RESEARCH

RISK AND PROTECTION FACTORS FOR CHRONIC NON-COMMUNICABLE DISEASES AMONG BRAZILIAN STUDENTS: 2015 AND 2019 NATIONAL SCHOOL HEALTH SURVEY

FATORES DE RISCO E PROTEÇÃO PARA AS DOENÇAS CRÔNICAS NÃO TRANSMISSÍVEIS ENTRE ESCOLARES BRASILEIROS: PESQUISA NACIONAL DE SAÚDE DO ESCOLAR 2015 E 2019

FACTORES DE RIESGO Y PROTECCIÓN PARA LAS ENFERMEDADES CRÓNICAS NO TRANSMISIBLES ENTRE LOS ESTUDIANTES BRASILEÑOS: ENCUESTA NACIONAL DE SALUD ESCOLAR 2015 Y 2019

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ABSTRACT

Objective: to describe the prevalence values of risk and protection factors for chronic non-communicable diseases (CNCDs) among Brazilian students in 2019 and to compare them with those from 2015. Method: a cross-sectional study conducted with data from the 2015 and 2019 National School Health Survey (Pesquisa Nacional de Saúde do Escolar, PeNSE). For 2019, the prevalence values and 95% confidence intervals (95% CI) of the indicators regarding diet, physical activity and sedentary behavior, and use of licit and illicit drugs were estimated, considering gender, the school's administrative system and the Federation Unit. The total population was considered to compare these indicators with those from 2015. Results: when comparing 2015 to 2019, a reduction was observed in fruit consumption (2015: 30.9% - 95% CI: 29.6-32.3; 2019: 26.9% - 95% CI: 26.3-27.6), soft drinks (2015: 27.2% - 95% CI: 25.6-28.9; 2019: 17.2% - 95% CI: 16.6-17.8), sweet treats (2015: 40.6% - 95% CI: 39.0-42.1; 2019: 32.8% - 95% CI: 32.1-33.4) and physical activity (2015: 31.6% - 95% CI: 30.1-33.2; 2019: 28.1% - 95% CI: 27.4-28.8); on the other hand, an increase in alcohol consumption was noticed (2015: 27.2% - 95% CI: 25.4-28.9; 2019: 47.0% - 95% CI: 46.0-47.9). Conclusion: when comparing the 2015 and 2019 editions of the Survey, changes were perceived in the prevalence values of risk and protection factors for CNCDs. These results reinforce the importance of the strategies and actions to promote adolescents' health, especially for being a group undergoing a phase marked by major psychobiological and social transformations.

Keywords: Adolescent; Chronic Disease; Risk Factors; Protective Factors.

RESUMO

Objetivo: descrever as prevalências de fatores de risco e de proteção para as doenças crônicas não transmissíveis (DCNT) em escolares brasileiros no ano de 2019 e compará-las às de 2015. Método: estudo transversal realizado com dados da Pesquisa Nacional de Saúde do Escolar (PeNSE) de 2015 e 2019. Para 2019, estimaram-se as prevalências e os intervalos de confiança de 95% (IC95%) dos indicadores alimentação, atividade física e comportamento sedentário e uso de drogas lícitas e ilícitas, considerando o sexo, a dependência administrativa da escola e a Unidade da Federação. Para comparar esses indicadores com o ano de 2015, considerou-se a população total. Resultados: ao comparar 2015 com 2019, observou-se uma redução do consumo de frutas (2015: 30,9% - IC95% 29,6-32,3; 2019: 26,9% - IC95% 26,3-27,6), refrigerante (2015: 27,2% - IC95% 25,6-28,9; 2019: 17,2% - IC95% 16,6-17,8), guloseimas (2015: 40,6% - IC95% 39,0-42,1; 2019: 32,8% - IC95% 32,1-33,4) e de atividade física (2015: 31,6% - IC95% 30,1-33,2; 2019: 28,1% - IC95% 27,4-28,8); por outro lado, foi observado um aumento da embriaguez (2015: 27,2% - IC95% 25,4-28,9; 2019: 47,0% - IC95% 46,0-47,9). Conclusão: ao comparar as edições de 2015 e 2019 da Pesquisa, perceberam-se mudanças nas prevalências de fatores de risco e de proteção para as DCNT. Esses resultados reforçam a importância das estratégias e ações para promoção da saúde dos adolescentes, especialmente por ser um grupo em fase de grandes transformações e psicobiológicas e sociais.

