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TREND IN SUICIDE MORTALITY RATE IN BRAZIL

TENDÊNCIA DA TAXA DE MORTALIDADE POR SUICÍDIO NO BRASIL

EVOLUCIÓN DE LA TASA DE MORTALIDAD POR SUICIDIO EN BRASIL

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Objective: to analyze epidemiological data regarding suicide deaths in Brazil from 2010 to 2019. Method: retrospective, quantitative research, whose data were obtained in December 2020 in the database of the *Departamento de Informática* of the Brazilian *Sistema Único de Saúde*. Results: between 2010 and 2019, Brazil recorded, on an annual basis, 112,166 deaths by suicide, with a mortality rate due to this cause of 6.4/100,000 inhabitants in 2019. Males were the majority, in the proportion of 8:2, on average, with a trend of growth in mortality rates for men and women. Conclusion: suicide mortality rates in Brazil increased significantly and with an increasing trend in all Brazilian regions and in 19 Federation Units.

Descriptors: Suicide. Mortality. Epidemiology. Brazil. Health Information Systems.

Objetivo: analisar os dados epidemiológicos em relação às mortes por suicídio no Brasil no período de 2010 a 2019. Método: pesquisa retrospectiva, quantitativa, cujos dados foram obtidos em dezembro de 2020 no banco de dados do Departamento de Informática do Sistema Único de Saúde do Brasil. Resultados: entre 2010 e 2019, o Brasil registrou, em caráter anual ascendente, 112.166 óbitos por suicídio, com taxa de mortalidade por essa causa de 6,4/100.000 habitantes em 2019. Pessoas do sexo masculino foram maioria, na proporção de 8:2, em média, com tendência de crescimento das taxas de mortalidade para homens e mulheres. Conclusão: as taxas de mortalidade por suicídio no Brasil tiveram aumento significativo e com tendência ainda crescente em todas as regiões brasileiras e em 19 Unidades da Federação.

Descritores: Suicídio. Mortalidade. Epidemiologia. Brasil. Sistemas de Informação em Saúde.

Objetivo: analizar los datos epidemiológicos sobre las muertes por suicidio en Brasil de 2010 a 2019. Método: investigación retrospectiva, cuantitativa, cuyos datos fueron obtenidos en diciembre de 2020 en la base de datos del Departamento de Informática del Sistema Único de Saúde de Brasil. Resultados: entre 2010 y 2019, Brasil registró, sobre una base anual, 112.166 muertes por suicidio, con una tasa de mortalidad por esta causa de 6,4/100.000 habitantes en 2019. Los hombres fueron la mayoría, en la proporción de 8:2, en promedio, con una tendencia de crecimiento en las tasas de mortalidad para hombres y mujeres. Conclusión: las tasas de mortalidad por suicidio

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en Brasil aumentaron significativamente y con una tendencia creciente en todas las regiones brasileñas y en 19 Unidades de la Federación.

Descriptores: Suicidio. Mortalidad. Epidemiología. Brasil. Sistemas de Información en Salud.

Introduction

The World Health Organization (WHO) estimates the occurrence of about 800,000 annual suicide deaths worldwide[1].

In fact, suicide is one of the main causes of death and coping with this phenomenon is a global challenge, whether through clinical or non-clinical strategies. Most people who died by suicide accessed the health system at least 12 months before their death[2].

There is no single cause for suicide, but complex interaction of biological factors (including genetic factors), psychological factors (including personality traits), clinical factors (including psychiatric disorders), social factors and environmental factors[3].

There are emotional, social and economic consequences for, on average, five or six close people[4]. However, this number may be higher, reaching about 60[5] and up to 135 people due to exposure to death by suicide of a close person, with possible need for medical and psychological services due to this exposure[6].

Between 1996 and 2016, Brazil recorded 183,484 suicide deaths, with a 69.6% increase in suicide cases in this period[7]. In 2018, 12,733 suicide deaths were recorded, representing 35 deaths per day, one death every 41 minutes. The rate of 6.1 suicides per 100,000 inhabitants maintains the position of eighth country with the highest absolute number of suicides in the world[1].

These numbers are made available by official records and information bodies. However, despite the improvements that have occurred in recent years, the lack of an adequate surveillance system expresses non-reliable data. The sub-record camouflages the data and sculpts a reality in an attenuated way, offering low rates for the occurrence of this phenomenon[8].

