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Characteristics and spending on out-of-home eating in Brazil

ABSTRACT

OBJECTIVE: To analyze the characteristics of out-of-home eating and spending on such consumption.

METHODS: A complex sample of 48,470 Brazilian households, selected from the 2002-2003 Household Budget Survey (HBS) was analyzed. Out-of-home eating was defined as the purchase of at least one type of food for consumption out of the home during seven days. Frequencies of out-of-home eating were estimated according to age, sex, level of education, monthly per capita household income, number of residents per household, Brazilian regions, situation of household (urban/rural) and capital/other city. A total of nine groups of foods were studied: alcoholic beverages, soft drinks, cookies, fruits, sweets, milk and dairy products, fast foods, sit-down meals and deep-fried snacks.

RESULTS: Frequency of out-of-home eating was 35%, being higher in the Southeast region (38.8%) and lower in the North region (28.1%) of Brazil. Frequency was higher in individuals aged between 20 and 40 years (42%), males (39% vs. 31%), with higher income (52%) and educational levels (61%). Foods most frequently consumed out of the home were as follows: soft drinks (12%), sit-down meals (11.5%), sweets (9.5%), deep-fried snacks (9.2%) and fast foods (7.2%). Consumption of food groups increased linearly with income, except for fruits and cookies. Values of weekly mean spending were lower for cookies (R\$ 1.79 or US\$ 0.54) and sweets (R\$ 2.02 or US\$ 0.67) and higher for sit-down meals (R\$ 21.56 or US\$ 6.53).

CONCLUSIONS: Out-of-home eating is frequent in all Brazilian regions. Public policies must incorporate this dimension when proposing healthy eating strategies.

DESCRIPTORS: Food Consumption. Feeding Behavior. Food Services, utilization. Restaurants. Budgets. Income. Diet Surveys.

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INTRODUCTION

Changes in food consumption and the increase in physical inactivity have been associated with the growth in prevalence of overweight, obesity and other non-communicable chronic diseases, with an important impact on the health of the population.¹⁰

One of the factors related to diet, which seems to have a considerable influence on the increase of these prevalences is out-of-home eating.^{10,18,20} Foods consumed out of the home are recognizably less healthy than those consumed at home; they have higher energy density; higher sugar, salt and fat content, especially saturated fat; and they are, in general, poor in fibers, calcium and iron.⁶⁻⁸

In the United States, in 2004, 46% of spending on food was related to out-of-home eating.¹⁶ In Brazil, data gathered from the Household Budget Survey (HBS), performed in 2002-2003, revealed that this spending totaled 24%.^a

HBSs are important sources of data on food spending and have been used to obtain estimates of family food consumption.¹⁵ Although these surveys do not investigate food consumption by individuals, they provide information about the purchase of foods consumed in and out of the home.⁹

The last Brazilian HBS, performed in 2002-2003, included the types of food purchased for consumption out of the home for the first time. There are no other data in Brazil that provide detailed information about the foods consumed by the Brazilian population, particularly out of the home.

The present study aimed to analyze the characteristics of out-of-home eating and spending on such consumption.

METHODS

Data from the 2002-2003 HBS, conducted by the *Instituto Brasileiro de Geografia e Estatística* (IBGE – Brazilian Institute of Geography and Statistics) between July 2002 and June 2003 and obtained from interviews in a sample of 48,470 households, were used.

Sampling plan and other methodological details were described in a previous publication.^a The sample is representative of the urban and rural population, Brazilian regions and different socioeconomic levels.

In the 2002-2003 HBS, 183,333 individuals were interviewed. In the present study, only those aged more than ten years (N=146,525), considered by the survey as

possibly contributing to the household budget (income, expenses or purchases), were included.

Information about out-of-home eating was obtained by applying a questionnaire of individual expenses with daily records describing each product purchased, the amount paid and the place of purchase, for seven consecutive days. Individuals had the choice of grouping several purchases of the same item in one single record, including the total amount spent in the week. Out-of-home eating was defined as the purchase of at least one food consumed out of the home, aimed at the same unit of consumption of the individual who purchased the food during the week of data collection.

