FNJN

İSTANBUL UNIVERSITY CERRAHPAŞA

Florence Nightingale Journal of Nursing

DOI: 10.5152/FNJN.2021.21035

Research Article

# Suicide Attempts and Suicide in Brazil: An Epidemiological Analysis

Daniel Augusto da Silva, João Fernando Marcolan

Department of Clinical Surgical Nursing, Paulista School of Nursing, Federal University of São Paulo, São Paulo, Brazil

**ORCID iDs of the authors:** D.A.da S. 0000-0002-2716-6700, J.F.M. 0000-0001-8881-7311

**Cite this article as**: Silva, D. A., & Marcolan, J. F. (2021). Suicide attempts and suicide in Brazil: An epidemiological analysis. *Florence Nightingale Journal of Nursing, 29*(3), 294-302.

**Abstract**

**AIM:** To analyze epidemiological profile attempts and suicide deaths in Brazil.

**METHODS:** A retrospective and quantitative research was conducted. Data were obtained in September 2020 by the Department of Informatics of the Brazilian Unified Health System database.

**RESULTS:** The number of self-harm notifications has gradually increased in Brazil. Fourteen thousand nine hundred forty cases were reported in 2011 and 89,272 cases in 2018. Women represented the majority of suicide attempts cases. The age group between 20 and 59 years had the highest percentage of occurrences (65.6%) in 2018, with all Brazilian regions ranking the highest. Brazil recorded 108,020 deaths by suicide in the last 10 years (2009–2018; higher suicide rates in males, proportion 8:2 in relation to the females). In 2018, the proportion of deaths according to age groups was similarly distributed.

**CONCLUSION:** There is a significant and still increasing rate of suicide attempts and suicide in Brazil, with specificities for each Brazilian region and state. There is an emphasis on the increase in the death of indigenous people, men, Whites, single, divorced, widowed, with more years of schooling, in all age groups, death at home, and by hanging.

***Keywords:*** Attempt suicide, epidemiology, mental health, suicide

## Introduction

Suicide is a worldwide public health problem. Each year in the world, deaths by suicide are close to 800,000. For every suicide death, more than 20 attempts occur. In 2016, Southeast Asia (13.4 per 100,000), Europe (12.9 per 100,000), and Africa (12 per 100,000) had higher rates than the global rate (10.5 per 100,000). The lowest rates were found in the Eastern Mediterranean Region (4.3 per 100,000) (World Health Organization, 2019a, 2019b).

In Brazil, there were 183,484 suicide deaths recorded between 1996 and 2016, with an increase of 69.6% in suicide cases in this period (Marcolan & Silva, 2019; Silva & Marcolan, 2020). In 2018, Brazil recorded 12,733 suicide deaths, which accounts for a rate of 6.1 suicides for every 100,000 people and about 35 deaths per day this year. Thus, it is ranked as the eighth country with the most suicide cases in the world in absolute numbers (Brasil Ministério da Saúde, 2019).

According to official data from 2018, it is estimated that for every 45 min one person dies by suicide in Brazil, although without sufficient reliable data as there is still no adequate system for monitoring suicidal behavior, despite the improvements that have occurred in recent years. This makes underreporting and non-notification rates very high, with data masking when reporting the diagnosis (Marcolan, 2018).

Have significant regional variations that can be explained by several factors specific to each location, due to the continental dimension of the country and its population greater than 200 million inhabitants. As of 2011, Brazil has specific national legislation for suicide prevention and the information system has become more effective, working better in the last 5 years, pointing out to the increase in suicide rates. This situation is closely related to the low investment in mental health and scarce investment in suicide prevention.

**Corresponding Author:** Daniel Augusto da Silva
**E-mail:** daniel.augusto@unifesp.br

**Received:** January 26, 2021
**Accepted:** April 11, 2021

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License

This research emphasized that suicide is a preventable public health problem. And in this perspective, it is expected that the results presented produce actions to control the magnitude of this problem and subsidize the elaboration of public policies for suicide prevention.

This study aims to analyze the epidemiological data in relation to suicide attempts and suicide deaths in Brazil.

**Research Questions**

1. What is the epidemiological analysis on the suicide attempts in Brazil?
2. What is the epidemiological analysis on suicide deaths in Brazil?

## Method

**Study Design**

This was a retrospective and quantitative study.

**Sample**

The variables selected from the database include: age group, skin color/race, education, place of occurrence, marital status, sex, Brazilian region and Federative Unit, and the methods used for the suicide.

