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Abstract

Objective: to describe lifestyles of the Brazilian population with regard to nutrition, physical activity, alcohol consumption and tobacco smoking. **Methods:** this was a descriptive study using National Health Survey (2013) data collected from 64,348 households. Lifestyle indicators prevalences and 95% confidence intervals were calculated for people aged 18 years or older. **Results:** prevalences were as follows: fruits and vegetables 37.3% (95%CI: 36.4%-38.1%); excessive fat consumption 37.2% (95%CI: 36.4%-38.0%), soft drinks 23.4% (95%CI: 22.7%-24.1%); beans 71.9% (95%CI: 71.2%-72.6%); practicing physical activity during leisure time was observed in 22.5% of adults (95%CI: 21.8%-23.1%); smoking 14.5% (95%CI: 14.0%-15.0%); alcohol abuse 13.7% (95%CI: 13.1%-14.2%). **Conclusion:** high prevalences of risk factors for non-communicable diseases in adults were found.

Key words: Life Style; Risk Factors; Chronic Disease; Health Surveys; Epidemiology, Descriptive.

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Introduction

Non-Communicable Diseases (NCDs) are the largest cause for morbidity and mortality in the world and their causality is complex, including the intersection of several factors. The World Health Organization (WHO) has proposed a causality model for NCDs which includes items like socioeconomic, cultural and environmental determinants and constraints found at the base of inequalities in the health-disease process, behavioural risk factors (tobacco use, unhealthy diets, physical inactivity, harmful use of alcohol and other drugs), as well as non-modifiable factors (sex, age and genetic heritage).¹

Risk factors can be monitored according to the lifestyles adopted, such as the options and decisions an individual takes for their health and way of living. These options include decisions about leisure activities, eating habits and behaviour, be it self-determined or socially or culturally acquired, thus partially self-controlled. The social environment and the socioeconomic situation are, to a large extent, the limiting conditions for these individual lifestyle choices.²

The monitoring of lifestyles is made in several countries, with the purpose of supporting policies for prevention of NCDs and health promotion.

The monitoring of lifestyles is made in several countries, with the purpose of supporting policies for prevention of NCDs and health promotion. In Brazil, population surveys have gained more relevance in the last decades, which made possible the monitoring of health conditions.^{3,4} With health surveys it is possible to know the health profiles and the distribution of risk exposures and conditions. Moreover, information obtained in health surveys can serve as an important complement to the acknowledgement of inequalities in health, subsidising the orientation of health policies for better equity in Public Health.^{3,4}

In order to understand the health conditions of the Brazilian population, the Ministry of Health and the Brazilian Institute of Geography and Statistics (IBGE) conducted, in 2013, the National Health Survey (PNS), the most comprehensive survey on the health of the Brazilian population. The PNS gathers a group of information with national coverage that serves as

a subside to formulation, monitoring and evaluation of public health policies in order to ensure a higher effectiveness of their actions.^{5,6}

The PNS applied a questionnaire on topics related to Brazilians' lifestyle. This study aimed to describe the lifestyles of the Brazilian population, regarding eating habits, physical activity, alcohol use and tobacco.

Methods

This a descriptive study conducted with the use of data from the National Health Survey - PNS, a population-based survey conducted in 2013 by the Brazilian Institute of Geography and Statistics (IBGE) in a partnership with the Ministry of Health. The PNS is part of the IBGE Integrated System for Household Surveys (SIPD), and it uses the master sample of this system, which has a larger geographical coverage and more accurate estimates. The PNS has a unique design and it serves specifically to collect information on health.⁵⁻⁷

This is a household survey and it employed the probability sampling plan in three stages. In the first stage, the primary sampling unities (PSU) were stratified based on their sectors or groups of census sectors. Households formed the units in the second stage, and residents aged 18 or older corresponded to the units in the third stage. The selection of the PSU sub-sample was done with simple random sampling.⁶

