ORIGINAL ARTICLE

Healthy dietary patterns linked to Brazilian adolescents' school meal adherence

Padrões alimentares saudáveis associados à adesão à alimentação escolar de adolescentes brasileiros

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ABSTRACT

Objective: This study aimed to verify the association between adherence to school meals provided by the National School Feeding Program and dietary patterns in adolescents from Brazilian public schools. **Methods:** Data from the 2019 National School Health Survey were used, with a nationally representative sample of Brazilian school adolescents (n=53,477; 13–17 years old). Food consumption of healthy and unhealthy food markers was obtained from a food consumption questionnaire. Regular consumption was considered ≥5 times/week. Latent class analysis was used to identify dietary patterns whose association with adherence to school meals was evaluated by multinomial logistic regression models, with adjustment for sociodemographic and eating behavior variables. **Results:** Three dietary patterns were identified: "unhealthy" — higher consumption of soft drinks and sweets (9.2% of adolescents); "healthy" — higher consumption of beans, vegetables, and fruits (27.1%); and "monotonous" — higher consumption of beans (63.7%). High adherence to school meals (every day) and unsatisfactory adherence (1–4 times/week) were positively associated with the healthy pattern even after adjustment for possible potential confounders (OR 1.37, 95%CI 1.23–1.52; OR 1.20, 95%CI 1.10–1.30, respectively). **Conclusion:** The results showed that the consumption of school meals offered by the National School Feeding Program can contribute to healthy eating habits among Brazilian adolescents.

Keywords: Dietary patterns. Latent class analysis. Public policy. School feeding. Adolescents.

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Healthy dietary patterns and school meals. Rev Bras Epidemiol. 2024; 27: e240046   **1**

INTRODUCTION

Inadequate nutrition during adolescence is one of the main risk factors for the early development of chronic non-communicable diseases, with a great impact on early life[1] and serious repercussions in adult life. In recent years, the quality of the diet of the Brazilian population has diminished, characterized by an increase in the consumption of ultra-processed foods, especially among adolescents[2,3]. This scenario is concerning for public health, given that adolescents are considered a nutritionally vulnerable population group[4]. Eating habits acquired and consolidated at this stage of life have a high potential to perpetuate in adult life[5].

School feeding programs are considered one of the most effective public health strategies in developed[6] and low- and middle-income countries[7] to promote healthy habits. Well-structured feeding programs act directly on all axes of the global syndemic of obesity, malnutrition, and climate change[8]. The Brazilian National School Feeding Program (PNAE, *Programa Nacional de Alimentação Escolar*) is one of the largest programs in the world and is internationally recognized as a strategy for fighting obesity and promoting healthy eating[9].

Through the PNAE, students can benefit from one up to three free meals a day school, depending on their age and time spent at school. Most adolescents in Brazil attend part-time schools, thus receiving one daily meal[10]. The objective of the program is to develop healthy eating habits through food and nutrition education activities and the provision of meals that meet the nutritional needs of students in the public basic education network (kindergarten, elementary, and high school) throughout school year[11]. The PNAE menus are planned by nutritionists based on fresh or minimally processed foods. Sugar-sweetened beverages are forbidden and ultra-processed foods rich in sodium or saturated fats are restricted[11,12]. PNAE legislation also determines that at least 30% of financial resources must be used to purchase food from family farmers[11-13].

Previous studies conducted with children and adolescents suggest there is a relationship between adherence to the food offered by the PNAE and better quality of diet[14-20]. Prior to this study, none evaluated this association using the identification of dietary patterns, which allows a better representation of the complexity of habits compared to the evaluation of the consumption of foods and isolated nutrients, recognizing that foods are consumed in combination.

Considering the importance and urgency in evaluating the effectiveness of public policies for the prevention and control of obesity, the objective of this study was to verify the association between adherence to school meals and dietary patterns in a representative sample of adolescents from Brazilian public schools.

METHODS

This is a cross-sectional study with data from the 2019 National School Health Survey (PeNSE, *Pesquisa Nacional de Saúde do Escolar*), with students from public and private schools in Brazil, carried out by the Brazilian Institute of Geography and Statistics (IBGE, *Instituto Brasileiro de Geografia e Estatística*) and the Ministries of Health and Education. The sample estimates are representative of Brazilian students from 13 to 17 years old (n=124,898), covering the 27 federative units, including capitals and other municipalities. However, considering the objective of this study, only data of students (n=54,096) from public schools that offered school meals were evaluated. After excluding no-respondents to questions regarding exposure and/or outcome of this study, the final sample corresponded to 53,477 students.