The inaccuracy in the records about suicide is related to the delicate nature of this phenomenon, which can generate the loss of rights and insurance, because it is considered an illegal act in some countries, including Brazil. In addition, there are occurrences that are covered by other denominations of cause of death, such as accidents or undetermined cause, which is even more reported than suicide[9-10].

In view of Brazil being a country of continental dimension whose population is greater than 200 million inhabitants, and considering the regional differences contained, the national mortality rates hide significant regional variations inherent to each locality. However, it is verified that the increase occurs in all Brazilian regions, with the South and Midwest regions being those with the highest suicide rates and a higher rate than the national rate[9].

In general, Brazilian data until 2016 show that there was a higher suicide rate in men; individuals aged 20 to 29 years and 30 to 39 years; but with greater variation in the absolute number of suicides among browns and indigenous peoples; singles; with low schooling; with hanging being the most used method[9].

Thus, understanding data about epidemiology is crucial for the determination of preventive and curative actions related to the phenomenon, so that these actions are specific and problem-solving for each locality.

In this perspective, this study aims to analyze epidemiological data in relation to suicide deaths in Brazil from 2010 to 2019.

Method

This is a descriptive, retrospective, historical series study with a quantitative approach,

based on secondary data on the occurrences of suicide death in Brazil, guided by Strengthening the Reporting of Observational Studies in Epidemiology (Strobe).

The study included all cases of suicide deaths recorded in the *Sistema de Informação de Mortalidade* (SIM) from 2010 to 2019, made available by the *Departamento de Informática* of the Brazilian *Sistema Único de Saúde* (DATASUS).

Data on suicide deaths and population estimates were obtained in December 2020, through access to the DATASUS database.

In the selection of mortality data, deaths coded with X60-X84 (intentional self-inflicted injuries) were considered according to the 10th International Classification of Diseases (ICD-10).

The variables selected for this study were those available in the database and in the notification forms: age group, skin color, schooling, place of occurrence, marital status, sex, method, region and Federative Unit. All available variables were considered in this study.

The data were tabulated in spreadsheets in Microsoft's Excel software. Descriptive statistical analysis was performed, which provided an understanding of absolute and relative frequencies, in addition to calculations for mortality rates, considering populations of 100,000 inhabitants.

The statistical technique of simple linear regression (R2, β1 and p-value of the F test) was used, using the Statistical Package for Social Sciences (SPSS) program, version 20.0. Suicide mortality rates (Y) were considered as dependent variables; independent variable (X), the calendar years of the study. A statistically significant linear trend was admitted only when the probability of having occurred was equal to or less than 0.05, i.e., $p \leq 0.05$, which translates to 95% confidence.

This is a research that uses publicly accessible information, in a database, whose information is aggregated, although without the possibility of individual identification. This research is part of a broader study that complied with Brazilian legislation and was approved by the Research Ethics Committee of the *Universidade Federal de São Paulo* under Opinion n. 2.314.347, 2017.

Results

In the past 10 years (2010 to 2019), Brazil recorded, on an ascending level, 112,166 deaths by suicide, called intentional self-inflicted injuries.

To enable regional epidemiological analysis, Table 1 presents suicide mortality rates from 2010 to 2019 in Brazil, Brazilian regions and Federation Units, according to data obtained from DATASUS.

Table 1 – Mortality rate by suicide in Brazil, Brazilian regions and Federation Units. Brazil – 2010-2019

(continued)

Country / Region / Federation Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Brazil	5.0	5.1	5.3	5.2	5.3	5.5	5.5	6.0	6.1	6.4
North Region	3.9	4.3	4.2	4.5	4.1	5.0	4.7	5.0	5.5	5.7
Rondônia	5.3	4.9	4.6	5.0	4.8	6.2	5.8	6.3	7.1	7.9
Acre	5.6	5.5	5.7	5.7	6.2	4.9	6.9	7.7	6.8	8.2
Amazonas	4.7	5.3	5.2	5.9	6.0	6.7	4.8	5.1	5.7	6.1
Roraima	7.5	7.4	8.1	6.8	3.0	10.3	11.5	9.6	6.4	8.3
Pará	2.5	2.9	3.1	2.9	2.6	3.2	3.3	3.6	4.1	4.0
Amapá	4.5	5.4	3.0	6.1	4.5	6.9	4.6	5.8	7.5	7.2
Tocantins	6.3	6.6	6.6	6.4	5.7	6.5	6.6	7.4	8.0	8.5