Selection of food groups was based on the Brazilian directives on food and nutrition, in accordance with the recommendations from the *Guia Alimentar para a População Brasileira* (Food Guide for the Brazilian Population).^b Food items mentioned by interviewees were grouped into alcoholic beverages, soft drinks, cookies, fruits, sweets, milk and dairy products, fast foods, deep-fried and baked snacks and sit-down meals to describe the consumption of foods out of the home. The most representative characteristics of the foods consumed were considered in the classification. Rice and beans, for example, were categorized as sit-down meal, whereas sandwiches and hamburgers fell into the fast food group.

Alcoholic beverages, soft drinks, cookies, sweets, fast foods and deep-fried and baked snacks were selected as possible markers of “unhealthy” food consumption. All sweet and salty crackers, with filling and wafer, were included in the group of cookies. Drops, bonbons, chocolate, ice-cream, milk shake and party sweets, among others, fell into the group of sweets. The group of fast foods comprises all types of sandwiches, hamburgers, cheeseburgers, pizza, French fries and others. *Coxinha*, *risole* and *pastel* (typical Brazilian snacks, which are usually fried and include a variety of fillings, such as meat, cheese and/or vegetables), among others, were in the group of deep-fried and baked snacks.

There are specific recommendations from the Brazilian Ministry of Health for the group of fruits and the group of milk and dairy products, included as possible markers of a healthy diet. Sit-down meals were also considered as a food group, once meals are traditionally based on rice and beans in Brazil and this dietary pattern has been associated with low risk of overweight and obesity.¹⁴ The group of sit-down meals included *a la carte* lunch and dinner, self-service meals and school meals.

^a Instituto Brasileiro de Geografia e Estatística. Aquisição domiciliar per capita, Brasil e grandes regiões. Rio de Janeiro; 2004.

^b Ministério da Saúde. Guia alimentar para a população brasileira: promovendo a alimentação saudável. Brasília, DF; 2006.

The number of individuals, who reported purchasing at least one type of food consumed out of the home for one week, was divided by the total number of individuals so the frequency of out-of-home eating could be calculated. Estimates of frequencies of out-of-home eating are shown according to sex, age, level of education, per capita monthly household income, number of residents in the household, Brazilian regions, situation of household and its location (capital or other city). Age was stratified into the following six age groups: ten to 19 years; 20 to 29 years; 30 to 39 years; 40 to 49 years; 50 to 59 years and 60 years or older. Level of education was divided into four groups: without education, elementary school, high-school, and incomplete and complete undergraduate and postgraduate studies. Income was calculated as the ratio between all monthly household incomes (monetary and non-monetary) and the total number of individuals in the household. Income strata considered were as follows: up to $\frac{1}{2}$ minimum wage, between $\frac{1}{2}$ and two minimum wages, between two and five minimum wages and more than five minimum wages. The value of salary considered referred to the value of one minimum wage on January 15th 2003 (R\$ 200.00 or US\$ 60.00). The median of number of residents per household was equal to four. This number was used to stratify this variable into the following two groups: households with fewer than four residents and households with more than four residents. The same stratification, considered in the HBS as urban or rural household, was used as the “situation of household” variable.

Associations between out-of-home eating and the sex, number of residents per household, situation of household (urban or rural) and location of household (capital or other city) variables were tested using chi-square test. Chi-square test used was that with Rao-Scott second order correction, a version with design effect correction for Pearson chi-square statistics.¹³

Associations were calculated using logistic regression for the variables with more than two levels of classification (age, level of education and income). Age, level of education and income were included in the model as independent variables and out-of-home eating or not was included as dependent variable. The quadratic relationship found between out-of-home eating and age was calculated with the inclusion of the linear and quadratic terms of age as independent variables in the logistic regression.