The sampling plan used in the survey was not a simple random sampling of people. The final sample size was adjusted based on the values of the design Effect (DEFF). 81,167 households were estimated in the sampling, with data being collected in 64,348 of them. Considering the absent households, the proportion of loss was 20.8%, and the proportion of non-response was 8.1%.⁶

Sample weights were defined for the PSU, the households and all of their residents. A weight for the selected resident was also defined, which was calculated considering (i) the weight of the related household, (ii) the probability of selecting the resident, (iii) adjustments of non-response by sex and (iv) adjustment of population totals by sex and age, estimated with the weight of all residents combined. Four age groups were used: 18 to 24, 25 to 39, 40 to 59 and 60 or older.⁶

The data collected in interviews were registered in personal computers (*personal digital assistance* [PDA]).⁶ Initially, the head of the selected household was contacted, or some other resident. The interviewer described the

purposes and procedures of the study to the residents, explaining the importance of their involvement in the survey and making a list of all adult residents in that household. The person who replied to the household survey was identified together with the other residents in the household, as well as the adult resident responsible for answering the individual interview, who was selected by the random selection program in the PDA. Interviews were scheduled in dates and times that were most convenient for the selected resident, considering two or more visits to each household.⁶

The PNS lifestyle survey included questions covering the following issues: eating and physical activity standards, alcohol and tobacco use.

The following lifestyle indicators were analyzed:

a) Eating habits

- consumption of fruits and vegetables five times a day or more (equivalent to five servings a day);
- regular consumption of beans (consumed in five or more days a week);
- consumption of excessively fat meat (consumption of meat with visible fat, or chicken with skin, for those who consume this kind of food at least once a week); and
- regular consumption of soft drinks (consumption of soda or artificial juice in five or more days a week);

b) Physical activity

- practice of the recommended level of physical activity during leisure time (practice of at least 150 weekly minutes of light to moderate-intensity activity, or at least 75 weekly minutes of vigorous-intensity activity, regardless of the number of days of physical activity per week);
- insufficiently active (adults who did not reach 150 weekly minutes of physical activity, leisure, work and transport considered); and
- watch television for three or more hours a day;

c) Alcohol consumption

Abusive consumption of alcoholic drinks (five doses or more for men and four doses or more for women, in one single occasion in the last 30 days); and

d) Tobacco

Percentage of smokers, former smokers, passive smokers in the household (nonsmokers who reported that at least one of the residents in the household is used to smoking in the house) and passive smokers at work (nonsmokers who reported that at least one person is used to smoking in the workplace).

Prevalences were calculated using the total number

of adults as denominator. Methodological details can be found in another study.⁶

The data analysis was performed using the statistical software Stata 11.0 and the survey module, which takes into consideration the effects of complex sampling. Prevalence estimates were presented in proportions (%), with their respective confidence intervals of 95% (95%CI). Prevalences were estimated based on sex (male and female), age group (18 to 24, 25 to 39, 40 to 59 and 60 or more), education level no schooling and incomplete primary school, complete primary school and incomplete secondary school, complete secondary school and incomplete tertiary school, complete tertiary school, ethnicity/skin color (black, white and brown) and the regions in the country (North, Northeast, Central-West, Southeast and South).

The survey was approved by the Ministry of Health's National Commission for Ethics in Research, under technical report n. 328,159, June 26, 2013. The Informed Consent Form was established in the PDA.

Results

Prevalence of fruits and vegetables consumption five times or more a day among people aged 18 or older was 37.3% (95%CI 36.4% - 38.1%) (Table 1).

Adults in age groups between 40 and 59 (38.7%; 95%CI 37.4% - 40.0%), 60 or older (40.1%; 95%CI 38.4% - 41.8%), with complete secondary school and incomplete tertiary level (39.9%; 95%CI 38.5% - 41.2%) and with a complete tertiary level (45.9%; 95%CI 43.6% - 48.2%) showed the highest prevalence of this consumption (tables 2 and 3). A lower prevalence of fruits and vegetables consumption for five or more times a day was seen in individuals with brown skin (35.8%; 95%CI 34.6% - 36.9%) (Table 4).

