits at weekends showed the frequent skipping of the main meals, irregular and restricted diets, high consumption of energetic foods rich in sugar and fat. The increase in the consumption of hypercaloric and nutritionally inappropriate foods at weekends was related to the frequent meals taken outside the home during that period. According to Fitzgerald et al.[23], the extra-home context favors inappropriate eating practices as it facilitates the access to non-nutritive foods and increases the influence of friends and the media.

**Second axis – Educational practices**

**Class 3 - Factors interfering and facilitating the maintenance of healthy eating practices**

This class identifies the factors that interfere in and facilitate the maintenance of healthy eating. In that context, the words with the highest chi2 were substantives like greens, mother, fruit, vegetable, fried food and the verbs doing and avoiding.

The main causes of inappropriate eating practices among the investigated adolescents were related to the greater preference of nutritionally inappropriate foods, influence from peers, availability of money and easy access to unhealthy foods. These findings show that the dietary choices are not only influenced by subjective aspects related to knowledge and perceptions, but also receive interference from economic, social and cultural factors, as found in this and other studies[21,23].

Among the factors that interfere in the adolescents' healthy eating practices, it was identified that most subjects' low economic level and the lower cost of nutritionally inappropriate foods rich in sugar, fat and salt favor the consumption of these foods, even in places distant from large urban centers and whose economy includes growing fruit and vegetables. Mendes and Catão[21] identify that places where fruits, greens and vegetables are grown facilitate the access to these foods and, consequently, their consumption. Nevertheless, these findings were not obtained in this study.

As regards the factors that facilitate the adolescents' adherence to healthy eating, they were related to liking some healthy foods, access to and availability of these foods, fear of gaining weight, reception of incentives from the media, family environment, as well as the school through dietary education practices.

The concern with the body image demonstrated interference in the subjects' eating practices, when one adolescent mentioned that the fear of getting fat helped her to maintain a healthy

diet. This fact is justified when considering that, in the contemporary world, the images of the lean and thin body are increasingly worshiped in the mass communication media, which marketing generally associates with gaining success and prestige[24]. Overweight individuals do not only suffer a series of health problems, but are constant victims of bullying and social exclusion[25].

One adolescent referred to the media as a source of information favorable to healthy eating, as evidenced in the following statement: *What helps for me to eat well is that they say on television that the people are overweight because they don't eat well. That already teaches people that they should not be eating everything with a lot of fat, dough, because it can harm your health*. (P. 10). Despite this positive association between the media and healthy eating, different studies identify that, the more time children and adolescents spend watching television, the greater their adherence to inappropriate eating practices. The media thus represents one of the main tools marketing uses to encourage the consumption of industrialized and nutritionally inappropriate foods[26,27].

**Class 4 – Role of the school in the education process for healthy eating**

The class analyzed reveals the representation of the school in the establishment process of healthy eating habits for the adolescents, through the development of eating and nutritional education practices. As a result of this context, the words with the highest chi2 were the substantives person, agent, student, school and the verbs saying and reminding.

The adolescents in this study characterized the school as a favorable space to develop actions to promote healthy eating, as verified in the following discourse: *It is important to talk about food in school because some people eat badly, like me really, I eat a lot of crap that is not healthy food. And a person helping to understand that makes this better*. (P. 40). The school acts as an environment that facilitates the adolescents' adherence to healthy eating behaviors, as it represents a favorable space for educational lectures, clinical assessment, nutritional assessment and the supply of part of these subjects' daily meals[10,28].

The information on healthy eating the adolescents reminded as having received from the school were restricted to examples of healthy foods, the importance of healthy dietary choices and at regular intervals, and to some benefits of healthy eating for health. The adolescents' limited knowledge on these themes identifies the need to analyze the different factors that can interfere in the effectiveness of the eating and nutritional education practices, including the parents' involvement, supply of fruit and vegetables by the school's meal services, cultural, regional and local particularities in terms of the availability of healthy foods[7-9].

In this study, other adolescents, despite having participated in dietary education practices organized by SHP did not remember having received information on this theme in school, as described in the following statement: *The school never said anything about healthy eating, not to me*. (P. 10). This shows that holding a single meeting on nutrition by the SHP, involving child and primary education students, in the course of one year is insufficient for them to understand healthy eating.

The intersectoral approach in educational activities was also identified in this study, when the adolescents mentioned the health and education professionals as responsible for supplying information on eating at school, as verified in the following statements: *When the staff* [nurse, nutritionist] *comes to say that eating is very important, that you need to eat healthy foods and forget about things like chips, soft drinks, fat, which are not good for your health*. (P.14). *They* (teachers/ coordinator/ dean) *also say that it is not good to eat crap early because many people arrive chewing gum, lollypops*. (P. 12).

