SMOKING IN BRAZIL: INSIGHTS FROM THE RESULTS OF THE HOUSEHOLD SURVEYS

TABAGISMO NO BRASIL: PERCEPÇÕES DOS RESULTADOS DE PESQUISAS DOMICILIARES

TABAQUISMO EN BRASIL: PERCEPCIONES DE LOS RESULTADOS DE ENCUESTAS EN HOGARES

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ABSTRACT

Introduction: tobacco use through its different forms continues to be one of the leading preventable causes of death in Brazil. As a remarkable success story, Brazil has achieved one of the largest significant declines in smoking prevalence since 1990. However, worryingly, the rate of decline in tobacco consumption has decreased in recent years, as suggested by surveys. **Objectives**: the current study aimed to compare the results of three household surveys carried out by the Brazilian Institute of Geography and Statistics (IBGE). **Methods**: we compared the prevalence of tobacco use among informants aged 18 years or older and the percentage of prevalence changes between 2008, 2013, and 2019 using data from 3 surveys: The Global Tobacco Adult Survey (2008) and the Brazilian National Health Survey (2013 and 2019). In addition, we analyzed the prevalence for Brazil and states according to age, gender, educational level, and race. **Results**: the prevalence of active smoking decreased by 19% between 2008 and 2013, from 18,2% (95% CI: 17,7;18,7%) in 2008 to 14.7% (95% CI: 14.2;15.2%) in 2013. However, in 2019, the prevalence was 12.6% (95% CI: 12.2;13.0%) revealing a 14.3% reduction. Smoking was higher among low educational levels population, lower income status, and black and mixed race/skin color. **Conclusion**: the prevalence of smoking has decreased in Brazil in the past three decades. However, recently there has been a reduction in the intensity of decrease, demanding attention and careful analysis of smoking prevention and cessation strategies.

Keywords: Tobacco; Smokers; Health Surveys.

RESUMO

Introdução: o uso do tabaco em suas diferentes formas continua a ser uma das principais causas de morte evitáveis no Brasil. Com uma história de sucesso notável, o Brasil alcançou uma das maiores reduções significativas na prevalência do tabagismo desde 1990. No entanto, é preocupante que a taxa de declínio do consumo de tabaco tenha diminuído nos últimos anos, conforme sugerem as pesquisas. Objetivos: o presente estudo teve como objetivo comparar os resultados de três pesquisas domiciliares realizadas pelo Instituto Brasileiro de Geografia e Estatística (IBGE). Métodos: comparamos a prevalência do uso de tabaco entre entrevistados com 18 anos ou mais e a porcentagem de mudanças na prevalência entre 2008, 2013 e 2019 usando dados de três pesquisas: The Global Tobacco Adult Survey (2008) e a Pesquisa Nacional de Saúde do Brasil (2013 e 2019). Além disso, analisamos a prevalência no Brasil e nos estados de acordo com idade, gênero, nível educacional e raça. Resultados: a prevalência do tabagismo ativo diminuiu 19% entre 2008 e 2013, passando de 18,2% (IC 95%: 17,7;18,7%) em 2008 para 14,7% (IC 95%: 14,2;15,2%) em 2013. No entanto, em 2019, a prevalência foi de 12,6% (IC 95%: 12,2;13,0%), revelando uma redução de 14,3%. O tabagismo foi maior entre a população com baixo nível de escolaridade, status de renda mais baixo e raça/cor da pele preta e parda. Conclusão: a prevalência do tabagismo diminuiu no Brasil nas últimas três décadas. No entanto, recentemente, houve uma redução na intensidade da queda, exigindo atenção e análise cuidadosa das estratégias de prevenção e abandono do tabagismo.

Palavras-chave: Tabaco; Fumantes; Pesquisas de Saúde.