Table 1 – Mortality rate by suicide in Brazil, Brazilian regions and Federation Units. Brazil – 2010-2019

(conclusion)

Country / Region / Federation Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Northeast Region	4.0	4.3	4.3	4.5	4.3	4.5	4.8	5.2	5.3	5.4
Maranhão	3.2	3.3	3.1	3.6	3.7	4.1	4.2	4.5	4.4	4.7
Piauí	6.4	7.5	7.4	7.1	7.6	8.5	10.0	9.8	10.1	10.0
Ceará	5.8	6.5	5.9	6.7	6.4	6.3	6.6	7.1	7.2	6.9
Rio Grande do Norte	4.3	5.5	5.3	4.7	5.0	4.5	5.2	5.1	5.6	5.8
Paraíba	4.2	4.3	5.0	5.1	4.0	5.6	4.5	6.2	5.9	6.2
Pernambuco	3.2	3.3	3.7	3.5	3.5	3.3	4.2	4.6	4.5	4.6
Alagoas	2.7	3.3	3.4	4.3	3.6	3.5	3.3	3.1	4.1	3.9
Sergipe	6.2	6.0	5.2	5.7	5.0	5.4	5.1	5.6	5.9	5.0
Bahia	3.1	3.1	3.4	3.3	3.0	3.3	3.5	3.9	3.8	4.4
Southeast Region	4.6	4.8	4.9	4.7	5.0	5.0	4.9	5.3	5.3	5.6
Minas Gerais	5.6	6.4	6.4	5.6	6.5	6.2	6.2	7.2	7.3	8.2
Espírito Santo	4.6	4.6	5.0	4.1	4.4	4.8	4.4	5.2	6.0	6.2
Rio de Janeiro	3.2	2.7	2.9	2.7	3.2	3.2	3.4	3.6	4.1	3.3
São Paulo	4.8	4.9	5.0	5.0	5.1	5.2	4.9	5.1	4.8	5.2
South Region	7.9	7.8	8.5	8.2	8.0	8.5	8.8	9.7	9.7	10.6
Paraná	5.6	5.6	5.9	6.0	5.6	6.4	6.8	6.8	8.1	8.3
Santa Catarina	8.5	8.2	8.6	8.6	8.7	9.3	9.8	10.6	10.4	11.1
Rio Grande do Sul	9.7	9.7	11.0	10.2	9.9	10.1	10.3	11.9	11.0	12.5
Midwest Region	5.8	5.7	6.5	6.4	6.2	6.1	6.6	7.1	7.3	7.9
Mato Grosso do Sul	7.7	8.5	8.4	8.8	7.8	8.7	8.3	9.5	9.8	9.5
Mato Grosso	5.3	5.1	5.9	5.6	4.9	4.4	5.4	5.9	6.6	6.9
Goiás	5.2	5.6	6.5	6.6	7.0	6.6	7.2	7.3	7.2	8.3
Distrito Federal	5.8	3.8	5.1	4.4	4.7	4.5	5.1	5.5	6.3	6.6

Source: Created by the authors.

Table 2 presents the analysis of suicide mortality rates, which showed a trend of increase in Brazil, in all Brazilian regions and in 19 Federation Units.

Table 2 – Annual trend of suicide mortality rates in Brazil, by Brazilian regions and Federation Units. Brazil – 2010-2019

(continued)

Country / Region / Federation Unit	R^2	β_1	p value	Trend
Brasil	0.894	0.147	<0.001	Increase
North Region	0.840	0.182	<0.001	Increase
Rondônia	0.743	0.310	0.001	Increase
Acre	0.608	0.272	0.008	Increase
Amazonas	0.126	0.075	0.315	Stable
Roraima	0.052	0.176	0.528	Stable
Pará	0.783	0.159	0.001	Increase
Amapá	0.428	0.308	0.040	Increase
Tocantins	0.573	0.212	0.011	Increase

Table 2 – Annual trend of suicide mortality rates in Brazil, by Brazilian regions and Federation Units. Brazil – 2010-2019

(conclusion)