Data were collected between April and September of 2019 through a Mobile Collection Device (DMC, *dispositivo móvel de coleta*), which is a smartphone where structured questionnaires are stored. More detailed information on sample size design can be found in the survey publication[21].

The dependent variable was constructed from the weekly frequency (days/weeks) of food consumption of five food groups included on the 2019 PeNSE food consumption markers questionnaire: beans, vegetables, fruits, sweets (e.g. candies, sweets, chewing gums, and chocolates), and soft drinks. The first three items are healthy eating markers while the others are unhealthy eating markers, a classification adopted by IBGE[21]. The adolescents could answer that they did not consume or indicate the frequency that varied from 1–7 days. According to the answers for each food group, the consumption was categorized into regular (≥5 times/week) and non-regular (<5 times/week). Based on food consumption (regular or non-regular), dietary patterns were identified by a posteriori latent class analysis.

Latent class analysis (LCA) was conducted on the Polytomous Variable Latent Class Analysis (poLCA)[22] package available in the library of R statistical software. The number of classes (patterns) was selected based on the lowest value of the Bayesian Information Criterion (BIC), Akaike Information Criterion (AIC), likelihood ratio (G^2), and highest entropy value. Among the methodologies used to derive dietary patterns, the LCA, considered an "individual-centered" analytical technique, has the advantage of being able to group individuals into latent (unobservable) classes, which contain individuals similar to each other and different from individuals of other classes. Through this technique, it is possible to use standardized criteria to determine the most appropriate number of classes, allowing the grouping of individuals with similar patterns without overlapping, facilitating the interpretation of the results.

The independent variable of interest was adherence to school meals, which was constructed from the question of how many days in the last week the adolescent consumed

the food provided by the school. Consumption for every school day was classified as "high adherence", consumption for 1–4 days in the last week and rarely was "unsatisfactory", and "non-adherence" when not consumed[17,23].

Socioeconomic and eating behavior characteristics were used to describe the sample and to adjust the associations (covariates), which were identified by constructing the directed acyclic graph (DAG) in the program DAGity version 3.0[24] (Figure 1). The minimum adjustment identified included sex (male and female); age (13–15 years and 16–17 years); living with parents (both of them, only mother, only father, neither of them); maternal schooling (complete higher education, complete secondary education/incomplete higher education, complete primary education/incomplete secondary education, incomplete primary education and no education); socioeconomic stratum (tertiles: low, medium, and high); school's geographic location (urban or rural); and macroregion (North, Northeast, Southeast, South, and Midwest).

The socioeconomic level variable was constructed based on the following reported items: owning a car, mobile phone, internet, computer, motorcycle, bathroom with shower in the house, and the presence of a maid three or more days a week. A weight was assigned to each item, which was the inverse of the frequency of ownership or presence in the total sample evaluated. Each adolescent's score was obtained by adding the individual items' weights, which were later divided into three tertiles[23]. Multiple imputations by chained equations (MICE) were performed for the variable maternal schooling, which showed a 21% loss of information, to assign numerical values to the variable[25]. Predictive variables for imputation were: gender, household assets (car, mobile phone, number of bathrooms at home), and services (maid and internet access at home), according to a previous study[26].

Regarding the variables on eating behavior, the following were considered: having meals (lunch or dinner) with parents or guardians; eating while watching television or studying; having breakfast; and having meals at fast-food restaurants. Based on the frequency of these behaviors, the variables were grouped into two categories: "regular" (≥5 days/week), and "non-regular" (0–4 days/week)[27]. The food purchases in the school canteen were grouped into three categories: "regularly" (≥3 days/week), "not regularly" (0–4 days/week), and "no" (no school canteen).

A descriptive analysis of dietary patterns (dependent variable) was carried out, according to sociodemographic characteristics and eating behavior (covariates), with a description of the proportion and respective 95% confidence intervals (95%CI). Multinomial regression models unadjusted and adjusted for confounding variables were used to evaluate the association between adherence to school meals and dietary patterns. The "monotonous" pattern was defined as a reference category in the regression models. The results were expressed in odds ratios (OR) and their respective 95%CI.