The frequencies of consumption of food groups were also estimated, according to Brazilian region, age, sex, income and situation of household.

All estimates were calculated using the Statistical Analysis System (SAS) software, version 9.1. Given the complexity of the sampling design, the survey procedure was used, as it incorporates HBS expansion

factors into each household and takes into consideration both levels of sample selection.

RESULTS

The prevalence of out-of-home eating was 35.1%. The Southeast region showed the highest frequency of out-of-home eating, followed by the South and Northeast regions (38.8%; 34.8% and 32.4%, respectively), whereas the Central-West and North regions showed the lowest frequencies (30.9% and 28.1%, respectively). The state with the highest frequency was Rio de Janeiro (46.7%), followed by the Federal District (45.1%), while the states with the lowest frequencies were Mato-Grosso (20.9%) and Rio Grande do Norte (19.3%).

The highest frequency of out-of-home eating occurred in the 20-to-40-year age group. In all regions, males showed a higher frequency of out-of-home eating than females. This frequency increased linearly with the increase in level of education and per capita monthly household income. As regards the size of family, families with fewer than four residents (median) showed higher percentages of out-of-home eating. The urban area, when compared to the rural area, showed a higher frequency of out-of-home eating, as well as capitals, when compared to other cities (Table 1).

Mean per capita monthly household income among individuals who eat out was R\$ 673.30 (US\$ 202.00) for Brazil as a whole. The Northeast and North regions showed the lowest means (R\$ 375.20/US\$ 112.56 and R\$ 412.10/US\$ 123.63, respectively), whereas the means in the Central-West, South and Southeast regions were R\$ 707.50 (US\$ 212.25); R\$ 781.50 (US\$ 234.45) and R\$ 829.80 (US\$ 248.94), respectively.

Table 2 shows the frequency of consumption of food groups in Brazil and in each region. The highest frequency of out-of-home eating in this country concerned the group of soft drinks, varying from 9% in the Northeast region to 14% in the Southeast region. In the South region, the most frequent item was sit-down meals, while, in the Northeast region, it was sweets. In contrast, the group with the lowest frequency of out-of-home eating in all regions was fruits.

Moreover, the influence of per capita family monthly income was observed for the majority of foods. Individuals with higher income showed frequencies of out-of-home eating five times greater than those with lower income, while, in the North region, this increase was almost ten times greater (data not shown). The food group with the greatest difference between frequencies, according to income strata, was fast foods. Individuals with five or more minimum wages had a frequency of consumption of fast foods seven times higher than those with up to $\frac{1}{2}$ a monthly minimum wage. The only groups that did not show

Table 1. Frequency of out-of-home eating, reported for one week, according to demographic and socioeconomic conditions in Brazil and its regions. Brazil, 2002-2003.

Variable	Region (%)					
	Brazil n=146.525	North n=21.759	Northeast n=59.801	Central-West n=23.170	Southeast n=24.956	South n=16.839
Age group (years)						
10 to 19	30.6	16.2	31.0	27.0	35.4	27.1
20 to 29	42.5	36.7	37.3	37.5	47.3	44.0
30 to 39	42.2	39.0	39.3	35.7	45.4	42.4
40 to 49	38.0	34.1	33.1	33.7	41.4	38.1
50 to 59	30.9	25.1	28.0	23.0	34.3	30.8
60 or more	19.0	18.3	18.4	16.3	19.3	20.0
Quadratic trend p	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Sex						
Male	39.1	32.3	36.1	35.6	43.2	37.7
Female	31.4	23.9	29.0	26.3	34.7	32.0
X ² test p	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Level of education						
Without education	18.5	17.8	21.1	13.6	16.3	16.6
Elementary school	31.3	31.3	31.2	26.9	32.2	30.8
High-school	45.8	43.0	43.6	40.6	46.3	45.4
Incomplete and complete undergraduate and postgraduate studies	61.7	58.2	52.7	57.1	64.7	60.9
Linear trend p	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Per capita monthly household income (in minimum wages)						
Up to ½	22.5	17.4	23.4	15.0	25.7	20.3
½ to 2	31.6	29.2	33.4	27.4	32.9	28.1
2 to 5	41.9	38.3	45.6	39.1	41.9	40.9
> 5	52.4	48.8	52.0	48.2	53.4	51.4
Linear trend p	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Number of residents per household						
>4	31.6	24.6	30.2	28.4	35.6	30.0
≤4	37.6	33.1	34.7	32.3	40.6	36.8
X ² test p	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Situation of household						
Rural	28.4	19.0	28.5	19.6	35.4	27.4
Urban	36.5	31.1	33.9	32.4	39.1	36.3
X ² test p	<0.0001	<0.0001	<0.0001	<0.0001	0.0013	<0.0001
City where household is located						
Other cities	33.5	25.7	30.7	28.6	37.4	33.5
Capital	40.6	33.8	38.3	39.6	43.0	42.8
X ² test p	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