Country / Region / Federation Unit	R^2	β_1	p value	Trend
Northeast Region	0.898	0.153	<0.001	Increase
Maranhão	0.935	0.184	<0.001	Increase
Piauí	0.873	0.438	<0.001	Increase
Ceará	0.649	0.124	0.005	Increase
Rio Grande do Norte	0.288	0.086	0.110	Stable
Paraíba	0.586	0.212	0.010	Increase
Pernambuco	0.768	0.166	0.001	Increase
Alagoas	0.205	0.072	0.189	Stable
Sergipe	0.211	- 0.066	0.182	Stable
Bahia	0.706	0.121	0.002	Increase
Southeast Region	0.814	0.092	<0.001	Increase
Minas Gerais	0.647	0.213	0.005	Increase
Espírito Santo	0.492	0.161	0.024	Increase
Rio de Janeiro	0.503	0.099	0.022	Increase
São Paulo	0.155	0.019	0.260	Stable
South Region	0.814	0.278	<0.001	Increase
Paraná	0.822	0.300	<0.001	Increase
Santa Catarina	0.895	0.321	<0.001	Increase
Rio Grande do Sul	0.569	0.238	0.012	Increase
Midwest Region	0.791	0.204	0.001	Increase
Mato Grosso do Sul	0.601	0.183	0.008	Increase
Mato Grosso	0.331	0.144	0.082	Stable
Goiás	0.857	0.270	<0.001	Increase
Distrito Federal	0.355	0.173	0.069	Stable

Source: Created by the authors.

When analyzing deaths by suicide between the sexes, males were the majority, in the proportion of 8:2, on average. In 2019, the five highest proportional percentages of male deaths were in Rio Grande do Norte (83.8%), Sergipe (82.8%), Acre (81.9%), Bahia (81.8%) and Tocantins (80.6%).

For women, the five highest proportional percentages of deaths were in Rio de Janeiro (31.1%), Espírito Santo (27.8%), Federal District (27.1%), Roraima (26.0%) and Alagoas (25.6%).

The age-related analysis revealed that the age group with the highest proportion of suicide deaths in 2019 in Brazil were people aged between 20 and 29 years (21.0%), followed by people aged between 30 and 39 years (20.4%) and age between 40 and 49 years (17.8%). The suicide of the elderly, people aged 60 years and over, corresponded to 17.0% of the occurrences in the same year.

Regarding suicide mortality rates in the age groups, in 2019, the highest rate was of people aged between 70 and 79 years (8.9 per 100,000), followed by the rate of people aged 50 to 59 years (8.6 per 100,000) and 20 to 29 years (8.4 per 100,000).

There was a trend to increase mortality rates for men and women. About age, the trend is to increase suicide mortality rates of people between 10 and 79 years and decrease for people aged 80 years and older (Table 3).

Table 3 – Annual trend of mortality rates by suicide in Brazil by sex and age group. Brazil – 2010-2019

Variable	Category	R^2	β_1	p value	Trend
Sex	Male	0.953	0.267	<0.001	Increase
	Female	0.893	0.065	<0.001	Increase
Age group	5 - 9 years	0.084	0.003	0.416	Stable
	10 - 14 years	0.920	0.065	<0.001	Increase
	15 - 19 years	0.873	0.247	<0.001	Increase
	20 - 29 years	0.586	0.167	0.010	Increase
	30 - 39 years	0.861	0.136	<0.001	Increase
	40 - 49 years	0.817	0.121	<0.001	Increase
	50 - 59 years	0.935	0.208	<0.001	Increase
	60 - 69 years	0.724	0.181	0.002	Increase
	70 - 79 years	0.704	0.143	0.002	Increase
	80 years or more	0.615	0.176	0.007	Decrease

Source: Created by the authors.

The analysis on suicide and the variables skin color, schooling, marital status, place of occurrence and method are presented by means of proportional percentage in each variable, with data from 2019. There is no possibility of calculating the mortality rate due to the lack of information, considering the last census conducted in 2010 and the absence of estimates for these sociodemographic characteristics.

Concerning skin color, Brazil recorded the most deaths by suicide in people with white skin color (48.8%) and brown (43.6%). By adding people with brown and black skin color, these come to mean 48.7% of the occurrences in 2019. However, the analysis of the Brazilian regions and Federation Units allows perceiving the regional differences. In Brazilian regions, the proportional percentages of death by suicide related to white and brown skin color are, respectively, 14.9 and 72.9% in the North Region, 15.9 and 76.2% in the Northeast Region, 56.6 and 35.9% in the Southeast Region, 85.3 and 9.4% in the South Region and 35.5 and 55.3% in the Midwest Region.