Prevalence of regular beans consumption (for five or more days a week) in the Brazilian adult population (≥ 18 years old) was 71.9% (95%CI 71.2% - 72.6%), with a statistically significant difference between men (76.8%; 95%CI 75.8% - 77.7%) and women (67.6%; 95%CI 66.6% - 68.5%) (Table 1). This indicator did not show differences among age groups; however, adults with higher education (complete tertiary school) reported lower regular beans consumption: 54.9% (95%CI 52.7% - 57.1%) (Table 3).

As for the consumption of meat with visible fat and/or chicken with skin at least once a week, 37.2% (95%CI 36.4% - 38.0%) of the adult population reported this

Table 1 - Prevalence (%) of risk and protection factors for non-communicable diseases according to sex, with a 95% confidence interval (95%CI) - National Health Survey. Brazil, 2013

Risk and protection factors	Total		Male		Female	
	%	95%CI	%	95%CI	%	95%CI
Eating habits						
Consumption of fruits and vegetables	37.3	36.4-38.1	34.8	33.7-36.0	39.4	38.4-40.5
Consumption of beans	71.9	71.2-72.6	76.8	75.8-77.7	67.6	66.6-68.5
Consumption of excessively fat meat	37.2	36.4-38.0	47.2	46.0-48.4	28.3	27.3-29.2
Consumption of soft drinks	23.4	22.7-24.1	26.6	25.6-27.6	20.5	19.7-21.3
Physical activity						
Physical activity in the free time	22.5	21.8-23.1	27.1	26.1-28.0	18.4	17.5-19.2
Insufficiently active	46.0	45.2-46.8	39.8	38.7-40.8	51.5	50.5-52.5
Watch TV for 3 or more hours a day	28.9	28.2-29.6	25.5	24.5-26.6	31.9	31.0-32.8
Alcohol						
Abusive consumption of alcohol	13.7	13.1-14.2	21.6	20.7-22.5	6.6	6.1-7.1
Tobacco use						
Smokers	14.5	14.0-15.0	18.7	17.8-19.5	10.8	10.2-11.3
Former smokers	17.5	16.9-18.0	21.2	20.3-22.1	14.1	13.4-14.8
Passive smokers in the household	10.7	10.2-11.3	9.5	8.8-10.3	11.7	10.9-12.4
Passive smokers at work	13.5	12.6-14.4	16.9	15.5-18.2	10.4	9.3-11.5

Table 2 - Prevalence (%) of risk and protection factors for non-communicable diseases according to age group, with a 95% confidence interval (95%CI)- National Health Survey. Brazil, 2013

Risk and protection factors	Total		18 to 24 years old		25 to 39 years old		40 to 59 years old		60 or older	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Eating habits										
Consumption of fruits and vegetables	37.3	36.4-38.1	33.7	31.8-35.5	35.9	34.6-37.2	38.7	37.4-40.0	40.1	38.4-41.8
Consumption of beans	71.9	71.2-72.6	71.8	70.2-73.5	71.2	70.0-72.3	72.9	71.7-74.0	71.3	69.9-72.7
Consumption of excessively fat meat	37.2	36.4-38.0	39.9	37.9-41.9	41.0	39.8-42.3	37.0	35.7-38.4	28.2	26.7-29.7
Consumption of soft drinks	23.4	22.7-24.1	35.5	33.5-37.5	28.2	27.0-29.5	19.2	18.1-20.2	12.0	10.9-13.1
Physical activity										
Physical activity in the free time	22.5	21.8-23.1	35.3	33.4-37.2	25.5	24.3-26.6	18.3	17.3-19.3	13.6	12.5-14.7
Insufficiently active	46.0	45.2-46.8	36.7	34.9-38.5	41.9	40.5-43.2	45.3	44.0-46.5	62.7	61.1-64.3
Watch TV for 3 hours or more a day	28.9	28.2-29.6	32.3	30.3-34.3	27.9	26.8-29.0	26.4	25.3-27.6	32.4	30.9-33.9
Alcohol										
Abusive consumption of alcohol	13.7	13.1-14.2	17.2	15.7-18.8	18.9	17.9-19.8	12.1	11.4-12.8	4.2	3.6-4.8
Tobacco use										
Smokers	14.5	14.0-15.0	10.5	9.3-11.7	12.9	12.1-13.7	19.0	18.1-20.0	12.2	11.1-13.3
Former smokers	17.5	16.9-18.0	5.6	4.8-6.5	11.5	10.6-12.4	21.3	20.2-22.3	31.1	29.6-32.6
Passive smokers in the household	10.7	10.2-11.3	16.2	14.6-17.8	9.6	8.8-10.4	9.2	8.4-10.0	10.4	9.2-11.5
Passive smokers at work	13.5	12.6-14.4	13.7	11.4-15.9	13.8	12.5-15.1	13.3	12.0-14.6	11.9	9.1-14.6