linear growth with the increase in income were cookies and fruits. In the group of cookies, individuals with lower income (up to two minimum wages) showed the highest frequencies of consumption. The group of fruits showed frequencies of consumption practically stable among income strata (Table 3).

Mean total weekly spending on out-of-home eating in Brazil was R\$ 14.37 (US\$ 4.31). Spending was lower for the group of cookies (R\$ 1.79 or US\$ 0.54) and sweets (R\$ 2.02 or US\$ 0.61) and higher for the group of sit-down meals (R\$ 21.56 or US\$ 6.47), alcoholic beverages (R\$ 12.14 or US\$ 3.64) and fast foods (R\$

Table 2. Frequency of consumption of food groups out of the home in Brazil and its regions, reported for one week. Brazil, 2002-2003.

Food group	Region % (95% IC)					
	Brazil n=146.525	North n=21.759	Northeast n=59.801	Central-west n=23.170	Southeast n=24.956	South n=16.839
Alcoholic beverages	6.4 (6.1;6.6)	5.7 (5.3;6.2)	6.6 (6.3;6.9)	5.1 (4.7;5.4)	6.8 (6.3;7.2)	5.7 (5.3;6.1)
Soft drinks	12.0 (11.7;12.4)	11.0 (10.3;11.6)	9.2 (8.8;9.6)	11.2 (10.7;11.8)	14.1 (13.4;14.8)	12.0 (11.4;12.7)
Cookies	2.8 (2.7;3.0)	2.7 (2.4;3.1)	3.4 (3.2;3.7)	2.3 (2.0;2.6)	2.9 (2.6;3.1)	2.1 (1.8;2.3)
Fruits	0.7 (0.6;0.7)	0.9 (0.7;1.2)	0.9 (0.8;1.1)	0.3 (0.2;0.4)	0.6 (0.4;0.7)	0.4 (0.3;0.5)
Sweets	9.5 (9.1;9.8)	7.2 (6.7;7.8)	10.3 (9.9;10.7)	6.1 (5.6;6.5)	10.2 (9.6;10.8)	8.4 (7.8;8.9)
Milk and dairy products	2.3 (2.1;2.4)	2.1 (1.8;2.4)	2.3 (2.1;2.5)	1.6 (1.4;1.9)	2.6 (2.3;2.9)	1.6 (1.3;1.8)
Sit-down meals	11.5 (11.1;11.8)	7.0 (6.4;7.5)	8.6 (8.3;9.0)	10.7 (10.1;11.4)	13.3 (12.6;14.0)	14.0 (13.3;14.6)
Fast foods	7.2 (6.9;7.5)	4.1 (3.7;4.5)	5.1 (4.8;5.4)	5.2 (4.8;5.6)	9.2 (8.6;9.8)	7.8 (7.3;8.3)
Deep-fried and baked snacks	9.2 (8.9;9.5)	8.7 (8.1;9.4)	8.4 (8.0;8.8)	9.0 (8.5;9.6)	10.6 (10.0;11.2)	6.8 (6.3;7.3)

7.86 or US\$ 2.36). Mean spending on purchase of fruits, deep-fried and baked snacks, milk and dairy products and soft drinks were R\$ 2.67 (US\$ 0.80); R\$ 2.86 (US\$ 0.86); R\$ 3.08 (US\$ 0.92) and R\$ 3.17 (US\$ 0.95), respectively.