Among Brazilian states, the extreme percentages of deaths of white people range from 88.7% in Rio Grande do Sul to 2.3% in Alagoas. Likewise, brown people are 91.8% of deaths in Amapá and 5.3% in Rio Grande do Sul.

For schooling, in Brazil, the percentage of ignored information decreased by 34.3% between 2010 and 2019, but still represents 21.6% of the lack of this information in 2019.

Considering the past 10 years, excluding the ignored information, in the period between 2010 and 2016, the highest percentage of death by suicide was of people with 4 to 7 years of schooling, 33.6% on average. In 2017, 2018 and 2019, the highest proportional percentage was of people with 8 to 11 years of study, 33.1%, 35.6% and 37.8%, respectively.

There is a 52.5% increase in the proportional percentages of death by suicide of people between 8 and 11 years of schooling and an increase of 14.4% for those with 12 years and over. In the same period, there was a decrease for people without schooling (-20.3%), between 1 and 3 years of schooling (-31.0%) and people between 4 and 7 years of schooling (-19.0%).

For marital status, single people were the majority of occurrences in Brazil. Between 2010 and 2019, the proportional percentage was around 50.0% for each year. In 2019, single people were the highest proportional percentage in all Brazilian regions and states, even with differences from 88.0% in Roraima to 38.3% in Espírito Santo.

Regarding the place of occurrence, 63.0% of suicide deaths occurred in households. In the five Brazilian regions and in the 27 Federation Units, the household was also the place with the highest proportional percentage, ranging from 75.4% in Amapá to 48.6% in Rio de Janeiro.

Regarding the method chosen for suicide, hanging is present in the vast majority of occurrences in Brazil (71.9%) and in all Brazilian regions. Table 4 presents the methods and proportional percentage for Brazil and its regions.

Table 4 – Death methods used in Brazil and Brazilian regions. Brazil – 2010-2019

ICD-10 Category	North Region	Northeast Region	Southeast Region	South Region	Midwest Region	Brazil
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
X60-X69	65 (6.1)	337 (10.9)	520 (10.5)	301 (9.5)	138 (10.8)	1361 (10.1)
X70	865 (81.8)	2271 (73.7)	3357 (68.1)	2321 (73.3)	904 (70.5)	9718 (71.9)
X71	17 (1.6)	28 (0.9)	51 (1.0)	49 (1.5)	15 (1.2)	160 (1.2)
X72-X75	68 (6.4)	190 (6.2)	314 (6.4)	287 (9.1)	119 (9.3)	978 (7.2)
X76	6 (0.6)	30 (1.0)	72 (1.5)	21 (0.7)	16 (1.2)	145 (1.1)
X77	-	-	5 (0.1)	1 (0.0)	-	6 (0.0)
X78-X79	12 (1.1)	72 (2.3)	130 (2.6)	46 (1.5)	26 (2.0)	286 (2.1)
X80	17 (1.6)	99 (3.2)	214 (4.3)	92 (2.9)	40 (3.1)	462 (3.4)
X81	-	5 (0.2)	15 (0.3)	7 (0.2)	2 (0.2)	29 (0.2)
X82	2 (0.2)	6 (0.2)	37 (0.8)	22 (0.7)	5 (0.4)	72 (0.5)
X83-X84	6 (0.6)	44 (1.4)	215 (4.4)	20 (0.6)	18 (1.4)	303 (2.2)
Total	1058 (100.0)	3082 (100.0)	4930 (100.0)	3167 (100.0)	1283 (100.0)	13520 (100.0)

Source: Created by the authors.

Note: Conventional signal used:

- Numerical data equal to zero not resulting from rounding.

Legend: X60-X69 Exogenous auto-intoxication; X70 Hanging, strangulation and suffocation; X71 Drowning and submersion; X72-X75 Firearms and explosive devices; X76 Smoke, by fire and by flame; X77 Water vapor, gases or hot objects; X78-X79 Sharp, penetrating or blunt object; X80 Precipitation from an elevated place; X81 Precipitation or standing in front of a moving object; X82 Impact of a motor vehicle; X83-X84 Other Media.