Table 3- Prevalence (%) of risk and protection factors for non-communicable diseases according to education level, with a 95% confidence interval - National Health Survey. Brazil, 2013

Risk and protection factors	Total		No schooling and incomplete primary school		Complete primary school and incomplete secondary school		Complete secondary school and incomplete tertiary school		Complete tertiary school	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Eating habits										
Fruits and Vegetables Consumption	37.3	36.4-38.1	33.0	31.8-34.2	35.4	33.6-37.3	39.9	38.5-41.2	45.9	43.6-48.2
Consumption of beans	71.9	71.2-72.6	77.3	76.4-78.2	75.0	73.5-76.5	70.6	69.5-71.7	54.9	52.7-57.1
Consumption of excessively fat meat	37.2	36.4-38.0	40.0	38.8-41.3	42.2	40.4-44.1	35.4	34.1-36.7	26.7	24.7-28.7
Consumption of soft drinks	23.4	22.7-24.1	19.3	18.3-20.3	28.9	27.1-30.7	26.8	25.6-27.9	20.3	18.5-22.1
Physical activity										
Physical activity in the free time	22.5	21.8-23.1	11.7	11.0-12.4	23.6	22.1-25.2	28.8	27.6-30.0	37.6	35.5-39.6
Insufficiently active	46.0	45.2-46.8	50.6	49.4-51.8	42.6	40.7-44.4	43.0	41.6-44.3	43.6	41.4-45.8
Watch TV for 3 hours or more a day	28.9	28.2-29.6	28.6	27.6-29.6	32.4	30.7-34.2	30.6	29.3-31.9	21.1	19.5-22.8
Alcohol										
Abusive consumption of alcohol	13.7	13.1-14.2	11.1	10.5-11.8	15.8	14.4-17.2	15.4	14.4-16.3	14.3	12.8-15.8
Tobacco use										
Smokers	14.5	14.0-15.0	19.3	18.4-20.1	16.4	14.9-17.9	10.2	9.4-11.0	8.7	7.5-9.8
Former smokers	17.5	16.9-18.0	24.2	23.2-25.2	14.8	13.5-16.2	11.9	11.0-12.8	14.4	12.9-15.8
Passive smokers in the household	10.7	10.2-11.3	13.1	12.2-14.1	11.8	10.5-13.1	9.4	8.5-10.2	6.4	5.2-7.7
Passive smokers at work	13.5	12.6-14.4	21.0	18.8-23.2	15.9	13.7-18.2	12.4	11.1-13.7	7.1	5.6-8.6

Table 4 - Prevalence (%) of risk and protection factors for non-communicable diseases according to ethnicity/skin color, with a 95% confidence interval - National Health Survey. Brazil, 2013