RESUMEN

Introducción: el consumo de tabaco en sus diferentes formas sigue siendo una de las principales causas evitables de muerte en Brasil. Con un éxito notable, Brasil ha logrado una de las mayores reducciones significativas en la prevalencia del tabaquismo desde 1990. Sin embargo, es preocupante que el ritmo de disminución del consumo de tabaco se haya ralentizado en los últimos años, como sugieren las investigaciones. Objetivos: este estudio tuvo como objetivo comparar los resultados de tres encuestas domiciliarias realizadas por el Instituto Brasileño de Geografía y Estadística (IBGE). Métodos: comparamos la prevalencia del consumo de tabaco entre los encuestados de 18 años o más y el porcentaje de cambios en la prevalencia entre 2008, 2013 y 2019 utilizando datos de tres encuestas: The Global Tobacco Adult Survey (2008) y la Encuesta Nacional de Salud de Brasil (2013 y 2019). Además, se analizó la prevalencia en Brasil y en los estados según la edad, el sexo, el nivel educativo y la raza. Resultados: la prevalencia de tabaquismo activo disminuyó un 19% entre 2008 y 2013, del 18,2% (IC 95%: 17,7;18,7%) en 2008 al 14,7% (IC 95%: 14,2;15,2%) en 2013. Sin embargo, en 2019, la prevalencia fue del 12,6% (IC 95%: 12,2;13,0%), lo que revela una reducción del 14,3%. El tabaquismo fue mayor entre la población con bajo nivel educativo, menor nivel de ingresos y raza/color de piel negra y morena. Conclusión: la prevalencia del tabaquismo ha disminuido en Brasil en las últimas tres décadas. Sin embargo, recientemente ha habido una reducción en la intensidad de la disminución, lo que requiere atención y un análisis cuidadoso de las estrategias de prevención y abandono del tabaquismo.

Palabras clave: Tabaco; Fumadores; Encuestas Epidemiológicas.

INTRODUCTION

Tobacco use is one of the leading preventable causes of death in Brazil and worldwide[1,2]. It is established as one of the main risk factors for different noncommunicable diseases (NCD), such as cardiovascular diseases, cancer, respiratory diseases, restriction of intrauterine growth, and predisposition to premature birth[3]. The use of tobacco products through different forms (smoked, inhaled or chewed) and exposure to secondhand smoke have been associated with a negative impact on the health status[4]. The Global Burden of Disease study estimates around 160,000 tobacco attributable deaths in Brazil in 2017[3].

In 2003, the World Health Organization (WHO) adopted the Framework Convention on Tobacco Control (FCTC) treaty and several initiatives to address the global problem of exposure to tobacco[5,6]. In 2015, Brazil committed to supporting the FCTC and monitoring its reduction in tobacco consumption by 30% by 2030[5].

However, Brazilian surveys have pointed out that the rate of decline in tobacco consumption has decreased in recent years, probably due to a reduction in investment in regulatory measures. The current study aims to compare the results of three household surveys carried out by the Brazilian Institute of Geography and Statistics (IBGE).

METHODS

The current study compares the results of three household surveys carried out by the IBGE: The Global Tobacco Adult Survey (GTAS 2008) and the National Survey of Health (PNS 2013 and 2019).

The Global Tobacco Adult Survey (GATS) was held in 2008 by the Brazilian National Cancer Institute (INCA) as a partnership involving IBGE, Ministry of Health (MS), WHO, Pan American Health Organization (PAHO), Johns Hopkins Bloomberg School of Public Health, Bloomberg Philanthropies and the Centers for Disease Control and Prevention[7]. The GATS sampling plan was the same as that used by the annual Brazilian National Household Sampling Survey (NHSS), with an extra randomly selection of one resident aged 15 or older from each household, and was previously described[7]. Representing approximately one household for every three in the NHSS sample, GATS aimed sample size was 50,000. A total of 39,425 interviews were conducted, with an overall response rate of 95.2%.

The PNS is a nationwide household-based survey also carried out by the IBGE, in partnership with the MS. Two editions of the PNS were held, the first in 2013 and the second in 2019, and its design allowed the collection of information regarding living and health conditions, lifestyles, NCD, use of health servies, among other topics[8,9]. In 2013, the PNS included a standardized questionnaire in a reduced format, the Tobacco Questionary Survey (TQS), making possible the international comparison of a set of indicators. Out of a sample of 81,767 households, a total of 62,986 households were successfully interviewed. In 2019, the PNS captured 94,114 household interviews out of a sample of 108,525 households, and adjusted the TQS to include the prevalence of electronic cigarette use[9].