**Data Collection**

Data on suicide attempts and suicide deaths were obtained in September 2020, by the Brazilian database of the Department of Informatics of the Brazilian Unified Health System (DATASUS). Data on population estimates were obtained from the Brazilian Institute of Geography and Statistics.

Based on data on mortality, according to the 10th international classification of diseases (ICD-10), deaths coded with X60-X84 (intentional self-harm) were considered (World Health Organization, 2017).

**Statistical Analysis**

With access to the data, they were tabulated in spreadsheets, using Microsoft Excel software, in order to allow data analysis with a retrospective and historical series character. In addition, a descriptive statistical analysis was carried out, which provided an understanding of the absolute frequency and relative frequency.

For the calculation of mortality rates, populations of 100,000 inhabitants were considered.

**Ethical Considerations**

This research uses publicly accessible information from a database of the Ministry of Health of Brazil, where the information is aggregated without the possibility of individual identification, therefore, the consent of the participants is waived, as it cannot be obtained, in accordance with the legislation of the National Health Council - Resolution no. 466/2012, thus ensuring the ethical precepts involving health research.

This study was complied with Brazilian legislation, approved by the Research Ethics Committee of the Federal University of São Paulo, with Opinion no. 2314347, of October 4, 2017.

## Results

Data on attempted suicide started to be reported in 2011 and, therefore, are available at a shorter time than data on suicide deaths, justifying the time difference presented in the respective tables.

**Suicide Attempt in Brazil (2011-2018)**

Table 1 shows the evolution of cases of intentional self-harm reported in Brazil.

When analyzing the absolute numbers of notified cases of intentional self-harm by sex, in Brazil, women are the majority, with 68.1% of cases in 2017 and 68.9% of cases in 2018. A disparity occurs in the state of Amazonas, where the majority of notifications of self-harm are from men, with 53.4% in 2018.

Adulthood, aged between 20 and 59 years, has a higher percentage of suicide attempts, with 65.6% in Brazil, in 2018. In all Brazilian regions, the attempt suicide rate is higher for this age group, with a variation of 57.5% in the North region and 66.9% in the Southeast region. Also, in all Brazilian states, this is the age group with the highest occurrence, with a proportional percentage above 50% in all of them. In turn, adolescence, aged 10 to 19 years, represents the second-highest percentage of suicide attempts, with 29.8% in Brazil, varying from 28.1 to 38.3% between Brazilian regions.

Concerning skin color, in 2018, in Brazil, 49.4% of reports of self-harm violence were from White

**Table 1.**
*Absolute Numbers of Intentional Self-Harm Reported in Brazil, Brazilian Regions and Federation Units in the Period From 2011 to 2018. Brazil, 2020*

| Region/Federation Unit | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|
| North Region | 636 | 722 | 1081 | 1112 | 1577 | 1935 | 2819 | 3114 |
| Rondônia | 36 | 21 | 43 | 37 | 108 | 180 | 375 | 431 |
| Acre | 33 | 74 | 65 | 85 | 243 | 314 | 614 | 515 |
| Amazonas | 104 | 88 | 152 | 207 | 416 | 319 | 281 | 341 |
| Roraima | 56 | 128 | 166 | 142 | 115 | 149 | 269 | 324 |
| Pará | 90 | 69 | 104 | 158 | 177 | 212 | 298 | 254 |
| Amapá | 57 | 71 | 104 | 45 | 38 | 61 | 81 | 108 |
| Tocantins | 260 | 271 | 447 | 438 | 480 | 700 | 901 | 1141 |
| Northeast Region | 1995 | 2564 | 3646 | 3638 | 4976 | 5555 | 8623 | 12,105 |
| Maranhão | 61 | 166 | 173 | 185 | 375 | 198 | 283 | 454 |
| Piauí | 198 | 318 | 371 | 360 | 606 | 1045 | 1053 | 1247 |
| Ceará | 72 | 109 | 234 | 285 | 661 | 886 | 1400 | 1957 |
| Rio Grande do Norte | 107 | 126 | 251 | 233 | 334 | 441 | 728 | 1065 |
| Paraíba | 191 | 241 | 186 | 196 | 438 | 285 | 648 | 793 |
| Pernambuco | 421 | 443 | 998 | 1076 | 1124 | 1242 | 2169 | 3199 |
| Alagoas | 764 | 853 | 972 | 846 | 851 | 804 | 1227 | 1663 |
| Sergipe | 5 | 13 | 47 | 42 | 43 | 41 | 99 | 238 |
| Bahia | 176 | 295 | 414 | 415 | 544 | 613 | 1016 | 1489 |
| Southeast region | 7455 | 10,836 | 12,422 | 15,384 | 20,182 | 23,301 | 33,624 | 43,096 |
| Minas Gerais | 2377 | 4315 | 5782 | 7454 | 9153 | 8674 | 11,273 | 13,348 |
| Espírito Santo | 68 | 225 | 371 | 867 | 1238 | 1580 | 2001 | 3240 |
| Rio de Janeiro | 466 | 732 | 859 | 1121 | 1656 | 2125 | 3570 | 4246 |
| São Paulo | 4544 | 5564 | 5410 | 5942 | 8135 | 10,922 | 16,780 | 22,262 |
| South region | 3557 | 5342 | 6403 | 7524 | 10,142 | 11,562 | 18,766 | 24,264 |
| Paraná | 581 | 1367 | 1741 | 2356 | 3892 | 4754 | 7777 | 9950 |
| Santa Catarina | 1075 | 1480 | 2220 | 2476 | 2948 | 3131 | 4470 | 5816 |
| Rio Grande do Sul | 1901 | 2495 | 2442 | 2692 | 3302 | 3677 | 6519 | 8498 |
| Midwest region | 1297 | 1700 | 1918 | 2050 | 2812 | 3136 | 4369 | 6693 |
| Mato Grosso do Sul | 905 | 886 | 1018 | 1074 | 1244 | 1300 | 1734 | 1928 |
| Mato Grosso | 86 | 209 | 178 | 225 | 235 | 273 | 477 | 641 |
| Goiás | 218 | 472 | 561 | 580 | 977 | 1051 | 1395 | 2234 |
| Distrito Federal | 88 | 133 | 161 | 171 | 356 | 512 | 763 | 1890 |
| Brazil | 14,940 | 21,164 | 25,470 | 29,708 | 39,689 | 45,489 | 68,201 | 89,272 |

