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Analysis of the presence of industrial food in children's lunch boxes

Abstract

Objective: To analyze the presence of processed foods in the lunch boxes of children in a private school.

Materials and methods: The sample consisted of 105 school lunch boxes from 05 children. The quantitative analysis of the presence of processed foods in the lunch boxes and the food purchased in the school canteen was carried out. Analyzes were also performed in order to identify the food groups where (A)=in natura or minimally processed, (B)=processed and (C)=ultraprocessed, as to the frequency in which these foods were present in the research.

Results: It was observed that both groups A, B and C were present in the lunchboxes, but the group (A)=ultra-processed obtained a higher index of (57.11%), especially the biscuits. The group that presented least in the sample were the group (B) of the processed (11.72%), for those bought in the canteen observed that although the juice was the most consumed by the children the choice of salted was also great, showing that the preference Children's food is still inadequate, the ideal would be a home-prepared parent's snack with healthier options.

Conclusion: The study concludes that the snacks present in schoolchildren's lunchboxes are inadequate due to the high consumption of processed foods, specifically the ultra-processed ones, the sample also showed that the few children who bought the snacks in the school canteen opted for worthless foods Nutritional, demonstrating inadequacies that alert the need to implement nutritional education programs in schools to contribute to improvements in school feeding.

Keywords: preschoolers, eating habits, snacks

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Introduction

Healthy eating represents an important prevention for health, contributing to the quality of life over the years.[1] The relationship between inadequate eating habits in childhood is related to overweight and also the appearance of non-communicable chronic diseases (NCDs), which today is one of the leading causes of mortality in the country.[2]

With the large change in the dietary pattern of the population, the choice for industrialized foods has gradually increased in the diet of families. Natural and minimally processed foods have been replaced by low-nutritional foods rich in sugars, fats, and sodium.[3]

As for the Food Guide for the Brazilian Population developed by the Ministry of Health, it is important to remember that it has as its recommendation the ingestion of natural foods, which are essential in children's diets, the document also emphasizes that processed foods need to be avoided. However, it can be seen that the foods present in children's lunch boxes are often biscuits, snacks, sodas, juices in boxes. Foods without nutritional value that do not promote health benefits.[4] These foods have sensory characteristics that contribute to their intake such as the use of sodium sugar, fats, thus adding better flavors to foods, favoring the consumption at mealtimes, generating an excess of calories.[5]

According to the Brazilian Society of Pediatrics,[6] the family is based on the food influence for children, thus making them important in shaping their preferences. Still, it can be considered that other reasons, such as culture, socioeconomic conditions and electronic media, can contribute to the construction of today's food model.

The child's entry into school is also a factor of new influences, of new knowledge, where the presence of other children will contribute to the interest of trying something new, even for acceptance, another point is the existence of canteens, which facilitates access to other foods.[7] The preschool phase becomes even more important for the formation of eating habits, as this period will be crucial to establish until adulthood. Therefore, it is essential that in childhood a variety of quality and nutritious foods are offered, always in balance, so as to encourage children to consume healthy foods, put into practice the interest of eating alone, with the intention of the child to identify taste, texture and color of food.[8]

School today has become fundamental for the promotion and encouragement of healthy eating, contributing to the fight against overweight in children. The Brazilian Ministry of Health states that schools need to promote physical activity, conduct talks aimed at stimulating the consumption of healthy foods and reducing calories, low in vitamins and minerals.[9,10]

The practice of eating healthy foods from childhood can contribute to a healthier adult life, with less risk of developing some chronic diseases. Therefore, it is necessary to stimulate a diet composed of all food groups, because there is currently an increase in the consumption of processed foods mainly by the children, a problem of great impact because the composition of these products have a high sugar and fat content, these may favor the onset of early obesity and other morbidities.[11,12]

Thus, the objective of this work was to analyze the presence of processed foods in the lunchboxes of children from a private school, considering that eating habits represent major influences on health

and well-being, as well as on people's growth and development. The knowledge of these habits in the school environment is a necessary step for the development of nutritional education actions in order to reverse nutritional problems.[13]

Methods

The study was characterized as cross-sectional, analytical with quantitative approach, being developed in a private school located in Fortaleza/CE. The school system has been working for over 15 years, working in the morning and afternoon and has from nursery to high school. Data collection was performed from May 31 to June 6, 2017, with a sample of 105 afternoon lunchboxes of infant V, which were present on the days of data collection.

For analysis of the research was verified all foods present in lunch boxes. As for the food purchased in the canteen were also noted (with their respective quantities). To represent the research, all the lunchboxes that were present during the data collection period that were 105 lunchboxes were counted, as well as the students who used the canteen, which totaled 20. The exclusion criterion used was for the lunchboxes that were not present for more than two days in the survey.

