



RESEARCH ARTICLE

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PROFILE OF EPIDEMIOLOGICAL DEVELOPMENT OF SUICIDE BY HANGING IN BRAZIL

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ABSTRACT

Suicide is a complex and universal human phenomenon consisting of self-injury to a fatal degree, associated with social, biological, psychiatric, socioeconomic and cultural factors. Given as a public health problem, proper attention to those susceptible to suicide becomes important. Hanging is one of the most frequent ways of committing suicide. **Objectives:** the objective was to delineate an epidemiological profile of the act for a better understanding of the risks associating them with specific populations, causology and consequences. **Methodology:** Using DATASUS databases, a descriptive quantitative epidemiological study was carried out over the years 2006-2016, where the frequency of cases over the years, sex, education, age group were observed for comparative and discursive purposes. **Results:** Suicide by hanging is more often committed by men with higher rates in the range of 20 to 39 years old, white, the domicile is the most common place to perform the act. Hanging has been the most chosen external cause by men who resort to more violent and immediate means of taking their lives whose access control is difficult. **Conclusion:** More in-depth science and awareness-raising prevention programs are needed to try to reduce suicide rates.

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INTRODUCTION

Suicide is a complex and universal human phenomenon that begins with suicidal ideation and motivation until it consists in the act of self-committing injury to a fatal degree (Vidal, 2013). These injuries come from manifestations that are associated with self-destructive behavior whose acts are the result of the interaction of social, biological, psychiatric, socioeconomic and cultural factors (GANZ, 2010). Biologically, suicide is associated with a decrease in serotonin receptors and a postsynaptic increase in 5HT (1A) receptors in the prefrontal cortex (Arango, 2001).

Motivations such as unemployment, depression, financial issues, alcoholism, and mental disorders are some of which are linked to psychic inability to manage problems (OMS, 2002). As a major public health problem, data from the World Health Organization indicate that approximately 1.53 million suicide deaths will occur by 2020 and 10-20 times more attempts will occur (BRASIL, 2006). According to the Violence Map, there was an increase from 4.4 suicide-related deaths per 100,000 inhabitants in 2002 to 5.6 per 100,000 inhabitants in 2014 in Brazil. Estimates indicate past suicide attempts by 30-60% and 10-25% for retries causing the number and short interval between attempts to increase the risk of suicide consummation

(Vidal, 2013). Due to the social impact, cases of people vulnerable to suicide should be approached very carefully and dealt with appropriately. In developed countries, the number of cases has started to decrease, but in developing countries, the frequency of suicidal behavior is increasing (Bertolote, 2000). In Brazil, despite the establishment of the National Guidelines for Suicide Prevention prepared by the Ministry of Health and the increasing number of publications on the subject, little has been done in terms of public health policies that promote effective actions to raise awareness and raising awareness about the problem for society and for the multidisciplinary team (D'Oliveira, 2006). The lack of knowledge about the situation and social and demographic characteristics of the subjects at the local level is evident, leading to unpreparedness in dealing with these cases, thus becoming an obstacle to the effective planning of prevention and care services (Bertolote, 2010). Several articles point to hanging as the most common mode of self-execution, followed by gunshot injuries and pesticide ingestion. Hanging is a form of mechanical asphyxiation determined by constricting the neck by a loop whose end it finds fixed at a given point, acting one's own weight as a living force (GROCE, 2012). Hanging is a cause of death by suicide of difficult control, as its access is easy (Hawtkon, 2009). The objective of this research was to analyze the sociodemographic profile of mortality by hanging suicide in Brazil from 2006 to 2016.

MATERIALS AND METHODS

This is a comparative, descriptive and retrospective epidemiological study. To elaborate this research, tabulations were performed in the Mortality Information System (SIM), through access to this information in DATASUS (Department of Informatics of the SUS), the tabulations were performed from August to September 2019. We considered periods from January 2006 to December 2016. There was no need to provide for the Ethics Committee.

