DOI: 10.1590/1980-549720200012.supl.1

ORIGINAL ARTICLE / *ARTIGO ORIGINAL*

Temporal trend in the prevalence of indicators related to driving a motor vehicle after alcohol consumption, between 2007 and 2018

Tendência temporal da prevalência de indicadores relacionados à condução de veículos motorizados após o consumo de bebida alcoólica, entre os anos de 2007 e 2018

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ABSTRACT: ***Objective:*** To analyze the temporal trend of indicators related to motor vehicle driving after alcohol consumption, in the general population and among drivers. ***Methods:*** Temporal trend study of indicators related to driving motorized vehicles after alcohol consumption, between 2007 and 2018, based on information from Vigitel. The population consisted of adults (≥ 18 years old) living in Brazilian capitals with a landline. Trend analysis was performed by linear regression. ***Results:*** Between 2007 and 2018, there was a reduction in the indicator "driving a vehicle after alcohol abuse by the population" from 2.0% to 0.7% ($p < 0.001$). This consumption when calculated only among drivers decreased from 3.5 in 2011 to 1.6 in 2018 ($p < 0.003$). Driving a vehicle by drivers after consuming any amount of alcohol had high prevalences, ranging from 15.7% (2011) to 11.4% (2018). Prevalence in all indicators was higher among men, younger adults (18 to 34 years) and with higher education. ***Conclusion:*** The practice of alcohol abuse and driving reduced in Brazil, however, driving after drinking any amount of alcohol still remains high. Therefore, it is necessary to maintain regulatory measures to control alcohol and driving in order to reduce traffic accidents.

Keywords: Automobile driving. Alcohol drinking. Accidents, traffic. Risk factors. Health surveys.

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Conflict of interests: nothing to declare - **Financial support:** National Health Fund, Health Surveillance Secretariat (*Secretaria de Vigilância em Saúde* - SVS), Ministry of Health (TED 66/2018).

RESUMO: ***Objetivo:*** Analisar a tendência temporal da prevalência de indicadores relacionados à condução de veículos motorizados após o consumo de bebida alcoólica, na população em geral e entre motoristas. ***Métodos:*** Estudo de tendência temporal de indicadores relacionados à condução de veículos motorizados após o consumo de bebida alcoólica, entre 2007 e 2018, com base nas informações do sistema de Vigilância de Fatores de Risco e Proteção para Doenças Crônicas por Inquérito Telefônico (Vigitel). A população foi constituída de adultos (≥ 18 anos) residentes nas capitais brasileiras com telefone fixo. A análise de tendência foi realizada pela regressão linear. ***Resultados:*** Entre 2007 e 2018 houve redução do indicador "condução de veículo após consumo abusivo de bebida alcóolica pela população" de 2 para 0,7% ($p < 0,001$). Esse consumo, quando calculado apenas entre motoristas, reduziu de 3,5 em 2011 para 1,6 em 2018 ($p < 0,003$). A condução de veículo por motoristas após consumo de qualquer quantidade de bebida alcóolica apresentou elevadas prevalências, variando de 15,7% (2011) para 11,4% (2018). As prevalências em todos indicadores foram mais elevadas entre homens, adultos mais jovens (18 a 34 anos) e com maior escolaridade. ***Conclusão:*** A prática do consumo abusivo de bebida alcóolica e direção reduziu no Brasil, entretanto a prática de dirigir após o consumo de qualquer quantidade de álcool ainda continua elevada. Portanto, torna-se necessário manter as medidas regulatórias de fiscalização de álcool e direção, visando à redução dos acidentes de trânsito.

Palavras-chave: Condução de veículo. Consumo de bebidas alcoólicas. Acidentes de trânsito. Fatores de risco. Inquérito epidemiológico.

INTRODUCTION

The consumption of alcoholic beverages has been adapted and encouraged in most cultures, and is associated with festivities, celebrations, joy and pleasure[1]. However, the excessive consumption of these beverages constitutes a relevant public health problem and is an important risk factor for several diseases and health problems[2,3]. The World Health Organization (WHO) estimates that 3.3 million deaths associated with alcohol use occur worldwide each year (5.9% of all deaths), of which 320,000 occur in young people aged between 15 and 29 years old[2]. In Brazil, alcohol was the fifth risk factor in 2017 for loss of disability-adjusted life years (DALYs), resulting in 4,032,898 million (6.68%) DALYs[3,4] .