Palavras-chave: Adolescente; Doença Crônica; Fatores de Risco; Fatores de Proteção.

RESUMEN

Objetivo: describir la prevalencia de los factores de riesgo y protección de las enfermedades crónicas no transmisibles (ECNT) en los estudiantes brasileños en 2019 y compararla con la de 2015. Método: estudio transversal con datos de la Encuesta Nacional de Salud Escolar de 2015 y 2019. Se estimó la prevalencia y los intervalos de confianza del 95% (IC95%) de los indicadores de alimentación, actividad física y comportamiento sedentario y consumo de drogas lícitas e ilícitas, según sexo, dependencia administrativa del centro escolar y Unidad Federativa para 2019. Para la comparación de estos indicadores con el año 2015, se consideró la población total. Resultados: al comparar 2015 con 2019, se observó una reducción en el consumo de frutas (2015: 30,9% - IC95% 29,6-32,3; 2019: 26,9% - IC95% 26,3-27,6), refrescos (2015: 27,2% - IC95% 25,6-28,9; 2019: 17,2% - IC95% 16,6-17,8), golosinas (2015: 40,6% - IC95% 39,0-42,1; 2019: 32,8% - IC95% 32,1-33,4), la actividad física (2015: 31,6% - IC95% 30,1-33,2; 2019: 28,1% - IC95% 27,4-28,8) y el aumento de la embriaguez (2015: 27,2% - IC95% 25,4-28,9; 2019: 47,0% - IC95% 46,0-47,9). Conclusión: hubo cambios en la prevalencia de los factores de riesgo y protección de las

ECNT al comparar las ediciones de 2015 y 2019 de la Encuesta. Estos resultados refuerzan la importancia de las estrategias y acciones de promoción de la salud de los adolescentes, sobre todo porque se trata de un grupo que experimenta grandes transformaciones psicobiológicas y sociales.
Palabras clave: Adolescente; Enfermedad Crónica; Factores de Riesgo; Factores Protectores.

INTRODUCTION

Adolescents experience a dynamic and complex biopsychosocial maturation process.[1] Body transformations, the emergence of new cognitive skills and their new role in society predispose them to new experiences. They begin to experience attitudes and situations that can lead to accidents, unplanned pregnancies and sexually transmitted infections, in addition to the initiation of habits such as use of licit and illicit drugs, inadequate diet and a sedentary lifestyle.[1] When accompanied by exposure to external and environmental factors such as increased poverty, abuse and violence, the physical, emotional and social changes resulting from this life stage potentiate adolescents' vulnerability to physical and mental health problems.[2,3]

Inadequate and unhealthy lifestyles in adolescence are an important risk factor for chronic non-communicable diseases (CNCDs) in adulthood.[4] The most evident risk factors in this population group are irregular consumption of fruit and vegetables, insufficient physical activity, regular consumption of ultra-processed food products, consumption of alcoholic beverages and smoking.[4] A study evidenced that 56.1% of the Brazilian adolescents had at least two risk factors, which leads to an even greater risk for the development of CNCDs and mortality in adulthood when compared to those with only one or none of these risk factors.[5,6]

In this sense, it becomes important to encourage early development of healthy habits such as practice of physical activity — especially in schools, to increase opportunities especially for low-income students — and to improve the conditions for access to healthy food options such as beans, vegetables or fresh fruits and vegetables.[7-9] In addition to that, strengthening surveillance of risk and protective factors for CNCDs among adolescents and promoting public and regulatory policies in this direction are essential actions to promote health and prevent diseases in the young Brazilian population.

Knowing the characteristics inherent to adolescence, to young people's reality and to the behaviors and life habits is essential to monitor their development. It is also important to be attentive to the changes that occur throughout the years, enabling health surveillance actions and an evaluation of the actions and policies focused on this population group.

In this way, it is expected to improve quality of life and reduce morbidity and mortality due to CNCDs, mitigating the risk factors in this population segment. Thus, the objectives of this study consisted in describing the prevalence values of the risk and protection factors for CNCDs among Brazilian students in 2019 and compare them to those from 2015.