Risk and protection factors	Total		White		Black		Brown	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Eating habits								
Fruits and Vegetables Consumption	37.3	36.4-38.1	38.7	37.4-39.9	35.9	33.4-38.3	35.8	34.6-36.9
Consumption of beans	71.9	71.2-72.6	67.2	66.5-68.9	77.2	75.4-78.9	75.8	75.0-76.7
Consumption of excessively fat meat	37.2	36.4-38.0	35.9	34.7-37.1	39.7	37.4-42.1	38.2	37.0-39.3
Consumption of soft drinks	23.4	22.7-24.1	23.9	22.8-24.9	23.9	21.7-26.2	22.8	21.9-23.8
Physical activity								
Physical activity in the free time	22.5	21.8-23.1	23.5	22.5-24.5	19.8	17.9-21.6	21.7	20.8-22.5
Insufficiently active	46.0	45.2-46.8	47.9	46.7-49.1	42.4	40.0-44.8	44.8	43.7-45.9
Watch TV for 3 hours or more a day	28.9	28.2-29.6	27.3	26.3-28.4	32.9	30.7-35.1	29.8	28.8-30.8
Alcohol								
Abusive consumption of alcohol	13.7	13.1-14.2	12.4	11.7-13.2	16.6	14.9-18.4	14.4	13.7-15.1
Tobacco use								
Smokers	14.5	14.0-15.0	12.8	12.1-13.5	17.4	15.4-19.3	15.8	15.0-16.6
Former smokers	17.5	16.9-18.0	17.8	16.9-18.6	16.1	14.2-17.9	17.4	16.6-18.2
Passive smokers in the household	10.7	10.2-11.3	9.8	9.0-10.6	11.8	10.0-13.6	11.7	10.9-12.5
Passive smokers at work	13.5	12.6-14.4	11.8	10.7-12.9	16.4	13.4-19.4	15.3	13.9-16.7

habit, with differences based on age, education level and sex. No differences based on the skin color of the respondents were noticed (tables 1, 2, 3 and 4).

Prevalence of regular soft drinks consumption (soda or artificial juice in five or more days a week) was 23.4% (95%CI 22.7% - 24.1%) and it was higher among men (26.6%; 95%CI 25.6% - 27.6%), individuals aged 18 to 24 (35.5%; 95%CI 33.5% - 37.5%), individuals with complete primary school and incomplete secondary school (28.9%; 95%CI 27.1% - 30.7%) and with complete secondary school and incomplete tertiary school (26.8%; 95%CI 25.6% - 27.9%). No differences based on ethnicity/skin color were noticed (tables 1, 3, 4 and 5; tables 1, 2, 3 and 4). Prevalence of practice of the recommended level of physical activity during leisure time (150 weekly minutes of light-to-moderate physical activity, or at least 75 weekly minutes of vigorous physical activity, regardless of the days of practice of physical activity per week) was 22.5% (95%CI 21.8% - 23.1%) and is higher among men (27.1%; 95%CI 26.1% - 28.0%), in individuals aged 18 to 24 (35.3%; 95%CI 33.4% - 37.2%) and individuals with complete tertiary school (37.6%; 95%CI 35.5% - 39.6%) (tables 1, 2 and 4).

Prevalence of physical inactivity (adults who did not reach at least 150 weekly minutes of physical activity, considering leisure time, work and transport) was 46.0% (95%CI 45.2% - 46.8%), and is significantly higher in women (51.5%; 95%CI 50.5% - 52.5%). Differences in the prevalence of physical inactivity was noticed among age groups, notably in elderly groups (60 or older) (62.7%; 95%CI 61.1% - 64.3%) and adults with no schooling and incomplete primary school (50.6%; 95%CI 49.4% - 51.8%), in significantly higher proportions to those in other groups (tables 1, 2 and 3).

Prevalence of people aged 18 or older who watched television for three hours or more per day was 28.9% (95%CI 28.2% - 29.6%), and it was significantly higher in women (31.9%; 95%CI 31.0% - 32.8%), individuals aged 18 to 24 (32.3%; 95%CI 30.3% - 34.3%) and 60 or older (32.4%; 95%CI 30.9% - 33.9%), individuals with complete primary school and incomplete secondary school (32.4%; 95%CI 30.7% - 34.2%) and individuals with black skin (32.9%; 95%CI 30.7% - 35.1%) (tables 1, 2, 3 and 4).