To calculate the sample size of each survey, the mean values, variances, and effects of the sampling plan were considered, assuming a non-response rate of 20%. In 2008 and 2019, the individual selected in the household was 15 years and over, and in 2013, 18 years old and over. 8,9 More details about the methodology can be seen in specific publications[8,9].

In the current analysis, to compare the surveys, we selected only data from informants aged 18 years or older. The prevalence of active smoking was calculated by diving the number of current cigarette smokers by the number of individuals interviewed. The prevalence and respective confidence intervals (95% CI) were analyzed according to the following sociodemographic variables: a) sex (male; female); b) age groups (18 to 24 years old; 25 to 39 years old; 40 to 59 years old; and 60 or more); c) educational level (no formal education and some elementary school; elementary school and some high school; high school and some college; college degree); d) race/skin color (white, black; mixed); e) area of residence (urban; rural). We compared the prevalence and the percentage of changes between 2008, 2013, and 2019 surveys. In addition, the prevalence according to states and administrative regions were evaluated, comparing the 95%CI.

Statistical analysis was performed using Stata 14.0 software (Stata Corporation, College Station, TX, USA).

The PNS data are available for public access and use. The studies were approved by the National Commission for Ethics in Research for Human Beings of the Ministry of Health (number 328.159 and 3.529.376 for the 2013 and 2019 editions, respectively).

RESULTS

The prevalence of active tobacco smokers decreased from 18,2 (95% CI: 17,7;18,7%) in 2008 to 14.7% (95% CI: 14.2;15.2%) in 2013 and to 12.6% (95% CI: 12.2;13.0%) in 2019 (Figure 1). Between 2008 and 2013, the prevalence reduced by 19.2%. In the period between 2013 and 2019, the reduction was 14.3% (Table 1).

Figure 1 - Prevalence of current tobacco smokers in the adult population (18 years old and over), according to the Brazilian National Household Sampling Survey 2008 and the National Survey of Health 2013 and 2019
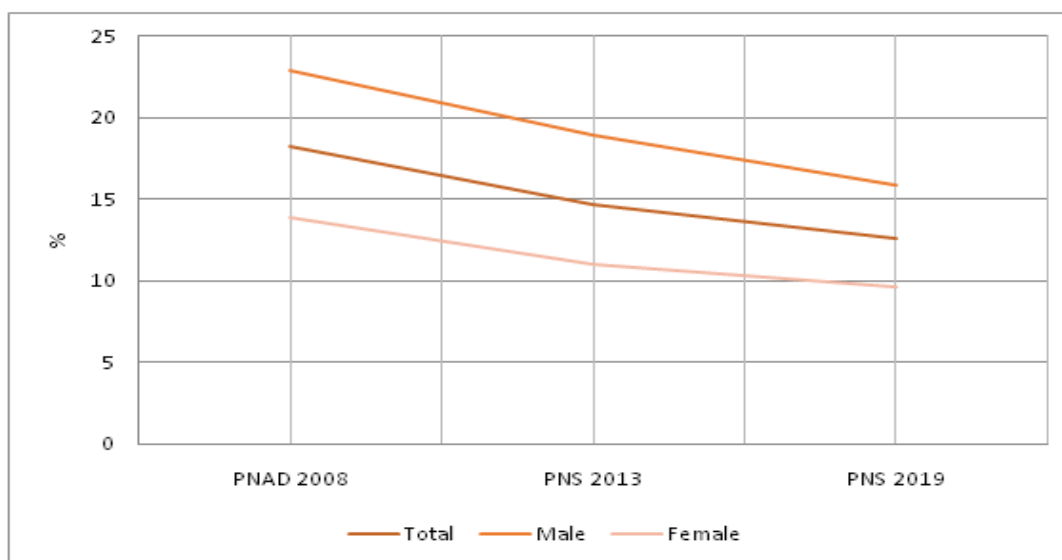
PNAD: Brazilian National Household Sampling Survey; PNS: National Survey of Health.