METHOD

Study design

This is a cross-sectional study that used the data from the 2015 and 2019 editions of the National School Health Survey (Pesquisa Nacional de Saúde Escolar, PeNSE). Data collection took place from April to September 2015 and from April to September 2019, respectively.

National School Health Survey (PeNSE)

PeNSE is the broadest school health survey of a national scope and is conducted by the Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística, IBGE) in partnership with the Ministry of Health. It is part of the Surveillance of Risk and Protection Factors for CNCDs in Brazil and addresses several aspects of the students' lives, such as habits, care, risk factors and protection for their health.[10]

The survey sampling plan was by clustering in 2 stages. The schools represent the first stage and the classes, the second. In order to comprise the sample, all the students from the classes selected were chosen; thus, all those that were present on the data collection date were automatically selected to answer the questionnaire.[10] Data collection was conducted by means of a self-applied questionnaire made available to the students selected to comprise the sample.[10]

The database and the PeNSE questionnaires are available for public access and use in the IBGE website https://www.ibge.gov.br/estatisticas/sociais/educacao/9134-pesquisa-nacional-de-saude-do-escolar.html?=&t=resultados

Participants

Two independent sampling plans were elaborated in 2015. For the current study, data referring to Sample 2

were used, which gathers information from 371 schools, 653 classes and 16,608 questionnaires collected. However, as collection took place with all the students present on that day, there were pupils outside the age group of the sample (13-17 years old) that were excluded, totaling a final sample of 10,926 questionnaires analyzed. The questionnaires corresponded to the students enrolled from 6th grade of Elementary School to 3rd year of High School.[11,12]

In 2019 only a single sample was used, corresponding to Sample 2 from 2015. Students aged from 13 to 17 and enrolled in public and private schools across the country were approached, generating data referring to the national total, large regions, Federation Units, capital cities and Distrito Federal.[10] There were 4,242 schools, 6,612 classes, 160,721 questionnaires collected, 159,245 valid questionnaires and 125,123 questionnaires analyzed, these latter comprising the final sample of the 2019 survey.[10,12]

Additional information about PeNSE can be consulted in other publications.[10-12]

Variables of interest

Figure 1 presents the indicators evaluated in this study, as well as their description and thematic block to which they belong.

Figure 1 - Description of the indicators corresponding to risk and protection factors for Chronic Non-Communicable Diseases evaluated by the 2015 and 2019 National School Health Survey

Indicator	Description
Eating habits	
Consumption of fresh fruit or fruit salads	Consumption of fresh fruit or fruit salads at least 5 days in the week prior to the survey (%)
Consumption of vegetables and/or legumes	Consumption of vegetables and/or legumes at least 5 days in the week prior to the survey (%)
Consumption of beans	Consumption of beans at least 5 days in the 7 days prior to the survey (%)
Consumption of ultra-processed food products	Consumption of some ultra-processed food product the day before the survey (%)
Consumption of soft drinks	Consumption of soft drinks at least 5 days in the week prior to the survey (%)
Consumption of sweet treats	Consumption of sweet treats at least 5 days in the week prior to the survey (%)
Enough physical activity	
Physically active	Students with at least 300 minutes of physical activity accumulated in the 7 days prior to the survey (%): the minutes spent commuting between home and school, in physical education classes at school and in out-of-school physical activities are taken into account
Physical education classes	Students with at least two days of physical education classes at school in the last 7 days prior to the survey (%)
Sedentary behavior	
Sedentary behavior	They usually do activities in a sitting position for more than three hours a day (%)
Licit drugs	
Experience with cigarettes	They smoked at least once (%)
Experience with hookah	They tried hookah at least once in their life (%)
Experience with e-cigarettes	They tried e-cigarettes at least once in their life (%)
They are current smokers	They smoked in the 30 days prior to the survey (%)
Experience with alcoholic beverages	They drank alcoholic beverages at least once (%)
They are current drinkers	Consumption of alcoholic beverages at least 1 day in the 30 days prior to the survey (%)
Drunkenness	They were drunk at least once in their life (%)
Illicit drugs	
Experience with illicit drugs	They tried illicit drugs at least once in their life (%)
They are currently using illicit drugs	They used drugs in the 30 days prior to the survey (%)
Current marijuana use	They used marijuana in the 30 days prior to the survey (%)

Source: IBGE, 2016; 2021.