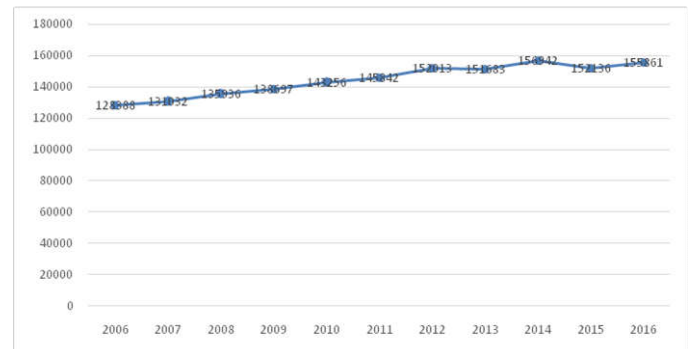
Definition of tabs:

For all tabulations, we considered: resident patients, from January 2006 to December 2016. First, we considered the ICD Category 10 - from X60 to X84, called "Intentionally Self-Provoked Lesions". It was observed that the most frequent causes were in group "X70 - Self-inflicted injuries by strangulation". Therefore, the other tables were tabulated based on this indicator. The tabulations by race / color considered: white, black, yellow, brown, indigenous and ignored. By gender: male, female and ignored. By place of occurrence: Hospital, other health establishment, domicile, street, others and ignored. By age group: Under 1 year, 1 to 4 years, 5 to 9 years, 10 to 14 years, 15 to 19 years, 20 to 29 years, 30 to 39 years, 40 to 49 years, 50 to 59 years, 60 69 years old, 70 to 79 years old, 80 years old or older and age ignored. By education: None, 1-3 years, 4-7 years, 8-11 years, 12 years or older, ignored. The construction of graphs and other tabs were performed in the Microsoft Excel program.

RESULTS AND DISCURSION

In the DATASUS database, there were 1,591,786 deaths from external causes from 2006 to 2016 across the country. This result is presented in a growing graph as shown in graph 1. Although in recent decades in Brazil there has been a reduction in mortality from infectious diseases, there has been an

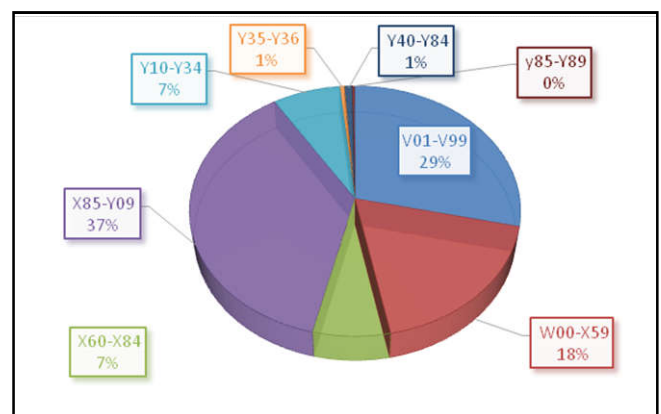
increase in chronic degenerative diseases and external causes, where at the same time new and old problems become objects of concern for the health sector, including suicide (SOUSA, 2016).



Source: Datasus (2019)

Graph 1. Number of deaths from external causes in Brazil from 2006 to 2016 per year

Another interesting fact, according to graph 2, refers to the percentage of deaths from "X60-X84 - Voluntary self-harm", which represents suicides in all forms. They represent 7% of all external causes, while the group "X85-Y09 Aggressions" followed by "V01-V99 Transport Accidents" represent the highest percentages 37% and 29% in the sequence. In 2007, 46,652 deaths from aggression were recorded in Brazil, in a ratio of 11.6 men to each woman dead by this cause. The hardest hit group is between 20 and 29 years old, with the highest rate of aggression deaths in both sexes. In this age group men have a 15.2 times higher risk than women. Adolescents from 15 to 19 years represent the second highest rate of these deaths and men present 13.4 higher than females. 27.