Source: Prepared by the authors with data from DATASUS, 2020.

people, followed by Brown people with 34.2%. However, one must consider the regional differences that characterize the Brazilian population: in Santa Catarina, the proportional percentage for White people is 87.6% and in Amazonas, it is 3.8%. In Brown people, the proportional percentage varies from 82.7% in Roraima to 6.3% in Santa Catarina.

**Suicide in Brazil (2009-2018)**

In the last 10 years (2009 to 2018), according to the most recent data made available by DATASUS, Brazil recorded, in an ascending trend, 108,020 deaths by suicide, called intentional self-harm. Of these, 38.3% were registered in the Southeast region, a fact that, in absolute numbers, is related to a larger portion of the Brazilian population being present in that region.

Table 2 shows data on deaths by suicide in the period from 2009 to 2018 in Brazil, in the Brazilian regions, and the Federation Units.

Figure 1 represents the evolution of the mortality rate due to suicides in the period from 2009 to 2018.

The death of males is greater than that of females, in the proportion of 8:2, on average. In 2018, the five highest proportional percentages of male deaths were in Bahia (85.3%), Rio Grande do Norte (84.2%), Ceará (82.3%), Paraná (81.5%), and Pará (80.0%).

For females, the five highest proportional percentages of deaths were in Roraima (32.4%), Amapá (32.3%), Acre (28.8%), Rondônia (27.2%), and Piauí (26.6%).

The age group with the highest proportion of deaths in 2018 in Brazil was people aged between 30 and 39 years (20.7%), followed by people aged between 20 and 29 years (19.7%) and between 40 and 49 years (18.1%). The suicide of the elderly, people aged 60 or over, accounted for 17.9% of the occurrences in the same year. In the analysis of the historical series from 1996 to 2018, it can be seen that the rates increased by 162.2% in the 60 to 69 age group, 141.4% for people between 70 and 79 years, and 189.3% in the group aged 80 and over.

Brazil registers the majority of deaths by suicide in White (49.2%) and Brown people (42.8%). The analysis shows the regional differences that are characteristic of Brazil. In the Brazilian regions, the proportional percentages of death by suicide related to White and Brown people are, respectively, 12.2 and 75.0% in the North region, 15.2 and 75.7% in the Northeast region, 58.7 and 33.2% in the Southeast, 87.0 and 8.9% in the South and 36.0 and 53.9% in the Midwest.

In the historical series of extended data from DATASUS, there is a 176% increase in suicides among indigenous people considering the period from 2000 to 2018.

Among Brazilian states, the extreme percentages of deaths of White people range from 90.9% in Rio Grande do Sul to 2.9% in Alagoas. Likewise, Brown people account for 89.6% of deaths in Sergipe and 4.1% in Rio Grande do Sul.