Driving after drinking alcohol is one of the main causes of traffic accidents worldwide[5]. Alcohol consumption increases the risk of being involved in accidents between drivers and pedestrians[6]. Even in small quantities, alcohol causes the deterioration of visual and motor functions and reduces one's ability to discern, which is essential for safety behind the wheel. In addition, it is associated with other high-risk behaviors, such as speeding and failure to use a seat belt[6]. The WHO estimates that in high-income countries, about 20% of drivers involved in fatal accidents have alcohol in their blood, and, in some low and middle-income countries, these figures may reach 69%[5].

In order to inhibit drivers' consumption of alcoholic beverages, Brazil implemented Law No. 11,705 of 2008 (Dry Law), which established zero blood alcohol levels and penalties for

drivers who drive under the influence of alcohol[7]. The new Dry Law (Law No. 12,760, of 2012) prohibits driving under the influence of alcohol and set its limits at a concentrations of equal to or greater than 6 dg of alcohol per liter of blood, or equal to or greater than 0.3 mg of alcohol per liter of alveolar air, in addition to instituting other means for proving drivers' drunkenness, such as blood alcohol tests, videos and witnesses[8]. Considering this, a literature review showed that blood alcohol limits between 0 and 0.02 g/dL can reduce accident rates between 4 and 24%[9].

Studies on alcohol consumption and driving in Brazil have been published[10,11], and they have proven to be important for monitoring this practice and verifying whether changes in these patterns occur in the population. Therefore, the aim of this study was to analyze the temporal trend of the prevalence of indicators related to driving motorized vehicles after drinking alcohol, in the general population and among drivers.

METHODS

This is a time trend study on the prevalence of indicators related to the driving of motorized vehicles after the consumption of alcoholic beverages, between the years 2007 and 2018. It is based on research information carried out by the Risk Factors Surveillance system and Protection for Chronic Diseases by Telephone Survey (*Vigilância de Fatores de Risco e Proteção para Doenças Crônicas por Inquérito Telefônico* -Vigitel). Adults (≥ 18 years old) were interviewed, who resided in the capital cities of the 26 Brazilian states and the Federal District, and who had landlines. Each year, approximately 54 thousand individuals are interviewed and all estimates are weighted so that they are representative of the adult population in each city. The post-stratification weight is calculated using the rake method and it takes into account the variables of sex, age and educational level. More methodological details are provided in Vigitel publications[12].

In 2007, a question about consuming alcohol and driving[13] was included in the Vigitel questionnaire. In 2011, two new questions were introduced: one related to driving a car, motorcycle or other vehicle, and another about driving after consuming any amount of alcohol[14].

For the analysis of this study, two situations were considered:

- driving after the abusive consumption of alcoholic beverages;
- driving after consuming any amount of alcohol.

Based on these scenarios, four indicators were calculated, with the general population and drivers as the denominators. They were:

- Percentage of adults who drive after consuming alcohol abusively: number of adults who reported driving after consuming alcohol abusively, divided by the number of respondents. A positive answer to the question was considered as driving after abusive consumption of alcoholic beverages: "On this day (or any of these days), did you drive right after drinking?" Alcohol abuse was considered to be five or more

doses (male) or four or more doses (female) on a single occasion, at least once in the last 30 days. This indicator, since it was included in 2007, allowed us to analyze the entire series (2007 to 2018). The following were considered to be the baseline for the implementation of the Dry Law for the general population;

- Percentage of drivers (aged 18 and over) who usually drive after consuming alcohol abusively: number of adults who admitted to driving after drinking alcohol abusively, divided by the number of drivers. The previous questions were considered and only the drivers, or those who answered positively to the question, were included in the denominator: "Do you drive a car, motorcycle and/or other vehicle?" Because this question was added in 2011, the analysis was carried out between 2011 and 2018;
- Percentage of adults who reported driving a motorized vehicle after consuming any amount of alcoholic beverage: number of adults who claimed to having driven a motorized vehicle after consuming any amount of alcoholic beverage, divided by the number of respondents. This condition included individuals from the previous condition and all those who answered always, sometimes or almost never to the following question: "Regardless of the quantity, do you usually drive after consuming alcohol?" This question was also introduced in the 2011 edition of Vigitel, so the analysis was conducted between 2011 and 2018;
- Percentage of drivers who reported driving a motorized vehicle after consuming any amount of alcoholic beverage: number of adults who claimed to have driven a motorized vehicle after consuming any amount of alcoholic beverage, divided by the number of respondents. They were also analyzed between 2011 and 2018.