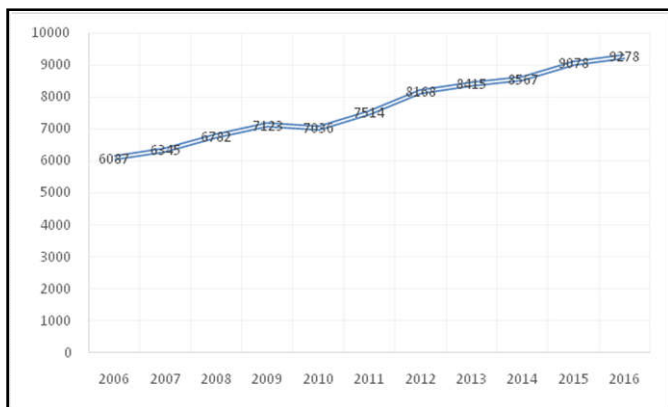
Source: Datasus (2019)

Graph 2. Percentage distribution of deaths from external causes by Major Cause from 2006 to 2016 in Brazil

Subtitles:

V01-V99 Transport Accidents
 W00-X59 Other external causes of accidental injury
 X60-X84 Voluntary self-harm
 X85-Y09 Assaults
 Y10-Y34 Events whose intention is undetermined
 Y35-Y36 Legal Interventions and War Operations
 Y40-Y84 Complications medical and surgical care
 Y85-Y89 Sequelae of external causes

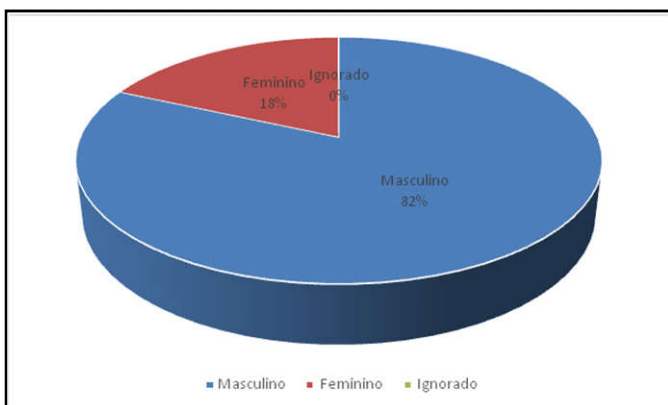
When evaluating the methods used to commit suicide, according to data from Campinas from 1976 to 2001, the most used means by men was hanging. Women mainly used poisoning as a suicide method (SOUZA, 2012). These data corroborate the present study, which shows that 65% of the total deaths from self-harm caused by hanging were voluntary. The rate of hanging suicides has been increasing every year, and mortality through this means is the one that stands out most because it is unlimited access, which hinders the early identification of the person at risk. The results of the present study also show that as well as Deaths from external causes In general, deaths from hanging have increased, representing a total in 2016 of 9,278 cases. In 2006, the initial year of the present study, the result was only 6,087 cases, as shown in Table 2, in 11 years a 52% increase according to graph 3.



Source: Datasus (2019)

Graph 3. Number of deaths from hanging in Brazil by year 2006 to 2016

In the present study, the percentage of men who commit suicide by hanging is higher, representing 82% according to graph 4. Studies generally show that men commit more suicide than women and the methods used are of high degree of lethality such as hanging, firearm use and precipitation from high places (Pordeus, 2009). In another study, the profile of people who died of suicide was similar between sexes, with higher proportions among singles, men, and those who used hanging as their choice 47.0%, (Corassa, 2017). Other authors also described males as most affected by accidents and violence (da Costa, 2013).



Source: Datasus (2019)

Graph 4. Percentage of deaths from hanging in Brazil by sex from 2006 to 2016

Regarding suicide deaths, the lowest mortality rates observed among women may be associated with sociocultural factors, such as the low prevalence of alcoholism, religiosity, flexible attitudes towards social skills and role playing during life (Corassa, 2017). Both genders become at risk people when affected by depressive states that are associated with loss, disruption in socioeconomic life, retirement, debt or existential processes of sadness and melancholy (Petter, 2016).

Although women are more attached to religion and to coping with negative situations that trigger suicidal behavior, men find it more difficult to seek help (Stack, 2000). Regarding the age group, the results of the research corroborate the results of other similar studies, showing that the highest frequency of death by hanging occurs in the age group of 20 to 29 years, representing a total of 19562 (23%) of the total cases, according to table 1. The age group reveals that young people are the ones who most adhere to suicide and this is related to changes in the social context in which they find themselves, varying the ratios among age groups.^[11] Family factors, interpersonal problems, body dissatisfaction, social difficulties in the school environment and academic pressures have been the most related reasons among young people.