In an analysis of the behavior of Brazilian men and women and the choice of the method for death by suicide, the suicide mortality rate was calculated in each method. There was a trend to increase suicide death of men and women by hanging, and men for high place precipitation and motor vehicle impact (Table 5). It is emphasized that, because it presented a constant rate, it was not possible to calculate the trend of the methods not present in this table.

Table 5 – Trend regarding the suicide method chosen according to sex. Brazil – 2010-2019

(continued)

Variable	ICD-10	R^2	β	p value	Trend
Male	X60-X69	0.387	-0.015	0.055	Stable
	X70	0.967	0.276	<0.001	Increase
	X72-X75	0.068	-0.004	0.466	Stable
	X80	0.727	0.015	0.002	Increase
	X82	0.485	0.010	0.025	Increase
	X83-X84	0.003	0.001	0.873	Stable

Table 5 – Trend regarding the suicide method chosen according to sex. Brazil – 2010-2019

(conclusion)

Variable	ICD-10	R^2	β	p value	Trend
Female	X60-X69	0.000	0.000	1.000	Stable
	X70	0.961	0.078	<0.001	Increase
	X71	0.081	-0.005	0.426	Stable
	X80	0.126	0.006	0.314	Stable

Source: Created by the authors.

Legend: X60-X69 Exogenous auto-intoxication; X70 Hanging, strangulation and suffocation; X71 Drowning and submersion; X72-X75 Firearms and explosive devices; X80 Precipitation from an elevated place; X82 Impact of a motor vehicle; X83-X84 Other Media.

Discussion

World Health Organization data on ending one's life by suicide for the year 2016 revealed a higher suicide mortality rate in men (13.7 per 100,000 inhabitants) than in women (7.5 per 100,000 inhabitants)[1]. In the same year, mortality rates in Brazil were 8.9 per 100,000 inhabitants for men and 2.3 per 100,000 inhabitants for women[9].

In the world, when analyzing the ten causes of death with the highest incidence, suicide was in 4th place in Eastern Europe, 6th in Asia Pacific, 7th in Australasia and 10th in Central Europe and North America[11].

In Brazil, the suicide mortality rate increased from 4.3 per 100,000 inhabitants in 1996[9] to 6.4 per 100,000 inhabitants in 2019, figures representing an increase of 48.8% in the Brazilian suicide mortality rate.

Even with a trend to increase the suicide mortality rate in all Brazilian regions and in most Federation Units, it is important to observe the existence of different rates. In 2019, they ranged from 3.3 per 100,000 inhabitants in Rio de Janeiro to 12.5 per 100,000 in Rio Grande do Sul.

The suicide mortality rate is considered low, when less than 5 per 100,000 inhabitants and considered intermediate when between 5 and 14 per 100,000 inhabitants[4]. Thus, Brazil and all Brazilian regions can be classified as an intermediate suicide mortality rate, but there are Federation Units that have low and intermediate rates.

The understanding of the reason for these variations in suicide mortality rates in Brazilian regions is a gap in knowledge and lacks further studies to clarify local influences and risk factors, such as support for the development of public policies for preventive intervention[12]. There is a scarcity of studies investigating the motivating factors for suicide, so that those available are limited to analyzing the epidemiological profile based on information, such as gender, age, schooling and method.

In the epidemiological analysis of suicide deaths, men, young people, with low schooling and use of hanging and self-poisoning by pesticides form the profile with the most incident characteristics in Rio Grande do Sul[4], Mato Grosso[13], Tocantins[14] and Minas Gerais[15]. As particularities, the frequency of the use of ethanol and other psychotropic drugs is cited; the use of illicit substance and parental absence at 4.5 times higher risk for suicide of young people in Rio Grande do Sul[4]; higher rates in socioeconomically developed regions of Rio Grande do Norte[16].

Among the motivating events, in Assis, in the countryside of São Paulo, suicide was decided by experiences of negative family relationships, with fights and break-up of relationships; history of traumatic experiences, with incidence of sexual abuse; and the negative change in economic power, with loss of employment and property[17]. In some cities in northeastern Brazil, a study on suicidal behavior in elderly women showed a history of maltreatment, physical and sexual violence, social isolation and fragile affective bonds[18].