Considering education, in Brazil, excluding the unreported information, in 2017 and 2018, the highest proportional percentage of suicide was of people with 8 to 11 years of education, being 33.1% and 35.6%, respectively. In previous years, 2013, 2014, and 2015, the highest percentage was of people with 4 to 7 years of education, with percentages of 33.5, 32.9, and 33.6%, respectively. In the historical series from 1996 to 2018, the rates increased by 824% for people between 8 and 11 years of education and 520.3% for those with 12 years and more of education.

Single people are the ones in the majority of occurrences of suicide in Brazil and all Brazilian regions and states, even with differences of 87.1% in Amapá and 31.2% in Paraíba.

Most individuals attempted suicide and committed suicide at home; the most used method, with increasing use, was hanging, followed by methods such as exogenous intoxication and firearms.

All regions had an increase in suicide rates in the historical series from 1996 to 2018, being 81.1% in the North, 126.5% in the Northeast, 26.6% in the Southeast, 17.8% in the South, and 28.5% in the Midwest.

## Discussion

Brazilian data started to be better collected and reported as of 2014, due to the legislation in force, and this greatly influenced the high increase in reported cases from 2011 to 2018 (497.5%). It is believed that the legislation from 2011 on, with the adoption of the practices of reporting cases of attempted suicide and suicide deaths, increased the notifications and consequently started to reflect more effectively the rates, although still with low fidelity in some Brazilian states. Initiatives to prevent

**Table 2.**
*Deaths by Suicide in Brazil, Brazilian Regions and Federation Units in the Period from 2009 to 2018. Brazil, 2020*

| Region/Federation Unit | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|
| North region | 593 | 624 | 692 | 694 | 759 | 708 | 881 | 826 | 896 | 991 |
| Rondônia | 85 | 82 | 78 | 73 | 86 | 84 | 109 | 103 | 113 | 125 |
| Acre | 31 | 41 | 41 | 43 | 44 | 49 | 39 | 56 | 64 | 59 |
| Amazonas | 152 | 162 | 188 | 185 | 225 | 233 | 263 | 194 | 207 | 234 |
| Roraima | 32 | 34 | 34 | 38 | 33 | 15 | 52 | 59 | 50 | 37 |
| Pará | 188 | 188 | 222 | 240 | 232 | 208 | 266 | 277 | 301 | 350 |
| Amapá | 26 | 30 | 37 | 21 | 45 | 34 | 53 | 36 | 46 | 62 |
| Tocantins | 79 | 87 | 92 | 94 | 94 | 85 | 99 | 101 | 115 | 124 |
| Northeast Region | 2101 | 2123 | 2297 | 2336 | 2494 | 2393 | 2540 | 2722 | 2981 | 2996 |
| Maranhão | 156 | 208 | 218 | 206 | 242 | 255 | 280 | 294 | 318 | 313 |
| Piauí | 207 | 201 | 234 | 233 | 227 | 244 | 271 | 321 | 317 | 331 |
| Ceará | 501 | 488 | 553 | 510 | 590 | 566 | 565 | 590 | 644 | 655 |
| Rio Grande do Norte | 144 | 137 | 177 | 171 | 157 | 169 | 156 | 181 | 180 | 196 |
| Paraíba | 166 | 158 | 163 | 189 | 199 | 158 | 221 | 181 | 250 | 237 |
| Pernambuco | 328 | 285 | 291 | 332 | 320 | 325 | 308 | 396 | 438 | 430 |
| Alagoas | 111 | 85 | 104 | 109 | 143 | 118 | 116 | 112 | 104 | 137 |
| Sergipe | 111 | 129 | 125 | 109 | 125 | 110 | 120 | 115 | 127 | 134 |
| Bahia | 377 | 432 | 432 | 477 | 491 | 448 | 503 | 532 | 603 | 563 |
| Southeast region | 3570 | 3735 | 3900 | 4002 | 3959 | 4283 | 4323 | 4249 | 4635 | 4675 |
| Minas Gerais | 1123 | 1102 | 1258 | 1264 | 1159 | 1357 | 1303 | 1302 | 1515 | 1530 |
| Espírito Santo | 150 | 160 | 162 | 178 | 158 | 172 | 189 | 175 | 207 | 239 |
| Rio de Janeiro | 321 | 509 | 433 | 463 | 437 | 522 | 531 | 573 | 607 | 699 |
| São Paulo | 1976 | 1964 | 2047 | 2097 | 2205 | 2232 | 2300 | 2199 | 2306 | 2207 |
| South region | 2279 | 2154 | 2156 | 2357 | 2365 | 2319 | 2494 | 2602 | 2862 | 2891 |
| Paraná | 648 | 588 | 593 | 629 | 655 | 620 | 716 | 760 | 774 | 915 |
| Santa Catarina | 519 | 530 | 520 | 548 | 568 | 587 | 637 | 674 | 739 | 735 |
| Rio Grande do Sul | 1112 | 1036 | 1043 | 1180 | 1142 | 1112 | 1141 | 1168 | 1349 | 1241 |
| Midwest region | 831 | 812 | 807 | 932 | 956 | 950 | 940 | 1034 | 1121 | 1180 |
| Mato Grosso do Sul | 205 | 188 | 211 | 210 | 228 | 204 | 230 | 223 | 259 | 268 |
| Mato Grosso | 190 | 161 | 158 | 185 | 177 | 157 | 145 | 178 | 197 | 226 |
| Goiás | 307 | 315 | 338 | 402 | 427 | 454 | 435 | 481 | 497 | 499 |
| Distrito Federal | 129 | 148 | 100 | 135 | 124 | 135 | 130 | 152 | 168 | 187 |
| Brazil | 9374 | 9448 | 9852 | 10,321 | 10,533 | 10,653 | 11,178 | 11,433 | 12,495 | 12,733 |