Table 1 – Prevalence of current tobacco smokers in the adult population (18 years old and over) and relative changes, according to sociodemographic characteristics. Brazilian National Household Sampling Survey 2008 and the National Survey of Health 2013 and 2019

Variables	PNAD 2008	PNS 2013	PNS 2019	Relative Change 2008;2013	Relative Change 2013; 2019
	% (95% CI)	% (95% CI)	% (95% CI)	%	%
Total	18,2 (17,7;18,7)	14,7 (14,2;15,2)	12,6 (12,2;13,0)	-19,2	-14,3
Sex					
Male	22,9 (22,1;23,7)	18,9 (18,0;19,7)*	15,9 (15,3;16,6)*	-17,5	-15,9
Female	13,9 (13,3;14,5)	11,0 (10,4;11,6)*	9,6 (9,2;10,1)*	- 20,9	-12,7
Age group (Years old)					
18-24	13,6 (12,5;14,8)	10,6 (9,4;11,8)*	10,6 (9,5;11,8)	-22,1	0,0
25-39	17,3 (16,5;18,1)	13,1 (12,3;13,9)*	11,8 (11,1;12,5)	-24,3	-9,9
40-59	23,1 (22,1;24,0)	19,2 (18,2;20,2)*	14,7 (14,0;15,4)*	-16,9	-23,4
60+	14,5 (13,4;15,6)	12,6 (11,6;13,7)*	11,4 (10,7;12,1)	-13,1	-9,5
Educational level					
No formal education and some elementaty school	24,5 (23,5;25,6)	19,7 (18,8;20,5)*	17,2 (16,4;18,0)*	-19,6	-12,7
Elementary school and some high school	20,5 (19,7;21,3)	16,5 (15,1;18,0)*	15,3 (14,2;16,5)*	-19,5	-7,3
High school and some college	12,3 (11,5;13,1)	10,3 (9,5;11,0*)	9,4 (8,8;10,0)	-16,3	-8,7
College degree	10,6 (9,4;12,0)	8,7 (7,5;9,9)	7,0 (6,3;7,7)	-17,9	-19,5
Race/color of skin					
White	16,0 (15,3;16,7)	13,0 (12,2;13,7)*	11,6 (11,0;12,2)	-18,8	-10,8
Black	22,6 (20,8;24,4)	17,7 (15,7;19,6)*	13,5 (12,3;14,7)*	-21,7	-23,7
Mixed	20,0 (19,2;20,8)	16,1 (15,3;16,9)*	13,3 (12,7;13,9)*	-19,5	-17,4

PNAD: Brazilian National Household Sampling Survey; PNS: National Survey of Health.
*statistically significant values.

In all periods analyzed, tobacco use was higher for males and the population between 40 to 59 years. In 2019, the prevalence in males was 15.9% and 9.6% among females. Moreover, tobacco use was higher among low educational levels, and black skin color (Table 1).

Furthermore, in the first period (2008; 2013) reductions occurred in all sociodemographic strata, except for 60+ and complete higher education. In the second period (2013;2019), reductions occurred in both sex, 40 to 59 years age group, and among the lower educational levels and blacks and mixed race/skin color. However, overall, the decrease in prevalence was smaller than in the previous period (Table 1).

In the first period (2008;2013), the prevalence reduction occurred in all Brazil's urban (decrease of 17.7%) and rural (23.7% decrease) regions and most of the States. The North Region had the higher reduction (25.4%) and the Southeast the smaller (14.8%). Notably, in the second period (2013; 2019), only 07 of the 27 Brazilian States presented a reduction in the prevalence (Table 2).

Table 2 - Prevalence of current tobacco smokers in the adult population (18 years old and over) and relative changes, in Brazil, urban and rural areas, administrative regions and states. Brazilian National Household Sampling Survey 2008 and the National Survey of Health 2013 and 2019