In terms of sex, men showed higher frequency of consumption of the majority of foods, with their consumption of alcoholic beverages being ten times higher than that of women. In contrast, women showed higher prevalences of consumption of cookies, fruits and sweets (Table 4).

Participation of fruits in out-of-home eating was higher in the rural area than in the urban area. However, the proportion of individuals who eat out in terms of other food groups was higher in the urban area than in the rural one (Table 4). In the urban area, the group of soft drinks showed the highest frequency of consumption, whereas, in the rural area, sit-down meals showed the highest frequency. However, a great number of these meals occur at school (48.7%). While 46.5% of meals are in pay-per-weight restaurants in the urban area, this frequency is 19.6% in the rural area.

Different patterns of consumption of food groups characterize the five age groups. Frequency of consumption of soft drinks, fruits, milk and dairy products, fast foods and deep-fried and baked snacks increased until the 30-to-39 year age group, subsequently decreasing. For alcoholic beverages and sit-down meals, this increase extended until the 40-to-49 year age group. A different

distribution was found for cookies and sweets, where there was a reduction in the frequencies of consumption with the increase in age (Table 5).

DISCUSSION

The characteristics of individuals who reported eating out corroborate findings from other studies.^{3,12} Young adults, males and those with higher level of education showed the highest frequency of out-of-home eating. It was also possible to identify higher frequencies among individuals living in households located in the urban area, in the capital and including fewer than four residents. These aspects, together with the level of education, are important markers of individuals' socioeconomic level, confirming the importance of income as a determinant of food consumption. Beydoun et al³ (2008), while studying spending on out-of-home eating in the United States, found a linear association between spending and per capita household income and a reduction in the quality of diet of Americans with greater spending on out-of-home eating.

Regional differences were found in terms of per capita monthly household income of individuals who eat out. Income in the North and Northeast regions is half of the income of other regions. However, the frequencies of out-of-home eating among individuals with lower income in the North and Northeast regions were higher than the frequencies of those with lower income in the other regions. One possible explanation for this apparently contradictory finding is that the possible

Table 3. Frequency of consumption of food groups out of the home, reported for one week, according to per capita monthly household income. Brazil, 2002-2003.

Food group	Per capita monthly household income (in minimum wages) % (95% CI)			
	Up to ½ n=32.146	½ to 2 n=73.248	2 to 5 n=27.871	5 or more n=13.260
Alcoholic beverages	3.9 (3.5;4.3)	5.7 (5.4;6.0)	7.9 (7.3;8.5)	9.2 (8.3;10.0)
Soft drinks	5.1 (4.7;5.6)	10.6 (10.2;11.0)	16.0 (15.2;16.9)	19.0 (17.7;20.3)
Cookies	2.8 (2.5;3.1)	3.2 (3.0;3.4)	2.5 (2.2;2.8)	2.3 (1.8;2.7)
Fruits	0.6 (0.4;0.7)	0.7 (0.6;0.8)	0.6 (0.4;0.7)	0.8 (0.5;1.0)
Sweets	8.0 (7.4;8.5)	9.2 (8.8;9.6)	10.2 (9.4;10.9)	11.0 (9.9;12.0)
Milk and dairy products	1.4 (1.2;1.6)	2.0 (1.8;2.2)	2.8 (2.5;3.2)	3.4 (2.9;4.0)
Sit-down meals	5.8 (5.2;6.3)	8.3 (7.9;8.7)	13.7 (12.9;14.5)	27.0 (25.5;28.5)
Fast foods	2.1 (1.8;2.5)	5.1 (4.8;5.5)	10.7 (9.9;11.5)	15.2 (13.9;16.5)
Deep-fried and baked snacks	5.8 (5.4;6.3)	8.6 (8.3;9.0)	11.2 (10.5;12.0)	11.7 (10.6;12.8)

consumption of certain very low cost items, such as sweets, is higher in the Northeast region.