In the analysis of sex, most suicides occurred in men[4,9]. In the world, between 1990 and 2016, men had higher suicide mortality rates

than women at all ages, except for the 15 to 19 year-old group[11]. The risk factors for men are the preference for methods of greater lethality and hesitation and resistance to seek help[3]. For women, risk factors include gender social construction, eating disorders, problems with established body image and pattern, postpartum disorders, unwanted pregnancy, great vulnerability to the loss of children, domestic violence against them and their children and sexual abuse[19]. Protective factors include the greatest search for crisis assistance and risk to physical and mental health, greater participation in social support networks, religiosity and motherhood[4].

For age, the Global Burden of Disease Study, conducted in 2019, revealed that suicide in the age group from 10 to 24 years is among the top five causes of mortality in all regions except Africa[11]. In the United States, there was an increase in suicide deaths in people aged between 20 and 64 years, from 2006 to 2015[20].

The hopelessness and perception of suicide as a solution for young people is related to the high expectations launched about them, fragile and unequal family and social bonds and utilitarian relationships, which are risks for involvement with drugs and illness due to depression, with consequent development of suicidal behavior[5].

Regarding the relationship between suicidal behavior and skin color, the context of each location should be considered, as it determines which groups may be more vulnerable[1]. In this context of vulnerability, structural violence, a product of exploitation, discrimination, marginalization and exclusion of specific groups in the colonial period, is associated today as a determinant of suicidal behavior[21].

Regarding schooling, information related to social inequality and vulnerability, because health condition can be influenced by the degree of information, is a complete variable often omitted from Brazilian records[8]. However, in the available data, epidemiological transition is observed, with greater proportionality of death by suicide of people with a greater number of years of schooling, between 2017 and 2019, a fact that, in the period from 1996 to 2016, was related to people with less than seven years of schooling[9]. Thus, it is necessary to conduct future studies dedicating to investigating this information.

Regarding the method, access to high lethality influences the outcome[3]. Hanging, the use of firearms and intentional self-intoxication are the most frequent[3-4,13].

The limitations of this study are related to the use of secondary data, which are admittedly susceptible to underreporting and failures in the records.

This study contributes to the advancement of health practices, because it is dedicated to analyzing suicidal behavior and the need to invest in actions to promote mental health and prevent death by suicide, in view of the situational diagnosis exposed by the cases reported and recorded in the Brazilian databases.

Conclusion

During the years, there has been a significant increase in suicide mortality rates in Brazil, in all Brazilian regions and in 19 Federation Units, with a trend to maintain this growth. There are specificities for each region and Brazilian states, with emphasis on the increase in the number of deaths of people with more years of schooling and better collection and recording of information, although it is not yet a system of excellence.

Thus, this study has the potential to assist in the development and improvement of public policies with a multiprofessional character that address the prevention of suicide deaths and promote health care for people with a history of suicide attempts. The discussion about this theme is necessary in all environments, so that the social taboo that still persists is demystified, supported by quality information and interventions.

Collaborations:

1 – conception, design, analysis and interpretation of data: Daniel Augusto da Silva and João Fernando Marcolan;

2 – writing of the article and relevant critical review of the intellectual content: Daniel Augusto da Silva and João Fernando Marcolan;

3 – final approval of the version to be published: Daniel Augusto da Silva and João Fernando Marcolan.