Variables	PNAD 2008	PNS 2013	PNS 2019	Relative change 2008 - 2013	Relative change 2013 - 2019
	% (95% CI)	% (95% CI)	% (95% CI)	2013 - 2019	%
Brazil	18,2 (17,7;18,7)	14,7 (14,2;15,2)	12,6 (12,2;13,0)	-19,2	-14,3
Urban	17,5 (17,0 - 18,0)	14,4 (13,9 - 14,9)	12,4 (12,0 - 12,9)	-17,7*	-13,9*
Rural	21,9 (20,5 - 23,3)	16,7 (15,4 - 18,1)	13,7 (12,8 - 14,6)	-23,7*	-18,0*
North	17,7 (15,9 -19,7)	13,2 (11,9 - 14,7)	10,5 (9,7 - 11,3)	-25,4*	-20,5*
Roraima	19,0 (13,2 - 26,4)	13,6 (11,7 - 15,6)	11,4 (9,8 - 13,3)	-25,8	-26,2
Acre	23,5 (17,1 - 31,3)	18,5 (16,5 - 20,8)	13,9(12,1 - 15,8)	-20,0	-26,1*
Amazonas	14,5 (10,7 -19,3)	13,1 (11,6 - 14,9)	10,2 (8,9 - 11,6)	-9,7	-22,1
Rondônia	16,2 (12,9 - 20,1)	11,8 (10,0 - 13,9)	10,4 (8,9 - 12,1)	-26,5	-4,2
Pará	18,8 (16,1 - 21,8)	13,3 (10,7 - 16,4)	9,8 (8,5 - 11,3)	-31,4	-24,0
Amapá	14,7 (10,4 - 20,4)	12,6 (10,5 - 15,1)	10,9 (8,9 - 13,2)	-9,5	-18,0
Tocantins	20,2 (17,2 -23,7)	14,0 (11,9 - 16,5)	12,6 (10,6 - 14,8)	-31,2*	-9,4
Northeast	18,4 (17,6 - 19,3)	14,2 (13,4 - 15,1)	10,8 (10,2 - 11,4)	-22,8*	-23,9*
Maranhão	17,6 (14,6 - 21,1)	15,0 (12,0 - 18,7)	11,0 (10,0 - 12,2)	-13,1	-28,1
Piauí	21,1 (17,1 - 25,9)	16,7 (14,5 - 19,3)	11,0 (9,6 - 12,6)	-20,4	-34,5*
Ceará	20,7 (18,6 - 23,0)	16,2 (14,2 - 18,4)	11,6 (10,5 - 12,7)	-21,3*	-28,8*
Rio Grande do Norte	18,8 (15,9 - 22,1)	13,1 (11,1 - 15,3)	11,0 (9,3 - 12,9)	-29,8*	-16,7
Paraíba	21,7 (18,5 - 25,3)	12,6 (10,6 - 14,9)	11,7 (10,1 - 13,4)	-42,4*	-6,4
Pernambuco	18,5 (16,6 - 20,6)	15,1 (13,4 - 16,9)	11,2 (9,7 - 13,0)	-18,9	-25,3*
Alagoas	17,0 (13,4 - 21,3)	13,3 (11,4 - 15,5)	10,6 (9,4 - 12,0)	-22,9	-19,1
Sergipe	14,1 (11,0 - 18,0)	11,9 (10,0 -14,0)	9,2 (8,0 - 10,6)	-14,9	-23,3
Bahia	16,8 (15,2 - 18,6)	12,8 (11,0 - 14,9)	9,8 (8,3 - 11,5)	-23,8*	-23,4
Southeast	17,6 (16,7 - 18,4)	15,0 (14,2 - 15,9)	13,3 (12,5 - 14,1)	-14,8*	-11,3*
Minas Gerais	18,6 (17,0 - 20,2)	17,5 (15,6 - 19,6)	12,7 (11,4 - 14,1)	-4,3	-28,7*
Espírito Santo	18,9 (15,2 - 23,3)	12,9 (10,6 - 15,6)	10,2 (9,0 - 11,5)	-30,7	-22,1
Rio de Janeiro	16,0 (14,5 - 17,6)	12,8 (11,5 - 14,3)	12,0 (10,9 - 13,3)	-20,6*	-5,5
São Paulo	17,6 (16,4 - 18,9)	14,7 (13,5 - 15,9)	14,3 (13,1 - 15,6)	-15,9*	-3,4
South	20,0 (18,8 - 21,3)	16,1 (14,7 - 17,5)	14,7 (13,7 - 15,6)	-19,5*	-8,7
Paraná	19,5 (17,5 - 21,7)	17,8 (15,4 - 20,4)	14,6 (12,9 - 16,4)	-7,2	-19,3
Santa Catarina	17,8 (15,4 - 20,5)	16,2 (13,4 - 19,4)	13,0 (11,6 - 14,6)	-10,1	-18,8
Rio Grande do Sul	21,8 (19,9 - 23,8)	14,2 (12,6 - 16,0)	15,8 (14,3 - 17,4)	-34,9*	11,3