PeNSE was approved by the National Research Ethics Committee (Conep, *Comissão Nacional de Ética em Pesquisa*) in April 2019 (registration No. 3,249,268). RSudio software was used for LCA, and Stata version 14.2, for all other statistical analyses, considering the complex sample design.

RESULTS

Among the 53,477 evaluated adolescents, 52.6% were female, 63.1% were 13–15 years old, 53.5% lived with both parents, 49.4% were classified in the low socioeconomic stratum, 33.8% had mothers with complete secondary education or incomplete higher education, 92.4% attended schools in the urban area, and 40.1% were from the South-
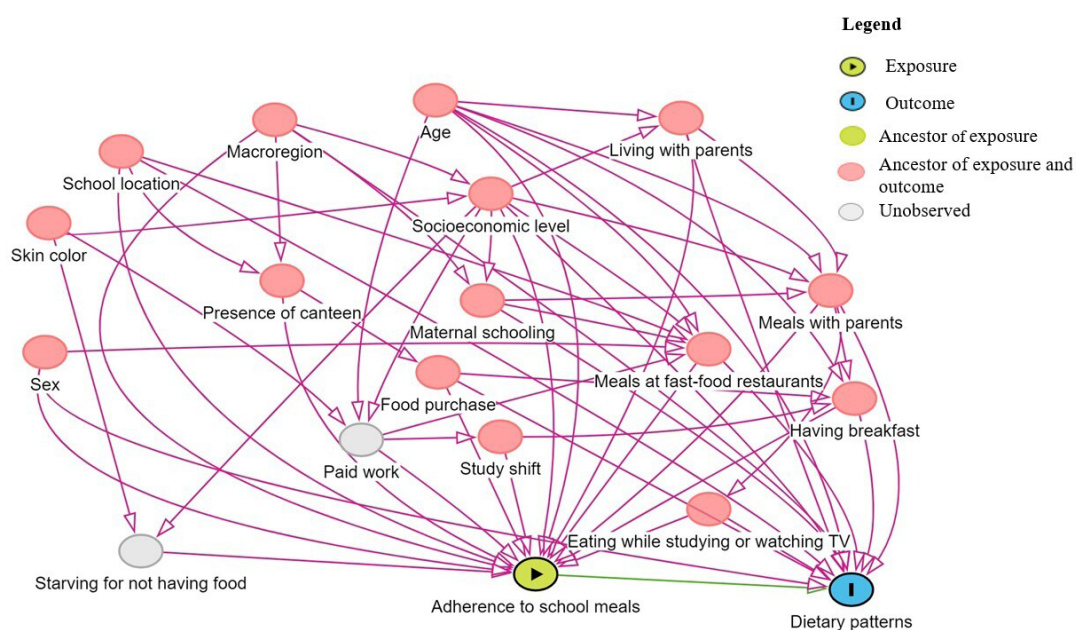

Figure 1. Directed acyclic graph showing the association between adherence to school meals with dietary patterns.

east region. Regarding health behavior, 34.7% did not regularly buy food from the school canteen, 57.7% ate breakfast regularly, 69.5% had meals with their parents or guardians regularly, 58.3% ate while watching TV or studying, and 94.5% did not regularly eat at fast-food restaurants. It was observed that 30.3% adhered to school meals, 47.2% adhered unsatisfactorily, and 22.5% did not adhere (Table 1).

Models of two to six classes were identified through LCA. The model with three dietary patterns was selected because it was considered the best fit, with the lowest BIC, AIC, and G^2, and one of the highest entropy values (Table 2).

The first dietary pattern identified was "unhealthy", characterized by the higher consumption of sweets and soft drinks, comprising 8.7% of the adolescents (95%CI 8.1–9.2). The second dietary pattern was "healthy", which included 29.2% (95%CI 28.3–30.1) of the adolescents and was characterized by higher regular consumption of all evaluated healthy markers (beans, vegetables, and fruits). The third dietary pattern, "monotonous", was the most prevalent comprising 62.1% (95%CI 61.3–63.0) of the adolescents and was characterized by those who regularly consumed only beans among the healthy markers evaluated (Table 1 and Figure 2).