The indicators were stratified according to sex (female and male), age group (18–24, 25–34, 35–44, 45–54, 55–64 and ≥ 65 years old) and years of schooling (0 to 8; 9 to 11; ≥ 12 years of study). In the indicator "abusive consumption for the general population", analyses were carried out according to the regions of Brazil (North, Northeast, Southeast, South and Center West). Prevalence, annual variation and p-value were calculated in each year of the series.

The trend analysis was performed using the linear regression model and the age-adjusted proportion was calculated, according to Equation 1:

$$proporção_{\,ajustada\ por\ idade} = \sum_{i=1}^{c} p_i * w_i \qquad (1)$$

In which:
w_i = the weight of the i-th age group of the adult population of the 2010 Census;
p_i = the proportion of the indicator of the i-th age group i = 1, 2, ... , 6.

The trend of the indicator and the annual variation are described (Δ) *in the period t*+1 *and t* expressed as a percentage, according to sex, education level, age group and total capital

cities by region. The hypothesis test was used to detect change ($H0:\Delta=0$ and $H_1:\Delta\neq0$) in the period, whose result is expressed by a 95% confidence interval.

For data processing and statistical analysis, Data Analysis and Statistical Software (Stata) version 14 was used. The Vigitel Project was approved by the National Commission for Ethics in Research for Human Beings of the Ministry of Health (CAAE: 65610017.1.0000.0008). Free and informed consent was obtained at the time of telephone contact with the interviewees.

RESULTS

Regarding the driving of vehicles after the abusive consumption of alcoholic beverages by the population, there was a significant reduction between 2007 and 2008 for the male sex and in the population with 9 to 11 years of schooling. In 2013, there was a reduction among men and those with 9 or more years of study. In 2015, the decrease occurred again for males and for individuals with 12 or more years of study. In 2017, it decreased only among those with higher levels of education. It is worth noting that, in 2014, there was a significant increase in this practice among men and individuals with 9 to 11 years of schooling, and in 2016 only for those with 12 years or more of study. Prevalences were higher among men (3.99% in 2007 and 1.36% in 2018) compared to women (0.33% in 2007 and 0.19% in 2018), as well as among the population aged 25 to 34 years old (3.03% in 2007 and 1.41% in 2018) and those with higher levels of education (3.22% in 2007 and 1.06% in 2018) (Table 1).

Regarding age, there was a significant reduction between 2007 and 2008 in the age groups of 25 to 34 years old and 55 to 64 years old. In 2013, it decreased in the population aged 35

Table 1. Driving a vehicle after abusive consumption of alcohol, by population. Brazil, 2007–2018.

			2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Sex	Male	%	3.99	3.09	3.49	3.09	2.98	3.27	2.10	2.88	1.85	2.22	1.72	1.36
		Var.		-0.90*	0.40	-0.40	-0.11	0.29	-1.17*	0.78*	-1.03*	0.37	-0.50	-0.36
	Female	%	0.33	0.26	0.27	0.28	0.27	0.25	0.26	0.18	0.17	0.20	0.11	0.19
		Var.		-0.07	0.01	0.01	-0.01	-0.02	0.01	-0.08	-0.01	0.03	-0.09	0.08
Schooling (years)	0 to 8	%	1.33	1.04	1.17	0.82	0.69	0.89	0.69	0.77	0.50	0.55	0.57	0.43
		Var.		-0.29	0.13	-0.35	-0.13	0.20	-0.20	0.08	-0.27	0.05	0.02	-0.14
	9 to 11	%	2.23	1.47	1.63	1.64	1.63	1.70	1.11	1.67	1.24	1.08	0.78	0.68
		Var.		-0.76*	0.16	0.01	-0.01	0.07	-0.59*	0.56*	-0.43	-0.16	-0.30	-0.10
	≥12	%	3.22	2.79	3.06	2.79	2.67	2.69	1.69	1.95	1.10	1.77	1.20	1.06
		Var.		-0.43	0.27	-0.27	-0.12	0.02	-1.00*	0.26	-0.85*	0.67*	-0.57*	-0.14

*significant p (<0.05) from the comparison of the current year with the previous one; var .: proportion variation.

to 44 years old. In 2015, the decline occurred among those aged 25 to 34 years old, and in 2018 only among the elderly, aged 65 and over. An increase in this practice was observed in 2014, among individuals aged 35 to 44 years old (Supplementary Materials 1, 2, 3 and 4).