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Table 2 - Prevalence of current tobacco smokers in the adult population (18 years old and over) and relative changes, in Brazil, urban and rural areas, administrative regions and states. Brazilian National Household Sampling Survey 2008 and the National Survey of Health 2013 and 2019

Variables	PNAD 2008	PNS 2013	PNS 2019	Relative change 2008 - 2013	Relative change 2013 - 2019
	% (95% CI)	% (95% CI)	% (95% CI)	2013 - 2019	%
Midwest	17,3 (16,0 - 18,7)	13,4 (12,5 - 14,5)	13,1 (12,1 - 14,1)	-22,5*	-2,2
Mato Grosso do Sul	19,6 (16,5 - 23,1)	17,9 (15,7 - 20,3)	14,9 (13,3 - 16,7)	-9,2	-16,3
Mato Grosso	18,3 (14,9 - 22,3)	12,5 (10,3 - 15,0)	12,9 (11,3 - 14,6)	-31,7	3,2
Goiás	17,5 (15,6 - 19,6)	13,5 (11,9 - 15,2)	13,4 (11,8 - 15,2)	-23,4*	0,1
Federal District	13,5 (11,3 - 16,0)	10,6 (9,1 - 12,4)	11,0 (9,4 - 12,9)	-20,0	1,9

PNAD: Brazilian National Household Sampling Survey; PNS: National Survey of Health.

*statistically significant values.

DISCUSSION

Data from the three surveys point to the positive evolution of the tobacco control in the country, although highlighting differences between the periods. There has been a reduction in the prevalence of smoked tobacco by 19.2% between 2008 and 2013, and by 14.6% between 2013 and 2019. In the first period, the success was more comprehensive and included all regions, 20 states both urban and rural areas, and in all sociodemographic strata. In the second period, the reduction occurred in both sex, 40 to 59 years old, lower education levels, black and mixed skin colors, total in Brazil, North region and only 07 states.

Even though there were advances, there were still about 20.4 million tobacco users in 2019 (12.8%), with smoked tobacco corresponding to almost the total consumption (12.6%) or about 20 million of users. Thus, only 0.2% reported using chewed tobacco or other forms of consumption of the product. This result differs from other countries in Asia, such as India and Pakistan, where chewed tobacco has a high prevalence[7,10].

The study also pointed out higher prevalence among men, which has been described in most countries[3]. A GBD study pointed out that about 933.1 million people smoke daily in the world, and of these, more than 80% are men[3]. However, there are differences between regions of the world and in Western Europe, women have higher prevalences than men, while in Asian countries, men have a prevalence about 15 times higher[3,10]. In America region, men smoke about 1.5 times more than women[7].

In Brazil, at the beginning of the 20th century, when tobacco became more consumed in the country, it was a male practice, with female initiation being more recent, around the 60s, associated with the image of female emancipation and gender equality[11], which explains these differences. However, this trend has changed in recent decades and tobacco consumption has declined in both sexes and through the age groups[12,13], which was confirmed by the current study.

The age group that smokes the most is from 40 to 59 years old, confirmed in the three surveys, although in all age groups there were declines[12]. Between 60 and over, the prevalences are low, probably reflecting medical and health professional's guidance on smoking cessation for health reasons[5].

The PNS also pointed out the increase of ex-smokers, which now totalize more than 40% and account for more than 40 million people, almost double the number of smokers, reflecting the adopted smoking cessation and regulation policies[5]. Higher prevalences were found in the population with lower education levels, which has already been described in studies carried out in Brazil[12], and in other countries[10]. It has been attributed to lower access to health promotion practices and cessation.