Source: Prepared by the authors with data from DATASUS, 2020.

suicidal behavior have led more individuals to seek care by recording these cases.

The same occurred in other countries in South America, with the death rate due to suicide per 100,000 inhabitants, such as Bolivia (12.5 in 2000; 12.2 in 2012; 12.9 in 2016), Paraguay (6.2 in 2000; 6.1 in 2012; 9.3 in 2016), Peru (4.4 in 2000; 3.2 in 2012; 5.1 in 2016), and Uruguay (14.7 in 2000; 12.1 in 2012; 16.5 in 2016) (World Health Organization, 2014, 2019).

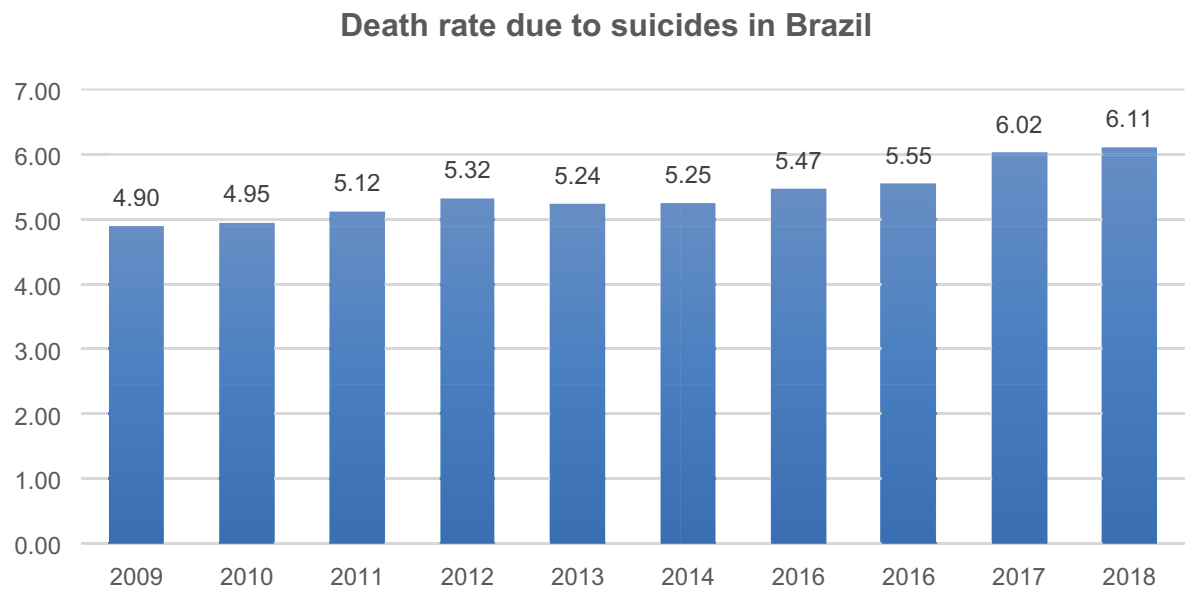


**Figure 1.**
*Evolution of the Mortality Rate Due to Suicides in Brazil From 2009 to 2018. Brazil, 2020 (Source: Prepared by the Authors With Data From DATASUS, 2020).*

And, on the other hand, the countries that decreased the suicide mortality rate per 100,000 inhabitants were Argentina (12.4 in 2000; 10.3 in 2012; 9.1 in 2016), Chile (10.7 in 2000; 12.2 in 2012; 9.7 in 2016), Ecuador (8.9 in 2000; 9.2 in 2012; 7.2 in 2016) (World Health Organization, 2014, 2019).