Table 2 shows driving of vehicles after abusive consumption of alcohol, by drivers. In 2013, a reduction was observed among male drivers and those with 9 or more years of study. In 2015, there was a decrease among men, as well as among those with 12 years or more of schooling. The increase in this practice occurred in 2014 among male drivers with 9 to 11 years of schooling, and in 2016 among those with the most schooling. Higher prevalences were found among men (4.67% in 2011 and 2.10% in 2018) when compared to women (1.07% in 2011 and 0.60% in 2018), among those with ages from 18 to 24 years old (6.17% in 2011 and 1.50% in 2018) and those with 9 to 11 years of study (3.95% in 2007 and 1.66% in 2018).

With regard to age, in 2012, there was a decrease for drivers aged 18 to 24 years old. In 2013, there was a reduction among drivers aged 35 to 44 years. In 2015, the reduction was among those aged 25 to 44 years old, and in 2017, the reduction was among elderly people aged 65 and over. The increase in this practice occurred in 2014 among drivers aged 35 to 44 years old (Supplementary Material).

The population's consumption of any amount of alcoholic beverage was also assessed. There was a reduction in 2013 for men and women and for people at all education levels. A statistically significant reduction was only observed in 2017 for the population with 9 to 11 years of schooling, and in 2018 for both sexes, and for those with 12 years of schooling or more. In 2014, there was an increase in this practice among men, and in 2016, an increase among both sexes and those with 9 years of schooling or more (Table 3).

There was a reduction in 2013 for all age groups, with the exception of 25 to 34 year olds, and in 2018 among the population aged 25 to 34 years old and 55 to 64 years old. In 2014,

Table 2. Driving a vehicle after abusive consumption of alcohol, by drivers. Brasil, 2011–2018.

			2011	2012	2013	2014	2015	2016	2017	2018
Sex	Male	%	4.67	5.00	3.21	4.52	2.87	3.27	2.62	2.10
		Variation		0.33	-1.79*	1.31*	-1.65*	0.40	-0.65	-0.52
	Female	%	1.07	0.92	0.91	0.65	0.58	0.63	0.35	0.60
		Variation		-0.15	-0.01	-0.26	-0.07	0.05	-0.28	0.25
Schooling (years)	0 to 8	%	2.46	3.04	2.26	2.85	1.72	1.81	2.01	1.47
		Variation		0.58	-0.78	0.59	-1.13	0.09	0.20	-0.54
	9 to 11	%	3.95	3.80	2.51	3.81	2.79	2.43	1.81	1.66
		Variation		-0.15	-1.29*	1.30*	-1.02	-0.36	-0.62	-0.15
	≥ 12	%	3.77	3.86	2.46	2.85	1.59	2.49	1.71	1.53
		Variation		0.09	-1.40*	0.39	-1.26*	0.90*	-0.78*	-0.18

*significant p (<0.05) from the comparison of the current year with the previous one; var .: proportion variation.

there was an increase among the population aged 35 to 44 years old, and in 2016 for the age group between 35 and 64 years old (Supplementary Material).

Driving a vehicle after consuming any amount of alcoholic drink, by drivers, is shown in Table 4. In 2013, there was a reduction for drivers of both sexes and all levels of education. In 2017, there was a reduction for men and those with 9 to 11 years of schooling. In 2018, the reduction occurred among female drivers and people with years of schooling from 0

Table 3. Driving a vehicle after consumption of any quantity of alcohol by the population. Brazil, 2011–2018.