Black and brown individuals had a higher prevalence of tobacco use in the three surveys, which can be explained by their lower socioeconomic status and lower access to health promotion practices. However, in other countries, such as the United States of America, opposite results were described, with a lower prevalence among black people[14].

The reduction in decline over the last period and across states reverses a three-decade trend of tobacco reduction in the country. The increase in prevalence in Rio Grande do Sul, as well as high prevalence in the state, can be explained by the pressure of the tobacco industry and the presence of tobacco farming in the region, with Brazil being the second largest producer and the largest exporter of tobacco in the world[15]. High prevalences were

also found in other Southern states, which also reflect similar situations, linked to pressure from the tobacco industry in the region. States such as Acre, Mato Grosso do Sul, Goiás and São Paulo also stand out. The first and second may be related to border areas, with illegal trade of cigarettes, at a lower price[16,17]. On the other hand, reductions were found in the states of the North and Northeast and Minas Gerais, which may reflect better control policies in these states, in addition to low prevalence of tobacco among women in the North and Northeast in the past[1].

The monitoring of tobacco indicators in countries is a real need in view of the reduction targets established in the National[18] and Global NCD Plan of WHO[19] and in the Sustainable Development Goals (SDGs)[20]. This study highlights the decline in the pace of reduction of indicators, as well as the concern with setbacks, due to the few regulatory measures being adopted recently and the increase in the illicit market[16].

Brazil has organized its Risk and Protective Factors for Chronic Diseases Surveillance System, carrying out household surveys every five years, such as the GATS in 2008 and PNS in 2013 and 2019, besides the Risk and Protective Factors for Chronic Diseases Surveillance Survey by Telephone (VIGITEL) and the National Survey on Health of Schoolchildren (PeNSE), every three years, among others[13]. These surveys allow constant monitoring of tobacco prevalence and evaluation of the effect of the measures adopted for its reduction.

Brazil has been internationally recognized for its actions in the field of regulation, education, prevention, and governance[5]. The regulatory measures adopted are in accordance with the cost-effective interventions in the prevention of NCDs published by WHO[21] such as: (a) the increase in taxes and prices on tobacco products; (b) the ban on smoking in public places; (c) the inclusion of warnings about the dangers of tobacco consumption; (d) the prohibition of tobacco advertising, sponsorship and promotion.

However, it is noteworthy that between 2015 and 2019, VIGITEL pointed to stability in the prevalence of tobacco in the country, which may indicate flaws in the regulatory and price policies[1,22]. Furthermore, other studies point to an increase in other tobacco products among adolescents, in particular the hookah[23], pointing to recent changes in tobacco behavior in the country[12].

Brazil, since 2015, has been going through a political and economic crisis, implementing fiscal austerity measures, budget cuts and lower investment in public policies[24]. Constitutional Amendment 95 (EC95), approved by Federal Government in 2016, froze the financial budgets of health and social policies for the next 20 years, contributing to the worsening supply of health services to the population, in addition to resulting in an increase in poverty and extreme poverty[24,25]. Reflections of these policies can be already seen in the weaking of the regulatory role of the Brazilian government and in the last two years, the prices of tobacco products have remained unchanged, in addition to less inspection of tobacco products and an increase in illegal trade[1,16,17]. New measures are needed, as advancing in the regulatory process with the adoption of generic packaging, enforcing inspection of smoke-free environments and points of sale, preventing illegal trade arising from smuggling and investing in supporting small farmers in crop diversification, among other strategies[17].

Among the limits for the development of this study, it is worth highlighting the use of self-reported information to estimate the prevalence of smoking, the difficulties in comparing different surveys, which although designed with similar sampling plans, were conducted in different contexts and with different population structures.

In conclusion, the prevalence of tobacco reduced between 2008 and 2019, however, the pace of reduction was lower in recent years, including changes in prevalence between states, which tended to stabilize. Brazil adopted a set of regulatory measures and implementation of anti-tobacco policies until 2015, but after that there is a trend towards a standstill and increase in the illegal tobacco market. The maintenance and advancement depend on the adoption of new regulatory policies, such as generic packaging, increase in product prices, support for small farmers in the diversification of their crops in order to achieve the SDG targets, inspection of free environments and the illegal market.

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