The prevalence and 95% confidence interval (95% CI) of the 2019 indicators were estimated for the total population of students, considering gender (female and male) and the school's administrative system (public and private). The prevalence values and 95% CI corresponding to consumption of ultra-processed food products and to the practice of physical activity were also estimated, according to the Federation Unit (FU).

The comparison between the prevalence of the 2015 and 2019 indicators was carried out using the 95% CI for all indicators, except for the "consumption of ultra-processed product products" indicator, as the questions are different between both editions of the survey, as well as for the "tried hookah" and "tried e-cigarettes" indicators, as they were only included in the survey in its 2019 edition. All the analyses were performed in Microsoft Excel®.

Non-occurrence of overlapping of the 95% CIs was considered as statistically significant differences.

Ethical aspects

Both editions of the PeNSE survey were approved by the National Commission of Ethics in Research with Human Beings belonging to the Ministry of Health, under opinion numbers 1,006,487 (2015) and 3,249,268 (2019).

RESULTS

In 2019, consumption of fresh fruit or fruit salads was 26.9%, and the one corresponding to vegetables and/or legumes was 28.8%, being higher among the students attending private institutions (35.6%). Consumption of beans was 59.0%, being higher in the male gender (64.7%) and among students from the public network (60.6%). In turn, consumption of ultra-processed food products was 97.3%, being higher among female students (97.7%) and in private schools (98.2%). Also in relation to feeding risk factors, 17.2% of the adolescents drank soft drinks, and such consumption was higher among the boys (18.1%). Consumption of sweet treats was 32.8%, being higher among the girls (38.0%) and in the students attending private schools (35.9%) (Table 1).

It was observed that only 28.3% of the students practiced some physical activity, with higher prevalence among the boys (38.5%). Attending at least two physical education classes at school reached a percentage of 37.1%, being more frequent in the public schools (39.3%). Sedentary behavior was found in 53.1% of the students and mainly among the girls (54.3%) and in the students from private schools (62.9%) (Table 1).

As for the prevalence values related to the use of licit drugs, in 2019, experimentation of hookah (26.9%) stood out, being higher in young individuals who attend public schools (27.9%), as well as experimentation of el-cigarettes (16.8%), higher in young males (19.1%). Smoking in the 30 days prior to the survey accounted for 6.8%, but was also high among the students attending public schools (7.2%). In turn, alcohol consumption in the last 30 days was 28.1%, being higher among the girls (30.1%). Illicit drug use in the 30 days prior to the survey was 5.2% and marijuana use in the last 30 days was 5.3% (Table 1).

Figure 2 presents the prevalence values corresponding to the adolescents' consumption of ultra-processed food products in 2019, according to the FUs. Consumption remained high in all the Brazilian states and varied from 95.1% (Acre and Maranhão) to 98.8% (São Paulo). There was no difference according to the variables analyzed.

Figure 3 presents the prevalence of practicing enough physical activity (at least 300 minutes per week) in 2019, according to the FUs. It varied from 22.1% (Alagoas) to 34.0% (Paraná). There was no difference according to the variables analyzed.

Table 2 presents the comparison of the 2015 and 2019 indicators. There was a reduction in the consumption of fresh fruit, vegetables and/or legumes, soft drinks and sweet treats, as well as in the practice of physical activity. There was also an increase in drunkenness, although experimentation and use of the other licit and illicit drugs did not present significant changes.

DISCUSSION

In 2019, the consumption of fresh fruit, fruit salads and vegetables and/or legumes was higher among the students attending private institutions. There was high consumption of ultra-processed food products, with higher prevalence values among the girls and in the private schools. Physical activities were more prevalent among the male students, and those from public schools attended more physical education classes. Experiences with hookah, e-cigarettes, cigarettes and illicit drug use were mainly found in the students from public schools and among the boys. In turn, alcohol consumption was more prevalent among the girls. When comparing the indicators from 2015 and 2019, there was a reduction in the consumption of fresh fruit, vegetables and/or legumes, soft drinks and sweet treats, as well as a decrease in the practice of physical activity; on the other hand, there was an increase in drunkenness.