In the analysis of types of food consumed out of the home, the group of soft drinks played an important

role in all regions of Brazil. In a study performed in Belgium with a representative sample of the population (N=3,245 individuals aged more than 15 years), Vandevijvere et al¹⁷ (2009) also found soft drinks as the group most frequently consumed out of the home. Ayala

Table 4. Frequency of consumption of food groups out of the home, reported for one week, according to sex and situation of household. Brazil, 2002-2003.

Food group	Sex		Situation of household	
	Male n=71.501	Female n=75.024	Urban n=113.005	Rural n=33.520
Alcoholic beverages	11.2 (10.8;11.7)	1.7 (1.6;1.9)	6.4 (6.1;6.7)	6.1 (5.8;6.5)
Soft drinks	14.3 (13.8;14.8)	9.9 (9.5;10.3)	12.7 (12.3;13.2)	8.4 (8.0;8.9)
Cookies	2.5 (2.3;2.7)	3.2 (3.0;3.4)	2.9 (2.7;3.0)	2.8 (2.6;3.1)
Fruits	0.6 (0.5;0.6)	0.7 (0.6;0.8)	0.6 (0.5;0.7)	0.9 (0.7;1.0)
Sweets	7.7 (7.3;8.1)	11.1 (10.7;11.5)	9.7 (9.3;10.1)	8.2 (7.7;8.7)
Milk and dairy products	2.5 (2.3;2.7)	2.0 (1.8;2.2)	2.3 (2.2;2.5)	1.9 (1.7;2.1)
Sit-down meals	13.2 (12.8;13.7)	9.8 (9.4;10.2)	11.9 (11.5;12.3)	9.3 (8.7;9.8)
Fast foods	8.0 (7.6;8.4)	6.4 (6.1;6.8)	8.0 (7.6;8.4)	3.2 (2.9;3.5)
Deep-fried and baked snacks	9.4 (9.0;9.8)	8.9 (8.5;9.3)	9.6 (9.3;10.0)	7.0 (6.6;7.4)

Table 5. Frequency of consumption of food groups out of the home, reported for one week, according to age groups. Brazil, 2002-2003.

Food groups	Age groups % (95% CI)					
	10 to 19 n=38.509	20 to 29 n=31.905	30 to 39 n=26.335	40 to 49 n=20.674	50 to 59 n=13.819	≥60 n=15.283
Alcoholic beverages	1.9 (1.7;2.1)	8.7 (8.1;9.3)	9.1 (8.5;9.8)	8.7 (8.0;9.3)	6.7 (6.0;7.5)	3.9 (3.4;4.4)
Soft drinks	11.3 (10.6;11.9)	16.5 (15.7;17.3)	14.4 (13.5;15.2)	11.4 (10.6;12.2)	8.7 (7.9;9.5)	4.6 (4.1;5.1)
Cookies	4.6 (4.3;5.0)	3.4 (3.0;3.7)	2.6 (2.3;2.9)	1.7 (1.4;1.9)	1.5 (1.2;1.8)	0.8 (0.6;1.0)
Fruits	0.7 (0.6;0.8)	0.9 (0.7;1.1)	0.7 (0.6;0.9)	0.5 (0.4;0.7)	0.4 (0.3;0.6)	0.4 (0.2;0.5)
Sweets	13.4 (12.7;14.1)	10.2 (9.6;10.8)	10.8 (10.0;11.5)	7.4 (6.7;8.1)	5.4 (4.7;6.1)	2.8 (2.3;3.2)
Milk and dairy products	1.5 (1.3;1.7)	3.0 (2.6;3.3)	2.9 (2.5;3.2)	2.7 (2.2;3.1)	2.2 (1.8;2.7)	1.2 (0.9;1.4)
Sit-down meals	7.5 (7.0;8.0)	13.3 (12.6;14.0)	15.7 (15.0;16.6)	14.5 (13.7;15.4)	10.8 (9.9;11.7)	6.4 (5.7;7.1)
Fast foods	6.5 (5.9;7.0)	10.5 (9.8;11.3)	8.6 (7.9;9.3)	7.0 (6.3;7.7)	5.0 (4.2;5.7)	2.3 (1.8;2.7)
Deep-fried and baked snacks	9.6 (9.0;10.1)	11.8 (11.2;12.5)	10.7 (9.9;11.4)	8.6 (7.9;9.3)	6.6 (5.9;7.4)	3.4 (2.9;3.9)