The intersectoral approach favors the ongoing disclosure of the theme eating in the school sphere, as it favors the inclusion of this theme in the curriculum[3]. Nevertheless, the teachers' lack of skill to integrate the theme eating and nutrition into the subjects they teach, as their background does not address these themes, negatively affects the intersectoral approach. Therefore, the need to qualify these professionals is identified, so that they can act in health promotion and eating and nutritional surveillance actions[13]. The school's representation in the encouragement of healthy eating becomes even more evidence among adolescents with less privileged economic conditions, as these subjects' relatives have a lower education level and less knowledge on the theme. In view of the family members' lack of knowledge on the theme eating and the school's lack of skill to educate through the construction of knowledge resulting from the confrontation among different types of knowledge coming from the students, teachers, family members and society, this and other studies identify the need

to insert the family members into the eating and nutritional education practices developed in this sphere[29,30].

The adolescents mentioned the school environment as the main place where they take part of their meals. In addition, few of these subjects mentioned taking the school meal all five days of the week. The consumption of other types of foods in school, besides the school food, whether by bringing snacks from home or by buying generally industrialized and nutritionally inappropriate foods at the school, was associated with adolescents who do not like the flavor of some of the foods offered in school meals and their repetitive offering. These findings alert to the fact that not only the school's role as a means to disclose information on healthy eating, but also the pedagogical dimension of the food offered in school should be valued, through the implementation of the National School Food Policy and the canteen law, with a view to allowing the subjects to choose healthy foods[28,31].

In view of this range of aspects, which interfere in the accomplishment of eating and nutritional education practices in the school context, the achievement of dietary habit changes after interventions varies strongly. These study findings identify favorable results, in terms of a reduction in the consumption of high-calorie foods and the increased intake of healthy foods, as verified in the following discourse: *One student has already told the teacher in the classroom that he is stopping more to eat these unhealthy things and is eating more fruit, vegetables after these classes* (P. 38).

Considering dietary education practices in school as a complex activity, these actions need to be planned and assessed, as the adherence to healthy eating behavior in early stages of life favors the maintenance of a good quality of health[31].

**Class 5 – Knowledge on healthy eating**

This class pictures the adolescents' knowledge on the theme healthy eating. The information the adolescents mentioned was associated with the appropriate intake of fruits, vegetables and greens; the exclusion of the consumption of foods with too much fat, sugar and salt; having meals at the right time and the consumption of varied foods, containing protein, iron and calcium. As a result of this content, the tree diagram revealed, in the lexical universe of this class, substantives like vegetable, health, fat, oil, pasta, salt and the verbs understand, impair and cause.

The adolescents also related the adherence to healthy eating practices with the achievement of better health conditions, as it prevents a range of health problems, as shown in the following statement: *Healthy eating avoids several diseases, many people suffer from high cholesterol, high blood pressure because they eat a lot of fried food, salt*. (P. 37). The dietary routine adopted during adolescence does not only interfere in the adolescents' growth and development, but continues in the other phases of life and can entail different consequences for their current and future health[25].

Although the adolescents in this study displayed knowledge on the theme food, this did not involve the application of this knowledge. The easy access to nutritionally inappropriate foods has provoked a distancing between the concept and the adolescents' eating practice, as it increases the consumption of non-nutritive snacks like fast food and sweets, to replace the main meals[4].

**Class 6 – The family and the promotion of healthy eating**

This class evidences the importance of the family's participation in encouraging adolescents towards healthy eating, as verified in the following statement: *I only eat well when somebody picks on me, my cousin and my aunt, who really picks on me for me to eat well*. (P. 14). The words with the highest chi2 were the verbs end, stay and stop, besides the pronouns my and with him/her.

The family played a fundamental role in the control of the choices, purchase and preparation of the adolescents' foods. The mother was mentioned as the main responsible for preparing the foods, as verified in the statement: *What helps me is my mother, because she's always calling me to eat, she's always saying the times to eat, what to eat, because she makes the food*. (P.20). The longer time the mothers spend on family situations, involving aspects of eating, favors healthy eating, as it reduces the adolescents' autonomy regarding their dietary choices.

The adolescents mention that factors like lack of time and excessive dedication to work are aspects that interfere in the family's participation in the process of encouraging healthy eating. Consequently, this favors the increased number of meals taking beyond the home context, the consumption of nutritionally inappropriate foods and the skipping of the main meals, in view of the parents' more negligent attitude towards food issues[32,33].

## Final considerations

When considering the change in eating habits as something complex that demands time and requires the planning and implementation of ongoing programs, this shows the importance of dietary education practices with longer monitoring periods in the school context. As they develop activities daily in that context, education professionals need to be trained to be able to work together with health professionals in these actions to promote healthy eating.

As a favorable place for educational activities, the school should offer nutritionally appropriate meals, through the school meals and the foods sold in this space, and develop effective dietary and nutritional education practices, which encourage the consumption of healthy foods produced locally, involving family members' participation.

## Collaborations

DCA Silva contributed to the conception, design, analysis and interpretation of the data. IS Frazão worked on the analysis and interpretation of the data. MM Osório and MGL Vasconcelos worked on the conception, design and critical review of the article.

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