The Brazilian bulletin with an epidemiological profile with information on suicide attempts and suicide by exogenous intoxication in the period from 2007 to 2017 revealed 220,045 notifications of exogenous intoxication characterized as suicide attempts, and of these, 69.9% were registered as female (Brasil Ministério da Saúde, 2019).

A study that analyzed suicide attempts, occurred between June 2017 and June 2018, with the use of toxic substances, revealed that the majority were female (62.1%) (Oliveira et al., 2018).

In Palmas (TO), of the 656 notifications of attempted suicide between 2010 and 2014, 67.1% were women (Fernandes et al., 2016).

The state of Amazonas was the only one with a male majority for suicide attempts, probably due to the concentration of the indigenous population and the occurrence of suicide deaths in these peoples, mostly men. Rates among indigenous people in Brazil increased.

Data on ending one's own life by suicide, according to the World Health Organization's global health estimates 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) (World Health Organization, 2019).

The significant majority of published studies that address the analysis of suicidal behavior related to sex show that the majority of suicides were committed by men compared to the majority of suicide attempts by women (Baére & Zanello, 2018).

Some factors are pointed out and correlated with this vulnerability, such as the social construction of gender, the higher prevalence of depression, the greater occurrence of eating disorders, problems with body image, unwanted pregnancy, postpartum psychosis, the great occurrence of suicidal ideation after induced abortion and in situations of low levels of estrogen and serotonin, the great vulnerability to the loss of children, domestic violence against them and their children, and sexual abuse (Correia et al., 2019; Ferreira et al., 2019).

The global disease burden study carried out in 2015 revealed that in the 10 to 24 age group, suicide was identified among the top five causes of mortality in all regions of the global disease burden, except in Africa (GBD 2016 Causes of Death Collaborators, 2017). Worldwide, almost a third of all suicides are carried out by young people (World Health Organization, 2018).

It is a worrying and complex public health situation as it involves a series of risk factors of which, for this age, the factors include mental disorders, such as mood disorders, use of alcohol and other drugs, and eating disorders; psychological factors, such as low self-esteem, hopelessness, and impulsiveness; psychosocial factors of adversity, such as exposure to violence, conflict environment, exposure to traumatic stressful events such as abuse or victimization, low confidence and low communication with the mother and the father, unstructured home, small number of friends, migration, and poverty. It also stands out in adolescents with suicidal behavior which include the existence of a history of violence, fights, and aggressions, the transgression of laws, and conduct problems in general (Charfi et al., 2019; Gomes & Silva, 2020; Soto-Sanz et al., 2019; Suárez Colorado & Campo-Arias, 2019; World Health Organization, 2018).

In adults, risk factors for suicide include the negative impact of maladjusted family relationships, conflictual interpersonal relationships, substance abuse, having a diagnosis for mental disorders, especially depression, unemployment, financial problems, and work relationships (Lima et al., 2018; Silva & Marcolan, 2021).

In the 1996 to 2018 historical series, rates increased by 162.2% in the 60-69 age group, 141.4% for people between 70 and 79 years, and 189.3% in the group aged 80 and over. In Brazil, aging takes on a characteristic of inactivity where the individuals reache a time when they cease to perform many of the activities that were once their responsibility (Fernandes-Eloi & Lourenço, 2019).

Expressive emotional losses are linked to these situations: contact with people, work, economic contribution to the home, devaluation of the sense of belonging and usefulness, situations that harbor the negative transformative potential for the elderly, who start to acquire stigmatized self-perception of worthlessness. It also includes other factors such as physical and disabling problems such as chronic diseases, functional decline; psychiatric problems such as depression, abuse of legal and illegal substances, personality disorders, self-destructive behaviors, cognitive impairment; psychological problems such as persistent or traumatic suffering, feelings of loneliness, hopelessness and boredom, fragility; social problems such as suffering social isolation, living in family conflicts, low educational level, having experienced deaths and losses of close relatives or friends, absence of religiosity, inflexibility, and rigidity in relation to changes, particularly social ones; economic problems such as lack of autonomy to manage one's money, lack of security and social assistance and others (Fernandes-Eloi & Lourenço, 2019; Minayo et al., 2019).

To understand the relationship between suicidal behavior and skin color, one must consider the context of each location, as these are the ones that determine which groups may be most vulnerable (World Health Organization, 2018).

In Brazil, 49.2% of suicides were of people who self-declared as White and 42.8% of people who self-declared as Brown. It is a scenario that presents data contrary to the constitution of the Brazilian population, with 42.7% self-declared White and 46.8% self-declared Brown (Instituto Brasileiro de Geografia e Estatística, 2019).