Table 1 - Prevalence of risk and protection factors for Chronic Non-Communicable Diseases in students aged from 13 to 17 years old, according to the total population, gender and school's administrative system (public or private). 2019 National School Health Survey

Indicators	Total % (95% CI)	Male % (95% CI)	Female % (95% CI)	Public % (95% CI)	Private % (95% CI)
Healthy eating					
Fresh fruit or fruit salads	26.9 (26.3-27.6)	27.5 (26.6-28.4)	26.3 (25.5-27.2)	26.3 (25.5-27.0)	30.7 (30.0-31.4)
Vegetables and/or legumes	28.8 (28.2-29.4)	29.7 (29.0-30.5)	28.0 (27.0-28.9)	27.7 (27.0-28.4)	35.6 (34.8-36.4)
Beans	59.0 (58.0-59.9)	64.7 (63.6-65.8)	53.4 (52.3-54.5)	60.6 (59.5-61.7)	49.4 (48.1-50.6)
Unhealthy eating					
Ultra-processed food products	97.3 (97.1-97.6)	96.9 (96.6-97.2)	97.7 (97.5-98.0)	97.2 (96.9-97.5)	98.2 (98.0-98.4)
Soft drinks	17.2 (16.6-17.8)	18.1 (17.3-18.9)	16.3 (15.6-17.0)	17.2 (16.5-17.9)	17.4 (16.6-18.1)
Sweet treats	32.8 (32.1-33.4)	27.4 (26.6-28.2)	38.0 (37.1-38.9)	32.3 (31.5-33.0)	35.9 (34.9-36.9)
Physical activity					
Enough physical activity	28.3 (27.4-28.8)	38.5 (37.6-39.5)	18.0 (17.3-18.8)	28.1 (27.3-28.9)	28.6 (27.7-29.5)
At least 2 physical education classes at school	37.1 (35.1-39.1)	38.5 (36.4-40.6)	35.8 (33.7-37.9)	39.3 (37.0-41.6)	24.5 (22.2-26.9)
Sedentary behavior					
At least 3 hours in a sitting position	53.1 (52.3-54.0)	51.9 (50.8-53.0)	54.3 (53.4-55.2)	51.5 (50.5-52.5)	62.9 (61.9-63.8)
Licit drugs					
They smoked	22.6 (21.7-23.4)	22.5 (21.6-23.3)	22.6 (21.5-23.8)	23.7 (22.8-24.7)	15.7 (15.0-16.4)
They tried hookah	26.9 (26.0-27.8)	27.8 (26.9-28.8)	26.1 (24.9-27.2)	27.9 (26.9-29.0)	21.0 (20.0-21.9)
They tried e-cigarettes	16.8 (16.2-17.4)	19.1 (18.3-19.9)	14.6 (13.9-15.3)	16.6 (15.9-17.3)	18.0 (17.3-18.8)
They smoked in the last 30 days	6.8 (6.3-7.3)	7.1 (6.6-7.6)	6.5 (5.8-7.2)	7.2 (6.6-7.8)	4.5 (4.1-4.8)
They drank alcoholic beverages	63.3 (62.6-64.0)	59.6 (58.6-60.5)	67.0 (66.0-67.9)	63.5 (62.7-64.3)	62.1 (61.2-63.1)
They drank alcoholic beverages in the last 30 days	28.1 (27.3-28.8)	26.0 (25.0-26.9)	30.1 (29.2-31.0)	28.1 (27.3-29.0)	27.6 (26.7-28.6)
They were drunk at least once	47.0 (46.0-47.9)	46.2 (45.1-47.4)	47.6 (46.5-48.8)	47.6 (46.5-48.6)	43.4 (42.2-44.6)
Illicit drugs					
They tried illicit drugs	13.0 (12.4-13.6)	13.0 (12.3-13.6)	13.0 (12.3-13.8)	13.3 (12.6-13.9)	11.4 (10.7-12.1)
They used illicit drugs in the last 30 days	5.2 (4.8-5.5)	5.6 (5.2-6.1)	4.7 (4.2-5.1)	5.3 (4.9-5.7)	4.4 (4.0-4.7)
They used marijuana in the last 30 days	5.3 (4.9-5.7)	5.8 (5.4-6.2)	4.8 (4.3-5.3)	5.5 (5.0-5.9)	4.4 (4.0-4.8)