The study was developed using a standard form where each lunch box was identified and which foods were present inside each one, as well as the amount of each food that was taken. The form also provided space to identify children who bought food in the canteen and what foods were bought, identifying their quantities. Data were collected on alternate days with a total of five days. Beginning 15 minutes before lunch time in the classroom to help identify each lunchbox. The forms were completed by observation of the researcher at the time of collection.

Subsequently, the analysis was performed to identify fresh or minimally processed foods, processed and ultra-processed foods, where (A) belonged to the ultra-processed foods group, (B) processed foods, and (C) fresh foods, and frequency. Where these foods were present in the research. Another point analyzed was the number of children who used the canteen during the survey, as well as which foods were most purchased.

The survey data were analyzed using Excel® software, where data were tabulated, and then the percentage of foods found was analyzed. For statistical analysis, the application (Friedman®) was used, with an RBD plan. Where was the mean and standard deviation of the study. The study was submitted for approval by the Research Ethics Committee (CEP) of the Estácio do Ceará University Center in accordance with Resolution No. 466/2 of the National Health Council (CNS) of the Ministry of Health (MS), concerning research involving human beings.

Results

The sample consisted of 105 lunch boxes from a private school, as well as the food purchased in the canteen by the students who in total were 21 students. Data were collected on alternate days for a total of 5 days. It was found that snacks bought in the cafeteria represented the lowest percentage, with 16% (n=17), while those brought from home obtained a percentage of 84% (n=88).

Table 1 presents the description of the foods that were most present in the lunchbox on collection days. In descending order of consumption. The Biscuit (26.00%), Natural Juice (20.00%), Fruits (12.00%), Nescau (11.00%), Cake (8.00%), Bread (6.00%), Cash juice (6.00%), Snacks (5.50%), Danone (5.50%). Of the foods presented the most present in the lunch boxes was the Biscuit.

Table 1 Percentage of foods found in lunch boxes

Foods found	%
Biscuit	26
Natural Juice	20
Fruits	12
Nescau	11
Cake	8
Bread	6
Cash Juice	6
Snack	5,5
Danone	5,5

%, Percentage

Table 2 shows the food purchased in the canteen chosen by the students. The natural juice being the most bought (40.00%), according to Salty (24.00%), Bread with cheese (12.00%), Biscuit (8.00%), Cheese bread, Milk, Flour cookie and Cake representing (4.00%).

Table 2 Percentage of food sold by children in the cafeteria

Foods sold	%
Natural Juice	40
Salty	24
Bread with cheese	12
Biscuit	8
Cheese Bread	4
Milk	4
Flour cookie	4
Cake	4

%, Percentage

Table 3 represents the food groups present in the lunchboxes. Where group A (Ultra-Processed)=presented (57.11%) group B (Processed)=(11.72) and group C (Fresh or Minimally Processed)=(31.15%). The result showed that the food groups most present in the lunchboxes belonged to the Ultraprocessed foods group, secondly to minimally processed foods and third to processed foods.

The total number of children who brought a snack from home represented 84.00% while only 16.00% compared the snack in the school coffee shop. Of the children who bought snacks in the coffee shop they chose the food before the break and at the time of the snack, a responsible person delivered the snack.

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Table 3 Representation of the collection day with the food groups present in the lunch boxes

Date	Group A	Group B	Group C	Group %	Media	DP
	%	%	%			
31/05	21	12	20	53	17.67	4.93
	39.62%	22.64%	37.73%			
01/06	32	1	10	43	14.33	15.95
	74.42%	2.32%	23.25%			
02/06	20	4	12	36	13.33	10.07
	55.55%	11.11%	33.33%			
05/06	31	7	14	52	17.33	12.34
	59.61%	13.46%	26,92%			
06/06	31	5	19	55	18.33	13.01
	56.36%	9.09%	34.54%			
Overall average %	57.11%	11.72%	31.15%			

Group A, ultra processed; Group B, processed; Group C, in natura or minimally processed

Discussion

The present study analyzed the presence of processed foods in school lunch boxes of a private education institution in the city of Fortaleza-Ce. Despite the consumption of minimally processed foods, the results showed prevalence in the presence of ultra-processed foods, inadequacies that alert to the constant need for children's nutritional education.