			2011	2012	2013	2014	2015	2016	2017	2018
Sex	Male	%	12.55	12.58	9.37	10.72	9.82	12.89	11.69	9.25
		Variation		0.03	-3.21*	1.35*	-0.90	3.07*	-1.20	-2.44*
	Female	%	1.92	2.29	1.57	1.74	1.80	2.53	2.52	1.96
		Variation		0.37	-0.72*	0.17	0.06	0.73*	-0.01	-0.56*
Schooling (years)	0 to 8	%	3.27	3.84	2.78	3.07	3.04	3.16	3.81	2.86
		Variation		0.57	-1.06*	0.29	-0.03	0.12	0.65	-0.95
	9 to 11	%	6.41	7.07	5.07	5.94	5.26	6.63	5.30	4.50
		Variation		0.66	-2.00*	0.87	-0.68	1.37*	-1.33*	-0.80
	≥12	%	13.05	11.72	8.65	9.65	8.91	12.32	11.24	8.62
		Variation		-1.33	-3.07*	1.00	-0.74	3.41*	-1.08	-2.62*

*significant p (<0.05) from the comparison of the current year with the previous one; var .: proportion variation.

Table 4. Driving a vehicle after consuming any amount of alcohol, by drivers. Brazil, 2011–2018.

			2011	2012	2013	2014	2015	2016	2017	2018
Sex	Male	%	19.66	19.22	14.28	16.85	15.23	18.99	17.85	14.24
		Variation		-0.44	-4.94*	2.57*	-1.62	3.76*	-1.14*	-3.61
	Female	%	7.42	8.18	5.45	6.25	5.99	7.94	7.97	6.25
		Variation		0.76	-2.73*	0.80	-0.26	1.95*	0.03	-1.72*
Schooling (years)	0 to 8	%	11.71	13.09	9.07	11.26	10.39	10.38	13.28	9.62
		Variation		1.38	-4.02*	2.19	-0.87	-0.01	2.90	-3.66*
	9 to 11	%	15.48	15.81	11.41	13.54	11.84	14.81	12.33	10.88
		Variation		0.33	-4.40*	2.13	-1.70	2.97*	-2.48*	-1.45
	≥ 12	%	18.43	16.81	12.57	14.10	12.93	17.31	16.07	12.38
		Variation		-1.62	-4.24*	1.53	-1.17	4.38*	-1.24	-3.69*

*significant p (<0.05) from the comparison of the current year with the previous one; var .: proportion variation.

to 8, and 12 and more. An increase was verified in 2014 among men, and in 2016 for both sexes and for people with 9 and more years of schooling.

With regard to age, in 2013 there was a decrease again for all age groups, except for the 25 to 34 age group. In 2015, there was a decrease for those aged between 35 and 44 years old. In 2018, the decline occurred between the age groups 25-34 and 55 and over. An increase was observed in 2014 among the age groups 35 to 54 years old and 65 and over, and in 2016 among drivers aged 35 to 64 years old (Supplementary Material).

Figure 1 shows the trend in the prevalence of driving after drinking alcohol. There was a significant reduction trend ($p < 0.05$) for drivers' abusive consumption (3.5% in 2011 and 1.6% in 2018) and for the population's abusive consumption (2% in 2007 and 0.7% 2018). The consumption of any amount of alcoholic beverages by drivers showed a high prevalence, ranging from 15.7% (2011) to 11.4% (2018), without statistically significant differences ($P = 0.298$). In Figure 2, the trend in the prevalence of driving vehicles after alcohol abuse by the population was analyzed, according to regions of Brazil. The trend showed a decline in all of the regions ($p < 0.05$), in the period from 2007 to 2018.

DISCUSSION

The study presents different indicators to monitor the effect of the practice of consuming alcohol and driving, among the adult population and drivers in Brazilian capital cities. There was a decline in this practice in two of the analyzed indicators: driving a vehicle after abusive consumption of alcohol by the population and abusive consumption and driving,