References

1. World Health Organization. Suicide in the world: global health estimates. Geneva (CH); 2019 [cited 2021 Jun 23]. Available from: https://apps.who.int/iris/handle/10665/326948
2. Kessler RC, Bossarte RM, Luedtke A, Zaslavsky AM, Zubizarreta JR. Suicide prediction models: a critical review of recent research with recommendations for the way forward. Mol Psychiatry. 2020;25(1):168-79. DOI: 10.1038/s41380-019-0531-0
3. Turecki G, Brent DA, Gunnell D, O'Connor RC, Oquendo MA, Pirkis J, et al. Suicide and suicide risk. Nat Rev Dis Primers. 2019;5(1):74. DOI: 10.1038/s41572-019-0121-0
4. Franck MC, Monteiro MG, Limberger RP. Mortalidade por suicídio no Rio Grande do Sul: uma análise transversal dos casos de 2017 e 2018. Epidemiol Serv Saúde. 2020;29(2):e2019512. DOI: 10.5123/S1679-49742020000200014
5. Penso MA, Sena DPA. A desesperança do jovem e o suicídio como solução. Soc estado. 2020;35(1):61-81. DOI: 10.1590/s0102-6992-202035010004
6. Cerel J, Brown MM, Maple M, Singleton M, van de Venne J, Moore M, et al. How Many People Are Exposed to Suicide? Not six. Suicide Life Threat Behav. 2019;49(2):529-34. DOI: 10.1111/sltb.12450
7. Marcolan JF, Silva DA. O comportamento suicida na realidade brasileira: aspectos epidemiológicos e da política de prevenção. Revista M. 2019;4(7):31-44. DOI: 10.9789/2525-3050.2019.v4i7.31-44
8. Sousa CMS, Mascarenhas MDM, Lima PVC, Rodrigues MTP. Incompletude do preenchimento das notificações compulsórias de violência - Brasil, 2011-2014. Cad saúde coletiva. 2020;28(4):477-87. DOI: 10.1590/1414-462X202028040139
9. Silva DA, Marcolan JF. Epidemiologia do suicídio no Brasil entre 1996 e 2016 e a política pública. Res Soc Dev. 2020;9(2):e79922080. DOI: 10.33448/rsd-v9i2.2080
10. Otamendi MA. Suicidios, femicidios-suicidios y armas de fuego en Argentina. La masculinidad hegemónica en debate. Rev Cien Soc. 2020;33(47):105-32. DOI: 10.26489/rvs.v33i46.6
11. Naghavi M. Global, regional, and national burden of suicide mortality 1990 to 2016: systematic analysis for the Global Burden of Disease Study 2016. BMJ. 2019;364:l94. DOI: 10.1136/bmj.l94
12. Mata KCR, Daltro MR, Ponde MP. Perfil epidemiológico de mortalidade por suicídio no Brasil entre 2006 e 2015. Rev Psi Divers Saúde. 2020;9(1):74-87. DOI: 10.17267/2317-3394rpds.v9i1.2842
13. Oliveira LR, Benedetti AOC. Suicídio em Mato Grosso - Brasil: 1996 a 2015. J Health Biol Sci (Online). 2018;6(4):391-8. DOI: 10.12662/2317-3076jhbs.v6i4.1763.p391-398.2018
14. Gomes H, Kihara PM, Vieira SM, Santos WAM, Machado LS, Santos NS, et al. Perfil e tendência dos casos de suicídio no município de Araguaína - Tocantins. Desafios. 2020;7(3):124-33. DOI: 10.20873/uftv7-9111
15. Dias GA, Araújo MLS, Rossi-Barbosa LAR. Perfil epidemiológico do suicídio em Montes Claros de 2007 a 2017. Remecs. 2020;5(8):40-6. DOI: 10.24281/rremecs2020.5.8.40-46
16. Santos EGO, Barbosa IR, Severo AKS. Análise espaço-temporal da mortalidade por suicídio no Rio Grande do Norte, Brasil, no período de 2000 a 2015. Ciênc Saúde Colet. 2020;25(2):633-43. DOI: 10.1590/1413-81232020252.11042018
17. Silva DA. O comportamento suicida em Assis/SP: análise epidemiológica e qualitativa [tese]. São Paulo (SP): Escola Paulista de Enfermagem, Universidade Federal de São Paulo; 2020.
18. Silva RM, Sousa GS, Vieira LJES, Caldas JMP, Minayo MCS. Suicidal ideation and attempt of older women in Northeastern Brazil. Rev bras enferm. 2018;71(Suppl 2):755-62. DOI: 10.1590/0034-7167-2017-0413
19. Silva DA, Marcolan JF. Suicide Attempts and Suicide in Brazil: An Epidemiological Analysis.

Florence Nightingale J Nurs. 2021;29:294-302. DOI: 10.5152/FNJN.2021.21035

20. Wang J, Sumner SA, Simon TR, Crosby AE, Annor FB, Gaylor E, et al. Trends in the Incidence and Lethality of Suicidal Acts in the United States, 2006 to 2015. JAMA Psychiatry. 2020;77(7):684-93. DOI: 10.1001/jamapsychiatry.2020.0596

21. Weber I, Gianolla C, Sotero L. Suicídio e violência estrutural. Revisão sistemática de uma correlação marcada pelo colonialismo. Soc estado. 2020;35(1):189-228. DOI: 10.1590/s0102-6992-202035010009

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