It should be noted that the social determinants of suicidal behavior are related to structural violence, which in turn is associated with colonialism, a historical period in which groups were exploited, discriminated against, marginalized, and excluded. These people, classified in these groups, are today marked as vulnerable (Weber et al., 2020).

Marital status as a risk factor for suicide reveals the profile of single, divorced, or widowed people predominantly. These statuses resemble themselves by the condition of living or being alone, making them factors that contribute to vulnerability (Organização Mundial da Saúde, 2000).

Both for suicide attempts and suicide deaths in Brazil, regional differences within the South region should be taken into account, with its larger White

population, a lower miscegenation rate, socio-cultural values, religiosity, more years of study, and a small portion of indigenous people, which is largely due to European colonization. On the other hand, the Southeast and Northeast regions have greater miscegenation of races and peoples, cultural and religious diversity, the influence of Africans, Europeans, Indigenous, and Asians. The Midwest region has its agro-industrial corridor to receive people from all over Brazil, expanding and expelling indigenous people. Finally, the North region has its characteristics of the vastness of the Amazon and indigenous culture. It is important to consider these factors when performing a regional and local analysis for suicidal behavior and skin color, marital status, age, years of education, individual and family income, and other variables.

The discrepancy in the increase in suicide rates among Brazilian regions is because some regions have a more reliable system of historical records, while others have a relatively recent start of these records.

Increased rates of suicide point to the psychic suffering of the population related to living conditions and to the social, economic, affective, and relationship impact. It increases the demand for health services, specifically mental health services, as this may be due to the lack of a number of qualified professionals to carry out the care and follow-up of these individuals (Marcolan, 2018; Marcolan & Silva, 2019).

## Conclusions and Recommendations

There is a significant and continuous increase in suicide attempts and suicide rates in Brazil, with specificities for each Brazilian region and states such as emphasis on the increase in the death of indigenous people, Whites, ones with more years of education, and places with better data collection and notification, although it is not yet a system of excellence.

The results presented here will help and guide studies that aim to explain this phenomenon and its relationship with the vulnerabilities presented and in the development, improvement, and implementation of public policies to prevent suicidal behavior.

It is necessary to carry out local and regional studies to analyze the factors and to make specific interventions for each reality, to expand health units, and employ qualified professionals to assist individuals with suicidal behavior.

**Ethical Committee Approval:** Ethical committee approval was received from the Ethics Committee of Federal University of São Paulo, (Opinion no. 2314347, of October 4, 2017).

**Informed Consent:** Written informed consent was obtained from all participants who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept – D.A.da S., J.F.M.; Design – D.A.da S., J.F.M.; Supervision – D.A.da S., J.F.M.; Data Collection and/or Processing – D.A.da S., J.F.M.; Analysis and/or Interpretation – D.A.da S., J.F.M.; Literature Search – D.A.da S., J.F.M.; Writing Manuscript – D.A.da S., J.F.M.; Critical Review – D.A.da S., J.F.M.

**Conflict of Interest:** The authors have no conflict of interest to declare.

**Financial Disclosure:** This study had financial support through a scholarship from the Coordination for the Improvement of Higher Education Personnel (CAPES).

## References

Baére, F., & Zanello, V. (2018). O gênero no comportamento suicida: Uma leitura epidemiológica dos dados do Distrito Federal. *Estudos de Psicologia*, *23*(2), 168–178. [CrossRef]

Brasil Ministério da Saúde. (2019). Boletim epidemiológico n. 24. (Available at: (https://www.saude.gov.br/images/pdf/2019/setembro/13/BE-suic--dio-24-final.pdf)

Charfi, F., Harbaoui, A., Skhiri, A., Abbès, Z., Belhadj, A., Halayem, S., & Bouden, A. (2019). Profil épidémiologique et clinique des tentatives de suicide chez l'enfant et l'adolescent en Tunisie en post révolution. *Pan African Medical Journal*, *32*, 204. [CrossRef]

Correia, C. M., Gomes, N. P., Diniz, N. M. F., Andrade, I. C. S., Romano, C. M. C., & Rodrigues, G. R. S. (2019). Child and adolescente violence: Oral story of women who attempted suicide. *Revista Brasileira de Enfermagem*, *72*(6), 1450–1456. [CrossRef]

Fernandes, D. A. A., Ferreira, N. S., & Castro, J. G. D. (2016). Perfil epidemiológico das tentativas de suicídio em Palmas-Tocantins, de 2010 a 2014. *Tempus, Actas de Saúde Coletiva*, *10*(4), 9–23. [CrossRef]