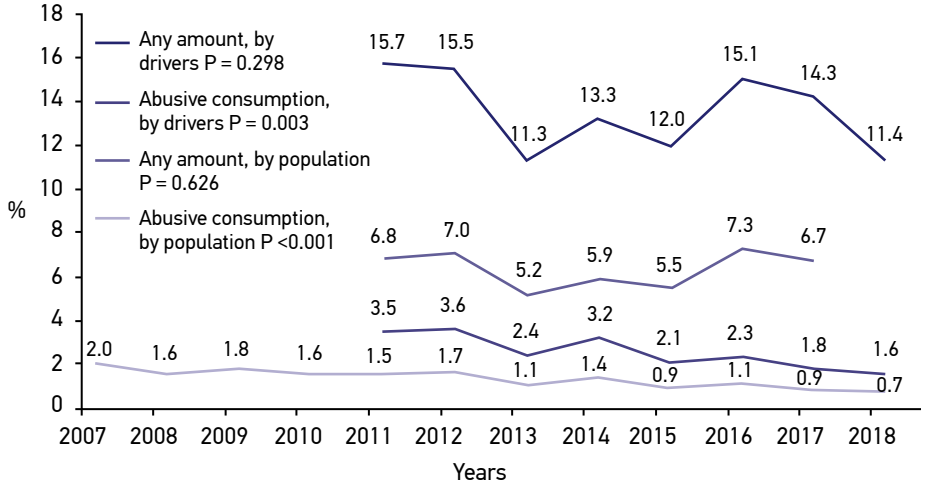

Figure 1. Driving a vehicle after drinking alcohol. Brazil, 2007–2018.

when calculated only among drivers. The indicators referring to the consumption of any amount of alcohol and driving remained stable in the period, with a significant reduction only in 2013, after the edition of the Dry Law, and in 2017 and 2018, with fluctuations in the other years. The prevalences were higher among men, younger adults (18 to 34 years old) and those with higher levels of education.

The indicator that evaluates driving vehicles after consumption of any amount of alcoholic drink by drivers showed a high prevalence. It was more than one tenth of the population, with no variation in the period. This indicator is considered to be the most sensitive for monitoring this practice, as it is closer to that recommended in the Lei Seca (concentration equal to or greater than 6 dg of alcohol per liter of blood or equal to or greater than 0.3 mg of alcohol per liter of alveolar air)[8].

This behavior was also identified in surveys such as the National Health Survey (*Pesquisa Nacional de Saúde* - PNS) in 2013, which showed that the proportion of drivers aged 18 or over who drove soon after consuming alcoholic beverages was 24.3%, and was higher among men (27.4%), compared to women (11.9%)[15]. Research carried out in European Union countries showed that 1 to 4% of drivers drove under the influence of alcohol[1,16,17]. The comparison with global studies is difficult due to the different methodologies used and the legislation of each country. However, there are higher prevalences in Brazil than in Europe[17].

It is important to highlight traffic accidents due to the consumption of alcoholic beverages. A study with PNS data showed that the proportion of people who were involved in

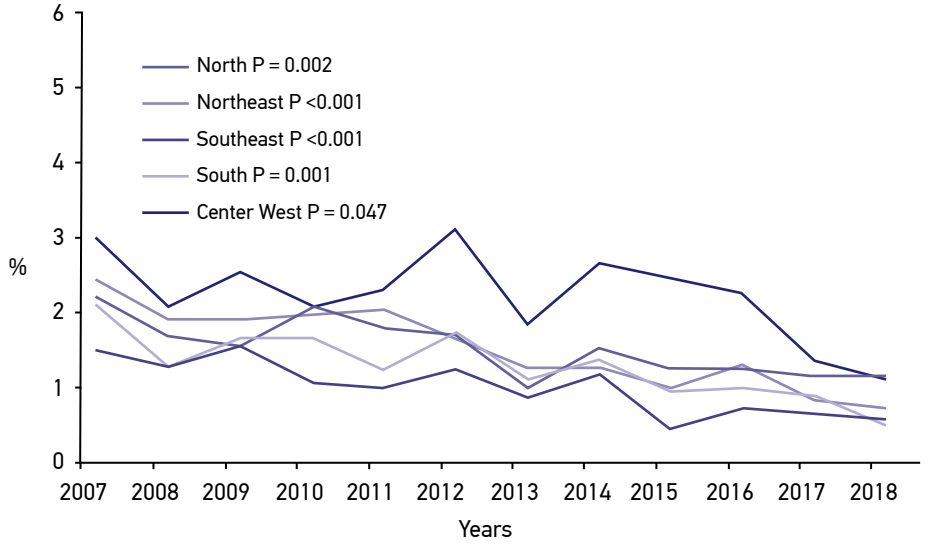

Figure 2. Driving a vehicle after abusive consumption of alcohol, by population, according to regions of Brazil, 2011–2018.

traffic accidents with bodily injuries was 3.1% in the general population and almost twice as much among individuals who reported alcohol abuse (6.1%)[10] .