The proportion of adolescents classified as having a "healthy" dietary pattern was higher among those with high adherence to school meals (31.9%; 95%CI 30.4–33.5) and unsatisfactory adherence (28.9%; 95%CI 27.8–30.1) when compared to those who did not consume (non-adherence: 26.0%; 95%CI 24.6–27.5). "Healthy" dietary pattern was significantly higher in adolescents who were male, younger, living with both parents, of high socioeconomic level, had mothers that completed high school, were residents of the Midwest and Southeast region, did not buy food in the school canteen or attended schools without a canteen, had breakfast regularly, had meals with parents/guardians regularly, and did not have meals while studying or watching television regularly (Table 1).

In the unadjusted model, a positive association was observed between high adherence to school meals (OR 1.29, 95%CI 1.17–1.43) and unsatisfactory adherence (OR 1.14, 95%CI 1.05–1.23) and the "healthy" pattern, when compared with no-adherence. Moreover, a negative association was observed between high adherence to school meals and the "unhealthy" dietary pattern (OR 0.77, 95%CI 0.64–0.93) (Table 3). After adjustments, high adherence and unsatisfactory adherence remained associated with a "healthy" dietary pattern (OR 1.37, 95%CI 1.23–1.52 and OR 1.20, 95%CI 1.10–1.30, respectively) (Table 3).

DISCUSSION

In the present study, three dietary patterns ("unhealthy", "healthy", and "monotonous") were identified based on markers of food intake among Brazilian adolescent students aged 13–17 years who attended public schools with school meals, based on a nationally representative school-based survey carried out in 2019. The most prevalent pattern was composed of beans, and was named "monotonous". The "healthy" dietary pattern was positively associated with high and unsatisfactory adherence to school meals, suggesting a relationship with the frequency of adherence, that is, the consumption of school meals can contribute positively to the quality of the diet of Brazilian adolescents.

These findings can be explained both by the direct relationship between adherence to school meals, which offers healthy food groups, and by encouraging the consumption of these foods out of school based on food and nutrition education activities, which are provided by Brazilian PNAE legislation.

Models were adjusted by a question regarding purchase frequency in canteens by students. Adherence to school meals remains associated with a "healthy" dietary pattern, regardless of the influence of purchase frequency in canteens. This reinforces the importance of strengthening the PNAE as a promotion of healthy eating since the implementation and execution of norms aimed at regulating the commercialization of unhealthy foods in the school environment are considered a challenge for public schools.

In this context, it is important to highlight that the menus planned under PNAE value a diet based on fresh or minimally processed foods. It has been mandatory, since 2009, to offer a minimum of three servings of fruits and/or vegetables per week (200 g/week). The amounts of sugar, sodium, and fat in daily preparations are limited, low nutritional content drinks (soft drinks and artificial refreshments, and drinks or concentrates based on guarana or currant syrup, ready-to-drink teas, and other similar drinks) are prohibited, and ultra-processed foods (canned food, sweets, compound foods, semi-ready or ready-made preparations, or concentrated foods) are restricted. In addition, the legislation establishes at least 30% of the financial resources for purchasing food from family farming, which promotes healthier food in schools[13] and contributes to sustainable food systems[28].

In 2020, the PNAE guidelines were updated based on the dietary guidelines for the Brazilian population, which classify foods into four groups according to food processing (natural or minimally processed, processed, culinary ingredients, and ultra-processed)[29]. It was established that 75% of financial resources should be allocated to the acquisition of natural or minimally processed foods, a maximum of 20% to processed and ultra-processed foods, and 5% to processed culinary ingredients. Such changes may provide better outcomes in future studies that evaluate the eating habits of schoolchildren since the purchase of ultra-processed foods under PNAE is more restricted[12].

Other studies conducted with Brazilian adolescents who participated in previous editions of PeNSE (2012 and 2015)[15,19,20,27] found an association between the consump-

Table 1. Distribution of adherence to school meals, sociodemographic and eating behavior characteristics, according to latent classes of dietary pattern identified among adolescents from Brazilian public schools. Brazil, 2019.