Concerning abusive consumption of alcohol, the prevalence was 13.7% (95%CI 13.1% - 14.2%) in the 30 days prior to the survey, and it was higher in men (21.6%; 95%CI 20.7% - 22.5%), individuals aged 18

to 24 (17.2%; 95%CI 15.7% - 18.8%) and 25 to 39% (18.9%; 95%CI 17.9% - 19.8%), and in individuals with black skin (16.6%; 95%CI 14.9% - 18.4%). No schooling individuals or with incomplete primary school showed the lowest prevalences of abusive alcohol use in the 30 days prior to the interview (11.1%; 95%CI 10.5% - 11.8%) (tables 1, 2, 3 and 4).

Percentage of current smokers was 14.5% (95%CI 14.0% - 15.0%), and it was higher in men (18.7%; 95%CI 17.7% - 19.5%), adults aged 40 to 59 (19.0%; 95%CI 18.1% - 20.0%), no schooling individuals or with incomplete primary school (19.3%; 95%CI 18.4% - 20.1%), black (17.4%; 95%CI 15.4% - 19.3%) and brown (15.8%; 95%CI 15.0% - 16.6%). Among the adults interviewed, 17.5% (95%CI 16.9% - 18.0%) were former smokers (tables 1, 2, 3 and 4).

Passive smokers in the household represented 10.7% (95%CI 10.2% - 11.3%), with a higher prevalence in individuals aged 18 to 24 (16.2%; 95%CI 14.6% - 17.8%), with no schooling and incomplete primary school (13.1%; 95%CI 12.2% - 14.1%). Among the respondents, 13.5% (95%CI 12.6% - 14.4%) of the adults reported that they are passive smokers in the workplace; this prevalence is higher in men (16.9%; 95%CI 15.5% - 18.2%), in individuals with no schooling and incomplete primary school (21.0%; 95%CI 18.8% - 23.2%), with no differences among age groups (tables 1, 2, and 3).

Differences in eating habits based on the national regions were noticed. For example, adults in the Southeast and Central-West showed higher prevalences in fruit and vegetables consumption, a less frequent habit in the Northeast. Prevalence of beans consumption was higher in the Central-West and Southeast, and lower in the North and South of the country. Abusive consumption of alcohol was higher in the Central-West and tobacco use, higher in the South of the country. (Table 5)

Discussion

In the present study, a prevalence of 40% was noticed in the consumption of fruits and vegetables, and a prevalence of nearly two thirds of the population in the consumption of beans. However, consumption of unhealthy food was also high: nearly one fourth of the population reported the consumption of soft drinks, while the consumption of meat with fat was reported by two fifths of adults. The recommended practice of physical activity was noticed in

Table 5 - Prevalence (%) of risk and protection factors for non-communicable diseases based on country regions, with a confidence interval of 95% - National Health Survey. Brazil, 2013