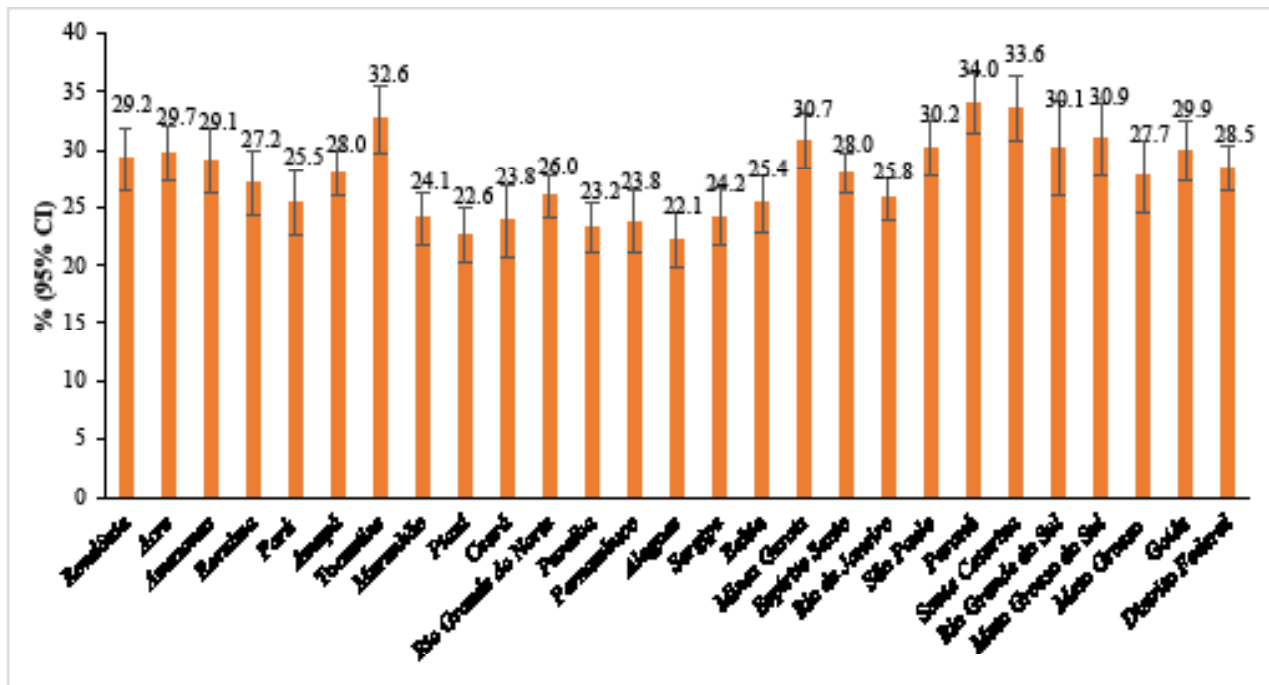Note: % = Prevalence values; 95% CI = 95% Confidence Interval