The energy contribution of ultra-processed foods to the diet of 5-year-olds is currently high, and this increase occurs with advancing age. It can be identified that infant eating behavior is often influenced by family habits. Usually parents, facing the lack of time to prepare food for their children, end up looking for more practical alternatives. However, these foods are mostly processed and ultra-processed foods, where they contribute to unhealthy eating habits.[14]

The increasing share of processed and ultra-processed foods has contributed to a reduction in the consumption of natural and minimally processed foods in the population's diet.[15] In a National Demographic and Health Survey (2006/2007), it was found that there was a decrease in the daily consumption of food in the fresh group, whereas in relation to processed and ultra-processed foods group increased.[16]

Recent studies show that there is a high frequency of processed foods present in the diet of the Brazilian population. In a study by Domingues[17] with 100 preschool children from one school, it was found that the consumption of processed foods in this public was relevant, with a higher percentage for cakes, filled cookies and treats. In the research by Rivera et al.[18] it has been shown that the consumption of foods such as vegetables, fruits, rice and beans has been decreasing by people. Foods such as cookies, sandwiches for children can contribute negatively to the increase of obesity in the population, and other conical diseases.[19,20]

In the current research, the group of ultra-processed foods was the one that stood out during the sample, since all lunchboxes presented foods of this group, being the most consumed among all lunchboxes, in the study in question. The foods that most represented this group were cookies, thus contributing to a higher percentage in the consumption of ultra-processed foods by schoolchildren.

Recalling that a high consumption of cookies, sodas, processed juices of boxes and fats, with a low intake of fruits and vegetables may contribute to some nutritional deficiencies or even development of obesity. In another study by Aquino & Philippi[21], their results showed that processed foods such as chocolate milk were the foods that stood out among the most frequent in children's diets (44.7% and 19.6%, respectively).

Another aspect analyzed in the research showed that the chocolate was the 4th food most taken by the students during the research. Contributing to the increased consumption of ultra-processed foods. In the research by Conceição et al.[22] carried out in Maranhão, Brazil with students from public and private schools. It showed that the consumption of milk and dairy products was 75% among the students. What represented the least consumed were fruits with (52.6%) and vegetables (34.4%). Already sweets had consumption (69.4%). Consumption of milk-derived group was higher for private school students, when compared to public school.

In the results of the current research with schoolchildren, it showed that the second group of foods most present in the lunchboxes were of the fresh and minimally processed genera, but it is necessary to highlight that the juices from pulps were higher in the presence of fruits. Compared to current research, the study by Conceição et al.[22] showed that the consumption of natural juices and vegetables were higher among students from private schools, which is a favorable aspect for children. But the same author also pointed out that the consumption of oils and fats, soft drinks and snacks were high among private school students, representing negative aspects of their diet. Much like current research, where ultra-processed foods high in fat and sugar were the most consumed.

Already in a similar study with the current research reported that there was a low consumption of the group of fresh or minimally processed foods, as only 44.04% of participants reported consumption of these foods more than three times a week. In addition, only 6.25% reported consuming these foods daily. As for processed foods, 24.65% of students reported consumption of these foods during the week. For ultra-processed foods, 61.82% reported consuming these foods in the afternoon snack three to five times a week.[23]

The study also looked at the foods the students bought in the cafeteria. The sample presented a consumption of juice from pulp first, second salty (pies) by choice of their own, with frequency of consumption. In this regard, even the study showing that the juice was the most consumed food among the chosen ones, but the children's food preference is still for high-calorie fat foods without nutritional value, proving that the ideal would be a snack from home, where parents could choose better options for their children by stimulating fruit intake. Compared to the study by Mello et al.[24], it showed that of the children who used the school canteen 3.85%=two children had a preference for more caloric foods.

It is extremely important to emphasize that the daily consumption of fruits contributes to meeting the needs of fiber, vitamins and minerals during the day, and that this consumption needs to be among the main meals to help the proper functioning of the body.[4,25] The study allowed a good identification of the sample, facilitating the characterization of the foods present in the children's lunch boxes in the school unit under study. Through the analysis of the results obtained, in this research it was possible to identify foods from the three groups studied, but what prevailed on a larger scale were the industrialized products, specifically the ultra-processed ones, while the minimally processed ones were in second place. Even with the advance of the incentive in the consumption of fruits and vegetables, the predominant food in the population is still the consumption of processed foods. Data such as these may contribute to the identification of the current consumption of children, raising worrying data, which may thus pose serious health risks and the development of some diseases.

The present study also showed that the few children who bought snacks in the school cafeteria opted for foods without nutritional value, even though the juice from the pulp was the most consumed, other foods most often chosen by the children in the cafeteria were the salty ones. The children ate only the pasta and left the stuffing during the observation compared to the ones they took from home, and the children generally did not waste their food. It is clear that children's food preference is not yet satisfactory, and the consumption of processed foods is high.

Therefore, it is concluded that the lunchboxes analyzed during the research proved to be inadequate, presenting a high frequency of processed foods specifically processed in the lunchboxes, as the canteen snacks chosen by the students also presented non-conformities. Contributing to the need for the encouragement and implementation of nutrition education programs in schools, to contribute to improvements in the quality of life and diet of schoolchildren. Recalling that parents also play a key role in forming healthy eating habits for children that will be most effective if working together in educational institutions.

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None.

Conflicts of interest

The authors declare there are no conflicts of interest.

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