Variables	Geral		Unhealthy		Healthy		Monotonous	
	n	%	%	95%CI	%	95%CI	%	95%CI
Total	53,477	100.0						
Dietary patterns			8.7	8.1– 9.2	29.2	28.3–30.1	62.1	61.3–63.0
Adherence to school meals								
High adherence (every day)	16,522	30.3	7.5	6.7–8.3	31.9	30.4–33.5	60.6	59.1–62.1
Unsatisfactory adherence (1–4 times/week)	25,768	47.2	8.7	8.0–9.5	28.9	27.8–30.1	62.3	61.2–63.5
Non-adherence	11,130	22.5	10.2	9.0–11.4	26.0	24.6–27.5	62.3	62.2–65.3
Adjustment variables								
Sex								
Male	25,363	47.4	7.9	7.1–8.7	31.6	30.5–32.7	60.5	59.5–61.6
Female	28,005	52.6	9.4	8.7–10.2	27.0	25.7–28.3	63.6	62.2–65.0
Age (years)								
13–15	32,694	63.1	8.6	7.9–9.3	30.9	29.9–32.0	60.5	59.4–61.6
16–17	20,753	36.9	8.9	7.9–9.9	26.2	24.8–27.7	64.9	63.4–66.4
Living with parents								
Both of them	27,240	53.5	8.1	7.5–8.8	30.4	29.4–31.5	61.5	60.3–62.6
Only mother	18,962	34.1	9.3	8.5–10.3	27.7	26.2–29.2	62.9	61.5–64.3
Only father	3,019	5.1	8.5	6.7–10.8	28.7	25.9–31.6	62.8	59.6–65.9
Neither of them	4,185	7.3	9.7	8.1–11.6	27.2	24.1–30.5	63.1	60.1–66.1
Socioeconomic level								
High (3º tertile)	10,248	19.5	11.7	10.5–13.0	33.6	31.8–35.4	54.7	52.9–56.5
Medium (2º tertile)	15,628	31.1	9.6	8.8–10.6	30.3	28.9–31.7	60.1	58.8–61.4
Low (1º tertile)	27,562	49.4	6.9	6.3–7.5	26.8	25.7–27.9	66.4	65.3–67.4
Maternal schooling								
Complete higher education	10,356	17.9	9.3	8.2–10.6	34.1	32.5–35.8	56.6	54.7–58.4
Complete secondary education/ incomplete higher education	18,257	33.8	9.6	8.8–10.4	29.1	27.8–30.5	61.3	60.0–62.6
Complete primary education/incomplete secondary education.	9,626	18.3	9.2	8.1–10.6	28.7	26.9–30.5	62.1	60.2–64.0
Incomplete primary education	12,549	24.9	7.4	6.5–8.4	26.8	25.4–28.2	65.8	64.2–67.3
No education	2,622	5.2	4.6	3.3–6.4	26.1	23.5–28.9	69.3	66.4–72.0
School geographic location								
Urban	49,808	92.4	9.1	8.5–9.7	29.3	28.3–30.3	61.6	60.7–62.5
Rural	3,639	7.6	3.7	2.9–4.7	27.7	24.8–30.9	68.6	65.3–71.7
Macroregion of the municipality								
North	12,688	10.9	5.6	5.1–6.2	21.9	19.8–24.2	72.4	70.2–74.5
Northeast	17,335	26.8	5.4	4.8–6.1	26.9	25.5–28.4	67.6	66.2–69.1
Southeast	9,645	40.1	10.9	9.8–12.1	31.8	30.0–33.6	57.3	55.8–58.9
South	5,780	14.3	9.6	8.5–10.8	29.3	27.5–31.2	61.1	59.1–63.1
Midwest	7,999	8.0	11.1	10.2–12.0	33.3	32.0–34.7	55.5	54.1–57.1
Food purchases in the school canteen								
Regularly (≥3 times/week)	5,923	11.4	20.0	17.6–22.7	26.7	24.3–29.3	53.2	50.3–56.2
Not regularly (≤2 times/week)	17,114	34.7	8.6	7.7–9.7	28.1	26.4–29.8	63.3	61.4–65.1
No (no school canteen)	30,303	54.0	6.3	5.8–6.8	30.4	29.4–31.4	63.3	62.2–64.4
Having breakfast regularly								
Regularly (≥5 times/week)	30,908	57.7	7.1	6.5–7.6	33.8	32.8–34.9	5.9	58.2–60.1
Not regularly	22,533	42.3	10.9	10.1–11.8	22.9	21.6–24.2	6.6	64.7–67.6
Meals with parents								
Regularly (≥5 times/week)	35,991	69.5	8.0	7.5–8.5	32.4	31.4–33.5	59.6	58.5–60.6
Not regularly	17,443	30.5	10.3	9.2–11.4	21.7	20.6–22.9	68.0	66.8–69.2
Eating while studying or watching TV								
Regularly (≥5 times/week)	31,391	58.3	10.9	10.1–11.7	26.1	25.0–27.2	63.0	61.9–64.0
Not regularly	22,031	41.6	5.6	4.9–6.3	33.5	32.2–34.8	61.0	59.6–62.3
Meals at fast-food restaurants								
Regularly (≥5 times/week)	3,091	5.5	26.6	23.3–30.2	32.6	29.0–36.3	40.8	37.5–44.3
Not regularly	50,309	94.5	7.6	7.1–8.2	29.0	28.1–29.9	63.4	62.5–64.3