Figure 2 - Prevalence of the consumption of ultra-processed food products among the students, according to Federation Unit. 2019 National School Health Survey
Source: Prepared by the authors, 2022.
Note: % = Prevalence values; 95% CI = 95% Confidence Interval
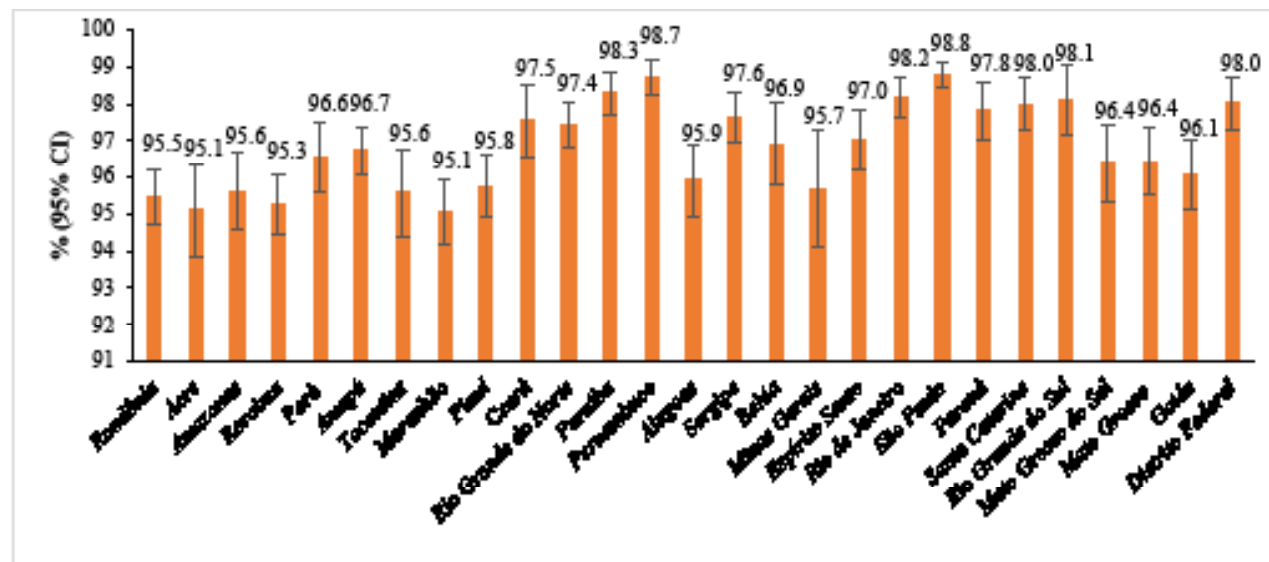

Figure 3 - Prevalence of the practice of physical activity among the students, according to Federation Unit. 2019 National School Health Survey
Source: Prepared by the authors, 2022.
Note: % = Prevalence values; 95% CI = 95% Confidence Interval

These results reinforce the importance of monitoring Brazilian students' health and highlight the relevance of PeNSE for the system for the Surveillance of Risk and Protection Factors for CNCDs in Brazil. PeNSE was consolidated as an important source of information about the country's adolescents, supporting the National School Health Monitoring System.[10]

Regarding eating habits, it is important to mention that consumption of fruit and vegetables is characterized as an important protective factor against CNCDs, as these food options contain fundamental elements for health, such as vitamins, minerals and fiber.[13] A number of studies show differences in the consumption rates of fruit and vegetables:

Table 2 - Comparison of the prevalence values corresponding to risk and protection factors for Chronic Non-Communicable Diseases in students aged from 13 to 17 years old between 2015 and 2019. 2015 and 2019 National School Health Survey

INDICATORS	2015 Total % (95% CI)	2019 Total % (95% CI)
Healthy eating		
Fresh fruit or fruit salads	30.9 (29.6-32.3)	26.9 (26.3-27.6)
Vegetables and/or legumes	37.0 (35.4-38.6)	28.8 (28.2-29.4)
Beans	57.3 (55.1-59.6)	59.0 (58.0-59.9)
Unhealthy eating		
Soft drinks	27.2 (25.6-28.9)	17.2 (16.6-17.8)
Sweet treats	40.6 (39.0-42.1)	32.8 (32.1-33.4)
Physical activity		
Enough physical activity	31.6 (30.1-33.2)	28.1 (27.4-28.8)
At least 2 physical education classes at school	35.2 (31.1-39.3)	37.1 (35.1-39.1)
Sedentary behavior		
At least 3 hours in a sitting position	52.9 (51.2-54.7)	53.1 (52.3-54.0)
Licit drugs		
They smoked	22.9 (21.5-24.3)	22.6 (21.7-23.4)
They smoked in the last 30 days	6.6 (5.8-7.3)	6.8 (6.3-7.3)
They drank alcoholic beverages	61.4 (59.3-63.6)	63.3 (62.6-64.0)
They drank alcoholic beverages in the last 30 days	29.3 (27.6-31.1)	28.1 (27.3-28.8)
They were drunk at least once	27.2 (25.4-28.9)	47.0 (46.0-47.9)
Illicit drugs		
They tried illicit drugs	12.0 (10.8-13.1)	13.0 (12.4-13.6)
They used illicit drugs in the last 30 days	5.4 (4.7-6.1)	5.6 (4.8-5.5)
They used marijuana in the last 30 days	5.3 (4.7-6.0)	5.3 (4.9-5.7)