Data from the National Department of Transport Infrastructure (DNIT), in 2017, showed 19,083 drivers driving after drinking alcohol and 6.45 thousand accidents on Brazilian federal highways caused by drunk drivers, with more than 13 thousand victims and one thousand deaths[18]. This shows that drinking and driving still remains a habit in the country.

Considering the social and economic implications of the injuries attributed to the use of alcohol associated with driving, in 2010, the Ministry of Health implemented the Life in Traffic Project (*Projeto Vida no Trânsito* - PVT), whose objective was to carry out actions aimed at the surveillance and prevention of traffic injuries and deaths and the promotion of health[20,21]. This project was instituted in response to the challenge set by the United Nations (UN) for the Decade of Action for Road Safety (2011–2020)[20,21]. Brazil has also made a commitment to halve global deaths and injuries from road accidents in the 2030 Agenda of the Sustainable Development Goals[22].

Added to this is the importance of regulatory measures to tackle the consumption of alcoholic beverages and driving vehicles, such as: the Brazilian Traffic Code (Law No. 9.503, 1997)[23]; the Dry Law (*Lei Seca*, Law No. 11,705, 2008)[7]; the New Dry Law of 2012[8]; and Law No. 13,546, of 2017, which provides for crimes committed while driving motor vehicles[24].

Also worth noting is the Strategic Actions Plan for Coping with Chronic Non-Communicable Diseases 2011-2022, which defined goals that include the reduction in the the prevalence of harmful alcohol consumption[25], and the monitoring of alcohol consumption and its harms in the Brazilian population, through population surveys, including Vigitel[12].

Several global initiatives have also been taken to curb alcohol abuse. In 2010, the Global Strategy to Reduce Harmful Use of Alcohol encouraged member states to incorporate measures, such as: the creation of policies to control blood alcohol level, inspection and policies to reduce the availability of alcohol; tax increases; restriction of sales locations and times; alcohol monitoring and surveillance measures, among others[1]. In 2014, the WHO Global Plan for Coping with Chronic Noncommunicable Diseases (NCDs) included the goal of reducing alcohol consumption by 10%[26].

In order to prevent the practice of consuming alcoholic drinks and driving, the inspection measures are worth noting. They reiterate the importance of enacting laws that prohibit this practice, as well as the use of alcohol meters (breathalyzers) in inspections[27]. Therefore, there is a need for traffic authorities to perform continuous inspection, especially at the most frequent times and places of practice, and to establish an efficient system to control and reduce drinking and driving, in order to favor a culture of sobriety in traffic[28].

Among the limitations of this study include the analysis of the indicators that were introduced in Vigitel since 2011, and which still are recent. Thus they require more time to observe whether there will be a change in the trend.

Brazil has implemented a surveillance system that makes it possible to continuously monitor indicators related to drinking and driving in the Brazilian population. Only alcohol abuse

that is associated with driving showed a statistically significant reduction. The declines were more intense in the years after the implementation of the laws of 2008 and 2012, known as Dry Laws, however, the practice of driving after consuming any amount of alcohol still remains high. Therefore, the debate involving government, legislature, health and education professionals, society, families and young people is important, and aims at advancing public policies and the regulatory framework for alcoholic beverages. It is necessary to move forward with educational measures and campaigns, in addition to tax alcoholic beverages and reduce their availability through restricting times and places of sale, effective inspections of selling to minors under 18, the Dry Law, and the prohibition of advertisements for beverages, including beer[1,2].

ACKNOWLEDGMENTS

Health Surveillance Secretariat of the Ministry of Health.

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Received on: 11/05/2019
Revised on: 12/07/2019
Accepted on: 12/18/2019

Authors' contributions: the authors contributed substantially to the conception and design of the study, the acquisition, analysis and interpretation of data, the preparation of preliminary versions of the article and a critical review of the article. They approved the final version to be published and agreed to be responsible for all aspects of the work, in order to ensure that issues related to the accuracy or integrity of any part of the work are properly investigated and resolved.