Risk and protection factors	Brazil		North		Northeast		Southeast		South		Central-West	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Eating habits												
Fruits and Vegetables Consumption	37.3	36.4-38.1	36.6	34.5-38.6	28.2	26.7-29.6	42.8	41.3-44.4	34.2	32.2-36.2	43.9	42.0-45.9
Consumption of beans	71.9	71.2-72.6	48.4	46.1-50.7	73.7	72.3-74.7	77.5	76.2-78.8	59.6	57.6-61.6	80.3	79.0-81.5
Consumption of excessively fat meat	37.2	36.4-38.0	34.4	32.3-36.5	29.7	28.5-30.9	38.9	37.4-40.4	42.5	40.5-44.5	45.7	44.0-47.5
Consumption of soft drinks	23.4	22.7-24.1	19.9	18.7-21.1	16.8	15.8-17.9	26.8	25.6-28.1	24.4	22.7-26.1	27.7	26.1-29.3
Physical activity												
Physical activity in the free time	22.5	21.8-23.1	22.2	20.8-23.6	22.3	21.2-23.3	22.7	21.5-23.8	21.5	20.0-23.1	24.1	22.7-25.4
Insufficiently active	46.0	45.2-46.8	48.1	46.1-50.1	44.3	43.1-45.6	46.5	45.1-47.9	45.6	43.7-47.5	47.2	45.6-48.8
Watch TV for 3 hours or more a day	28.9	28.2-29.6	30.5	28.7-32.3	28.9	27.8-30.0	31.0	29.6-32.3	23.7	22.0-25.3	25.6	24.1-27.0
Alcohol												
Abusive consumption of alcohol	13.7	13.1-14.2	14.2	12.9-15.4	15.6	14.8-16.4	12.8	11.9-13.7	11.1	10.0-12.2	16.2	15.0-17.3
Tobacco use												
Smokers	14.5	14.0-15.0	12.7	11.5-13.8	13.9	13.1-14.7	14.9	14.1-15.8	15.8	14.5-17.2	13.2	12.2-14.2
Former smokers	17.5	16.9-18.0	16.6	15.3-17.9	18.1	17.1-19.0	17.1	16.1-18.2	18.3	16.9-19.7	16.3	15.2-17.5
Passive smokers in the household	10.7	10.2-11.3	10.6	9.4-11.8	12.4	11.5-13.4	9.7	8.7-10.6	10.9	9.4-12.4	10.4	9.4-11.6
Passive smokers at work	13.5	12.6-14.4	15.2	13.0-17.4	16.6	14.8-18.3	12.3	10.8-13.8	11.1	9.3-12.9	15.6	13.7-17.4

one fifth of the population, with important differences in age and sex. Women and the elderly practice less physical activity. People have also spent a long time of their day watching television. Tobacco use is higher among men, the less educated and the elderly. Abusive alcohol consumption has also prevailed among men and the younger and more educated population. The higher prevalence of risk factors in general was associated to the male sex and to low education level.

Based on convincing evidence, the World Health Organization (WHO), has established that the intake of 400g of fruits and vegetables per day (the equivalent to five portions per day) helps reducing the incidence of cardiovascular diseases and certain types of cancer.^{8,9} This recommendation is based on both (i) the higher risk of cardiovascular diseases noticed in individuals with an ingestion of less than 200g of fruits and vegetables per day and (ii) the benefits for individuals who have an ingestion of more than 400g of such food per day.^{8,9} Fruits and vegetables are also beneficial in the prevention and treatment of weight excess and diabetes.^{10,11}

Consumption of beans, a strong component of the traditional Brazilian diet, also brings health benefits and is a protective factor against obesity. Analyses from the Surveillance System of Risk and Protective Factors for Chronic Diseases by Telephone Survey (Vigitel),

conducted in Brazilian capitals, show that beans have levels of consumption varying from 39.3 to 83.4% in capital cities, resulting in an national average of 66.9%. These are high levels, close to the data collected by the PNS.¹² Also, according to previous data from Vigitel, the high consumption of fat food and soft drinks - a prevalence of 31,0% and 23,3%, respectively -, showed similar prevalences in the whole country, as reported by the PNS. As it is known, consumption of such type of food is a risk factor for cardiovascular diseases and obesity.^{8,9,12,13}

Prevalence of smokers in Brazil, from 34.8% at the end of the decade of 1980, has been declining consistently over the years.¹⁴ Considered a world leader in implementing the Framework Convention for Tobacco Control, Brazil registers the lowest prevalence of tobacco consumption according to a comparative study of the Adult Tobacco Survey (GATS).¹⁵ In comparison to data from the GATS and the 2008 Special Tobacco Research (Petab 2008),¹⁶ the PNS revealed a sustained continuity of this decline in the entire population, regardless of sex, age, education and residence by regions.