N: number of individuals (unweighted sample); 95%CI: 95% confidence interval.

tion of school meals and healthy foods, reinforcing our findings and demonstrating the importance of the PNAE as a health-promoting policy over the years.

To our knowledge, this study is a pioneer in evaluating the association between adherence to school meals and dietary patterns in a representative sample of adolescents in Brazil. However, a study carried out by Lobo et al. in public schools in Florianópolis (SC), in the South region, presented results similar to ours[16]. The authors found that children and adolescents who reported consuming school meals were significantly more likely to have a traditional dietary pattern, characterized by a higher frequency of consumption of beans and rice. On the other hand, boys who reported not consuming school meals were more likely to have a "monotonous" dietary pattern, characterized by a higher frequency of consumption of pasta, instant noodles, and pizza/hamburger/hot dog.

The food offered by the PNAE has been associated with a lower occurrence of obesity, hypertension, and insulin resistance in adolescents[19,30,31] and obesity in children, which can be attributed to the impact of school meals on diet quality. These findings are consistent with our hypothesis that the food offered by the PNAE is achieving its objective of promoting the formation of healthy eating habits among students, as provided for in its guide-

lines[11-13]. Therefore, the PNAE can be considered a great tool to achieve the Sustainable Development Goals for 2030, which outline strategies such as promoting healthier eating behaviors, adopting sustainable food systems[32], and mitigating the global syndemic of obesity, malnutrition, and climate change.

Although the PNAE provides free school meals and studies show positive effects of the consumption of school meals in Brazil, adherence among adolescents is still low. The school food environment, sociodemographic characteristics, and eating habits are pointed out in the literature
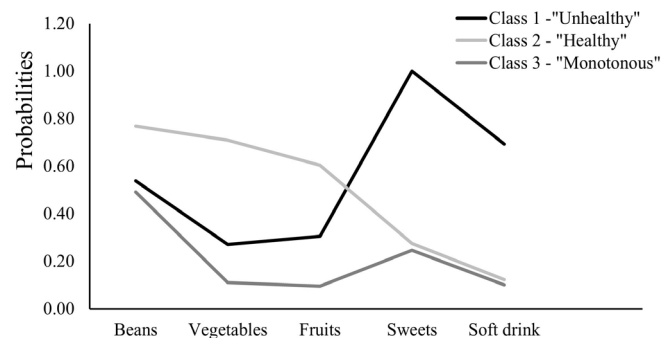
Figure 2. Item-response probabilities of regular consumption (≥5 times/week) of dietary patterns among students from Brazilian public schools.

Table 2. Latent class adjustment statistics for dietary patterns among adolescents from Brazilian public schools.

Nº of latent classes	G^2	AIC	BIC	Entropy	Class allocation ratio (%)					
					1	2	3	4	5	6
2	2.822.977	305413.3	305511.1	0.441	30.55	69.45				
3	473.404	303075.7	303226.8	0.496	9.21	27.11	63.68			
4	19.190	302633.5	302837.9	0.489	49.18	20.59	2.86	27.37		
5	8.372	302634.7	302892.4	0.401	18.12	3.69	24.64	35.57	17.99	
6	0.221	302638.5	302949.6	0.384	33.14	17.88	3.10	7.20	20.74	17.94

G^2: likelihood ratio statistic; AIC: Akaike information criterion; BIC: Bayesian information criterion.

Table 3. Multinomial logistic regression models for the association of adherence to school meals with dietary patterns among adolescents from Brazilian public schools. Brazil, 2019.