Note: % = Prevalence values; 95% CI = 95% Confidence Interval

students with lower socioeconomic conditions consume them less than those from private schools. This can be justified by their high price.[14,15] A study conducted with adults also confirms this reduction in consumption, which was intensified by the economic crisis scenario and the implementation of austerity policies in Brazil.[16]

The high intake of ultra-processed food products is worrying, given their high calorie and low nutritional content.[17] Ultra-processed food products have also been consumed due to their low price and easy preparation — in the case of adolescents, they are also desired for their flavor, packaging and marketing. This can lead to a decrease in the quality of the population eating habits.[18] This deterioration in quality of life is more pronounced when it occurs together with the reduction of in natura food options, such as fruit and vegetables.

Regular practice of physical activity is another important factor for health promotion and prevention of CNCDs.[9]

Although there are countless initiatives that seek to encourage the practice of physical activity, a reduction was noticed among the adolescents. In addition, these young individuals also presented sedentary behavior, staying three (or more) daily hours in a sitting position. This can be a reflection of the social and cultural changes that favored the increase in the time spent using devices such as computers, cell phones and electronic games.[19] The difference in the practice of physical activity between the genders is also highlighted, a scenario that may reflect a social behavior in which girls are encouraged to play in a less physically active way, taking care of dolls and the house; while boys are encouraged to play ball and perform activities outside the home and in groups, a behavior that tends to predict the physical activity levels in adulthood.[20] Reducing the practice of physical activity is a behavior that has also been observed among adults.[16] Combined with an unhealthy diet, a sedentary lifestyle contributes to

overweight and obesity; this does not only occur in adolescence but can extend into adulthood.[9]

Regarding consumption of tobacco products, the industry, targeting the young population, offers new products such as e-cigarettes and hookahs, promoting misleading advertisements that convey the idea that such products offer reduced health risks or can be used by those who want to quit smoking.[21] The emergence of these products favored increased use among the students, as an alternative to traditional cigarettes.[21] This scenario draws the attention to the need to expand inspection actions such as banning trade, import and advertising of all tobacco products, as well as their use in closed collective environments.[22]

Alcohol consumption was higher among the female students, which reflects faster physical, mental and social maturation, precocious puberty, participation in parties and, consequently, greater exposure to alcohol.[23] It is noted that the use of licit and illicit drugs is a risk behavior for health. This use begins at school and extends throughout life, generating health problems, school failure, preventable deaths and increased use of health services and treatment for alcoholism and other drugs.[23] Despite progress in measures that seek to reduce this consumption, it is still necessary to strengthen and expand strategies so that young people do not start this practice.[23,24]

The important role played by the education sector in implementing health promotion actions aimed at strengthening individual capacities is evident, making decisions favorable to their health, creating healthy environments and consolidating an intersectoral policy aimed at improving quality of life with a focus on health promotion and disease prevention.[25] Some indicators verified in the current study had worse prevalence values in the public school system, where the vast majority of Brazilian students are concentrated. This can be related to the socioeconomic conditions and greater vulnerability to risk factors for CNCDs.[25] Consequently, there is an indisputable need for State action and the urgency to implement public and social policies that provide access - especially for the vulnerable population - to products and activities that are health protection factors, such as healthy eating, physical activity and programs to combat drug use.[9]

Among the study limitations, it is to be noted that some indicators were added in the 2019 survey, precluding a comparison with 2015. In addition, PeNSE investigates students regularly enrolled in the country's education networks, leaving out adolescents who do not have any educational bond and who may present much worse scenarios than those evidenced by the research.

CONCLUSION

In 2019, Brazilian adolescents were exposed to various risk factors for CNCDs, such as intake of ultra-processed food products, sedentary lifestyle and consumption of licit and illicit drugs. When comparing 2015 and 2019, there was a reduction in the consumption of fresh fruit, vegetables and/or legumes, soft drinks and sweet treats, as well as a in the practice of physical activity; on the other hand, there was an increase in drunkenness.

These results reinforce the importance of the strategies and actions to promote adolescents' health, especially for undergoing a phase marked by major psychobiological and social transformations. It is necessary to turn them into a strategic group for public policies aimed at health promotion and at preventing non-communicable diseases and health problems.

ACKNOWLEDGMENTS

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