Passive smoking, both at home and at work, was higher in the less educated population, a fact supported by the Petab 2008 and by studies from the Vigitel.^{12,16} Passive smoking at home was higher in women, which

can be explained by a longer time of exposure inside the household. A higher prevalence of tobacco use was also found in men, confirming data from the Petab 2008.¹⁶

New regulatory measures, like the Interministerial Ordinance of 2014 and the Decree n. 2,018, from October 1, 1996,¹⁷ have not only prohibited smoking in public closed places and all kinds of cigarette advertisement, but also increased the tax rates of cigarettes and the space for health warnings in cigarette packets, bringing promising perspectives that the goal for tobacco use of 30% until 2022, which was established in the 2011-2022 Plan for Strategic Actions Against Chronic Non-Communicable Diseases (NCDs) in Brazil,¹⁸⁻²⁰ will be reached.

In Brazil, abusive alcohol consumption found in the PNS was more frequent consumption among younger and more educated males. Alcohol consumption is associated to several chronic diseases, including liver diseases, mental illness and cancer, in addition to harms, like accidents.^{11, 21, 22} WHO's Global Plan for NCDs adopted the goal for a relative reduction of 10% in abusive alcohol consumption until 2025.²³ An advance in regulatory measures like raising prices and restriction of advertisement - especially beer -, has become fundamental, as well as the increase in the inspection of the sector and in the selling of alcoholic drinks for people under 18 years of age, which are described in the Strategic Action Plan to Tackle Communicable Diseases.^{18, 19, 21}

Insufficient physical activity makes up the fourth main cause of death in the world.²⁴ The PNS showed that leisure physical activity is associated to higher education, the male sex and a young age, which supports other studies.²⁵ Physical activity for transport is more frequent among males and less educated individuals, while physical inactivity is more present among the elderly, to which this study is in accordance with scientific literature.²⁵

Some restrictions must be noticed when studying these results. The main one is about the validity and reproducibility of the indicators presented. Even though this study was not conducted by the PNS, because it uses a similar survey to that used by the Vigitel, all studies published so far prove its methodological validity.^{27, 28} Nevertheless, given the fact that these information are self-reported by the respondents, differences are likely to be found concerning their comprehension, as well as recall bias and under or overestimated values. For example, a trend of the respondents to report some behavior considered "healthy", even when they don't adopt it, must be considered, in addition to the

fact they underreport behavior which is less socially acceptable. At the same time, the present study did not make a multivariable analysis for adjustment of possible confounding factors in the association between results and the sociodemographic variables studied.

The PNS showed a great diversity in patterns of exposure to risk factors and protection based on sex, age, level of education, ethnicity/skin color and country regions. According to the survey, a high prevalence of risk factors can be noticed, such as consumption of excessively fat food, soft drinks and alcohol, in addition to low prevalences of tobacco use. The higher frequency of risk factors that exist among less educated adults (especially women), is a reflection of the social inequalities in Brazil,²² and it emphasizes the importance of the Family Health Strategy teams encouraging and orienting the population for the adoption of healthy practices and lifestyles.

The risk factors and their prevention must be considered in the strategies for health promotion and planning of interventions. Regulatory measures for restriction of tobacco, prohibition of alcohol consumption while driving automotive vehicles,¹⁸ programs for the expansion of physical activity and health promotion, such as the Health Gym,²⁶ and the publishing of a Dietary Guidelines for the Brazilian population,¹³ specially for patients of the National Health System (SUS).

A continuity of the implementation of public policies that allow a good environment for a healthy lifestyle is fundamental. Just as important, tax policies for healthy goods and services must be included, as well as establishment of programs for prevention and control of NCDs, the continuous monitoring of mortality, morbidity and risk for NCDs, in addition to their determinant factors in the population.^{19, 27} Actions against NCDs require not only action from the Health Sector with the help of partnerships and intersectorial actions,²⁹ but also priority agendas in the field of public health, aiming at the goals proposed by the 2011-2022 Strategic Action Plan to Tackle Communicable Diseases (NCDs) in Brazil.¹⁸

Authors' Contributions

All the authors took part in the study conception, analysis and interpretation of data, writing, editing and final approval of the manuscript, and agree to be accountable for all the other aspects of the article, including the assurance of its accuracy and integrity.

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