Fernandes-Eloi, J., & Costa Lourenço, J. R. C. (2019). Suicídio na Velhice – um estudo de revisão integrativa da literatura. *CES Psicología*, *12*(1), 80–95. [CrossRef]

Ferreira, A. C. Z., Capistrano, F. C., Maftum, G. J., Kalinke, L. P., & Maftum, M. A. (2019). Comportamento suicida em

pessoas com transtornos relacionados a substâncias. *Revista de Enfermagem UFPE on Line*, *13*, e241446. [CrossRef]

GBD 2016 Causes of Death Collaborators (2017). Global, regional, and national age-sex specific mortality for 264 causes of death, 1980-2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet (London, England), 390*(10100), 1151–1210.

Gomes, C. F. M., & Silva, D. (2020). Aspectos epidemiológicos do comportamento suicida em estudantes universitários. *Research, Society and Development*, *9*(5), e38953106. [CrossRef]

Instituto Brasileiro de Geografia e Estatística. (2019). *Pesquisa Nacional por Amostra de Domicílios*. Brasília: IBGE.

Lima, J. M. S. F., França, J. K. R., & Bento, T. M. A. (2018). Fatores predisponentes que levam jovens adultos à ideação suicida e ao suicídio no Brasil. *Ciências Biológicas e de Saúde Unit*, *5*(1), 153–166.

Marcolan, J. F. (2018). For a public policy of surveillance of suicidal behavior. *Revista Brasileira de Enfermagem*, *71*(Suppl. 5), 2343–2347. [CrossRef]

Marcolan, J. F., & Silva, D. A. (2019). O comportamento suicida na realidade brasileira: Aspectos epidemiológicos e da política de prevenção. *Revista M. Estudos Sowbre a Morte, Os Mortos e o Morrer*, *4*(7), 34–44. [CrossRef]

Minayo, M. C. S., Figueiredo, A. E. B., & Mangas, R. M. N. (2019). Estudo das publicações científicas (2002–2017) sobre ideação suicida, tentativas de suicídio e autonegligência de idosos internados em Instituições de Longa Permanência. *Ciência and Saúde Coletiva, 24*(4), 1393–1404. [CrossRef]

Oliveira, S. M., Chaves, I. F. G. M., Cordeiro, J. P. K. M., & Morais, I. C. O. (2018). Tentativas de suicídio por intoxicações exógenas: análise em um centro de informações e assistência toxicológica. *Mostra Científica da Farmácia*, *5*, 1.

Organização Mundial da Saúde, (2000). Prevenção do suicídio: Um manual para profissionais da saúde em Atenção Primária. (Available at: (https://www.who.int/mental_health/prevention/suicide/en/suicideprev_phc_port.pdf).

Silva, D. A., & Marcolan, J. F. (2020). Epidemiology of suicide in Brazil between 1996 and 2016 and the public policy. *Research, Society and Development*, *9*(2), e79922080. [CrossRef]

Silva, D. A., & Marcolan, J. F. (2021). O impacto das relações familiares no comportamento suicida. *Research, Society and Development*, *10*(2), e17310212349. [CrossRef]

Soto-Sanz, V., Piqueras, J. A., Rodríguez-Marín, J., Pérez-Vázquez, T., Rodríguez-Jiménez, T., Castellví, P., Miranda-Mendizábal, A., Parés-Badell, O., Almenara, J., Blasco, M. J., Cebri, A., & Alonso, J. (2019). Self-esteem and suicidal behaviour in youth: A meta-analysis of longitudinal studies. *Psicothema*, *31*(3), 246–254. [CrossRef]

Suárez Colorado, Y., & Campo-Arias, A. (2019). Asociación entre apego y riesgo suicida en adolescentes escolarizados de Colombia. *Revista Chilena de Pediatria*, *90*(4), 392–398. [CrossRef]

Weber, I., Gianolla, C., & Sotero, L. (2020). Suicídio e violência estrutural. Revisão sistemática de uma correlação marcada pelo colonialismo. *Sociedade e Estado*, *35*(1), 189–228. [CrossRef]

World Health Organization (2014). *Preventing suicide: A global imperative*.

World Health Organization (2017). *CID-10 - Classificação Estatística Internacional de Doenças e Problemas Relacionados à Saúde*.

World Health Organization (2018). *Preventing suicide: A community engagement toolkit*.

World Health Organization (2019a). *Preventing suicide: A resource for pesticide registrars and regulators*.

World Health Organization (2019b). *Suicide in the world: Global health estimates*.