et al¹ (2008) indicated that children from American families who eat out (in restaurants or at relatives' and friends' homes) at least once a week consume more soft drinks and sweetened drinks. In Brazil, this aspect raises concern if evaluated concomitantly with the availability of soft drinks at home, once this consumption increased 400% in the metropolitan areas of this country between 1974 and 2003.⁹ Furthermore, consumption of soft drinks out of the home, according to income strata, follows the availability of this food at home;⁹ in both cases, consumption increases substantially and continually with income.

The higher frequency of consumption of sweets in the Northeast region is also concerning, once the availability of sugar at home in Brazil represents 13.7% of calories from carbohydrates.⁹ This value is higher than the nutritional recommendations of 10% proposed by the World Health Organization (WHO).¹⁹

Although sit-down meals were analyzed as a possible marker of a healthy diet,¹⁴ their frequencies must be assessed with caution. The lack of details about the types of food present in these meals, as well as the amount consumed, limits the conclusions on this group's positive contribution. In Brazil, consumption of sit-down meals out of the home was negatively associated with overweight and obesity in women; however, it was positively associated in men.²

Other negative characteristics of out-of-home eating in Brazil were the low frequency of consumption of fruits

and the relatively high frequency of consumption of deep-fried and baked snacks. These snacks are usually fried, thus becoming sources of saturated and partially hydrogenated (trans) fat.⁵

One of the factors that can contribute to the consumption of "less healthy" foods is their low cost. Foods with high energy density are those that cost less, whereas low energy density and high nutrient density foods are more expensive and show greater variation in price.¹¹ This was confirmed in the present study, once mean spending on sweets was one of the lowest, this food group being the one most frequently consumed among individuals with lower income. Moreover, in Brazil, the decrease in price of fruits and vegetables is the main factor of inclusion of such foods in the diet, especially among those with lower income.⁴

Although this study used data from a representative sample of the Brazilian population, the HBS is designed to collect data from household budgets. In addition, even if this survey represents the initial chain of consumption, estimates of consumption from the purchase of foods may not be adequate. This occurs mostly for foods purchased for out-of-home eating, once the type of food and amount consumed are not sufficiently detailed in budget surveys.

In conclusion, the data shown here are the first estimate of out-of-home eating in Brazil. This consumption was higher among young adults, males and those with higher income, with soft drinks and sit-down meals being the

food groups most frequently consumed when eating out, whereas fruits showed the lowest frequencies of consumption. Income plays an important role to determine food consumption out of the home, because the frequency of out-of-home eating increases linearly with the increase in income and may reflect higher spending on less healthy and cheaper foods in lower income strata. Spending also plays an important role in out-of-home eating, once spending on sit-down meals were 12 times higher than spending on cookies and

ten times higher than spending on sweets. In terms of population, findings from the present study, added to those of availability of foods at home in Brazil, point to a type of diet that may favor the onset of obesity and other chronic diseases; these dimensions must be considered in terms of strategies aimed to promote healthy eating. However, due to the complexity of this issue and limitation of data, further studies are necessary to better characterize out-of-home eating in Brazil and its repercussions on the health of Brazilians.

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