	Latent dietary patterns					
	Unhealthy			Healthy		
	OR	95%CI	p-value	OR	95%CI	p-value
Unadjusted model						
Adherence to school meals						
High adherence (every day)	0.77	0.64–0.93	<0.01	1.29	1.17–1.43	<0.01
Unsatisfactory adherence (1–4 times/week)	0.88	0.76–1.02	0.09	1.14	1.05–1.23	<0.01
Non-adherence	1.00			1.00		
Adjusted model						
Adherence to school meals						
High adherence (every day)	1.01	0.85–1.21	0.90	1.37	1.23–1.52	<0.01
Unsatisfactory adherence (1–4 times/week)	1.06	0.92–1.23	0.41	1.20	1.10–1.30	<0.01
Non-adherence	1.00			1.00		

OR: odds ratio; 95%CI: 95% confidence interval.
Reference category: monotonous food. Adjusted for sociodemographic variables (sex, age, socioeconomic level, maternal schooling, living with parents, macroregion of the municipality, and school geographic location), eating behavior (food purchase in the school canteen, having breakfast, eating while studying or watching TV, meals with parents or guardians, and meals at fast-food restaurants).

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as factors that influence the consumption of school meals. Among those factors, schools should be emphasized as an important setting to promote healthy behaviors[33]. However, in the Brazilian context, the sale of competitive foods in private canteens and other places around the school contributes to low adherence to school meals and the consumption of unhealthy foods.

Some potential strengths and limitations of our analysis merit consideration. First, the PeNSE 2019 survey did not assess where food was consumed, which can be considered a limitation of this study. However, it is known that the school environment is capable of influencing consumption in other places[34] and that food consumption on school days is associated with healthier eating habits[16]. Second, the food consumption markers questionnaire from PeNSE included only a few healthy and unhealthy markers, which do not represent the adolescent's food consumption of the whole day. Third, although the analysis of this study is based on a cross-sectional survey, the DAG was useful to identify possible confounding factors. Furthermore, we emphasize that the consistency of our results was evidenced by the dose-response relationship found between exposure and outcome. Fourth, the sample of this study should be noted since it represents Brazilian adolescents aged 13–17 years, covering the macroregions, including capitals and other municipalities. Fifth, the uniqueness of evaluating the association between adherence to school meals and dietary patterns derived by LCA in a representative sample of Brazilian school adolescents.

The results of this study show that adherence to school meals was associated with a "healthy" dietary pattern among Brazilian adolescents, which reinforces the crucial role of the PNAE in promoting health among adolescents and its potential to mitigate the global syndemic. Given the Brazilian context, in which the consumption of unhealthy foods is increasing and the consumption of healthy foods is low among adolescents, the results of this study are relevant for planning actions that encourage students to consume the food offered in schools. Furthermore, these findings should be considered by decision-makers when planning the allocation of financial resources aimed at improving eating habits among adolescents.

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RESUMO

Objetivo: Este estudo teve como objetivo verificar a associação entre a adesão à alimentação escolar fornecida pelo Programa Nacional de Alimentação Escolar e os padrões alimentares em adolescentes de escolas públicas brasileiras. **Métodos:** Foram utilizados dados da Pesquisa Nacional de Saúde Escolar de 2019, com uma amostra nacionalmente representativa de adolescentes brasileiros (n=53.477; 13–17 anos). O consumo de alimentos marcadores saudáveis e não saudáveis foi obtido a partir de um questionário de consumo alimentar. O consumo regular foi considerado ≥5 vezes/semana. A análise de classes latente foi utilizada para identificar padrões alimentares cuja associação com a adesão à alimentação escolar foi avaliada por modelos de regressão logística multinomial, com ajuste para variáveis sociodemográficas e de comportamento alimentar. **Resultados:** Foram identificados três padrões alimentares: "não saudável" — maior consumo de refrigerantes e doces (9,2% dos adolescentes); "saudável" — maior consumo de feijão, vegetais e frutas (27,1%); e "monótono" — maior consumo de feijão (63,7%). Alta adesão à alimentação escolar (todos os dias) e adesão insatisfatória (1–4 vezes/semana) foram positivamente associadas ao padrão saudável, mesmo após ajuste para possíveis fatores de confusão (OR 1,37, IC95% 1,23–1,52; OR 1,20, IC95% 1,10–1,30, respectivamente). **Conclusão:** Os resultados mostraram que o consumo das refeições escolares oferecidas pelo Programa Nacional de Alimentação Escolar pode contribuir para hábitos alimentares saudáveis entre os adolescentes brasileiros.

Palavras-chave: Padrões dietéticos. Análise de classes latentes. Política pública. Alimentação escolar. Adolescentes.