Those who made attempts at the act also serve as catalysts for the suicide. In adult and middle-aged people, work-related socioeconomic factors and emotional pressures in the family sphere are the most significant (Machado, 2015). In the elderly, weakening in the face of a loss of a loved one, fear of prolonging life without dignity, difficulty in coping with the aging process followed by irreversible health problems and social isolation are major factors for suicidal ideation (Minayo, 2010).

Table 1. Number of deaths from hanging in Brazil from 2006 to 2016 by age group

Age range	Male	Female	Ignored	Total
Menor 1 year age	173	128	2	303
1 a 4 years age	64	63	-	127
5 a 9 years age	130	102	-	232
10 a 14 years age	795	519	-	1314
15 a 19 years age	4475	1516	-	5991
20 a 29 years age	16389	3171	2	19562
30 a 39 years age	14639	2887	3	17529
40 a 49 years age	12249	2639	1	14889
50 a 59 years age	9073	2075	-	11148
60 a 69 years age	5530	1234	-	6764
70 a 79 years age	3250	679	-	3929
80 years age or more	1585	295	1	1881
Ignored age	601	94	29	724
Total	68.953	15402	38	84393

Schooling is a variable that directly interferes with the individual's quality of life, ends up generating stress and thus stimulates suicidal ideation.^[18] Education, unemployment, and family income, as well as marital status, define the economic and social status of the individual and this contributes to the degree of stress (Desaulniers, 2008). Self-esteem and social interactions are also influenced by education as well as their ability to self-assess (Machado, 2015). The present study showed that people with 4 to 7 years of study have a higher tendency to commit suicide, which represents a total of 24% of cases according to Table 2.

Table 2. Number of deaths from hanging in Brazil from 2006 to 2016 by schooling (in years of study)

Shcooling	Male	Female	Ignored	Total
Nenhuma	3473	712	1	4186
1 a 3 years	11162	2069	-	13231
4 a 7 years	17318	3545	1	20864
8 a 11 years	11414	3043	-	14457
12 years and more	3007	1254	-	4261
Ignored	22579	4779	36	27394
Total	68953	15402	38	84393

Source: Datasus (2019)

Regarding the place of occurrence, 57328 deaths occurred at home, representing a percentage of 67% of the total. The high rate of self-executions in homes is due to the fact that, from a psychological point of view, housing symbolizes a place that transmits security to the person, who feels protected from the outside world, meaning the gateway to and from this world. [24] According to the Ministry of Health, easy access to lethal means such as ropes, guns or drugs is also another factor in favoring residence (D'Oliveira, 2006). There are few reports of suicides on Brazilian public roads, although around the world there are those where there is a high prevalence of the act, some notorious as the Aokigahara Forest, located on Mount Fuji, Japan, where there are 100 deaths per year.

Table 3. Number of hanging deaths in Brazil from 2006 to 2016 by event location

Hospital	3988
Other health facility	681
Residence	57328
Public highway	6438
Others	15251
Ignored	707
Total	84393

Source: Datasus (2019)

According to the study results, white people are the ones who most committed hanging suicide in Brazil in the years studied, 40,152 people, representing a total of 47.5% as shown in table 4, corroborating the results of other studies that show that white people are the most likely to attempt suicide in Brazil, although only in the northern region, the high predominance of the brown population is more evident (Leite, 2017). There may be influences on ethnic and cultural characteristics in the number of deaths which may be explained by psychiatric and ethnological issues (BRA, 2017). The Ministry of Health highlights the indigenous population as having the highest suicide rates (all forms) stemming from their vulnerability among societies around the world and this has allowed for various preventive interventions to be shared with the community and their communities. Spiritual leaders (BRASIL, 2006).

Table 4. Number of deaths from hanging in Brazil from 2006 to 2016 by color / race

Cor/raça	Óbitos
White	40152
Black	4784
Yellow	324
Parda	34574
Indigenous	1097
Ignored	3462
Total	84393

Source: Datasus (2019)

CONCLUSION

Hanging is one of the main causes of suicide in Brazil because it is a cause of difficult access control, which makes the early identification of the person at risk very important and so that they adopt measures that may limit their entry to this. middle. There is a scarcity of scientific production around this common external cause, and the importance of further investigation becomes apparent. Cases of more serious suicidal behavior need to be effectively assisted and the recognition of these emergency moments by health professionals is crucial for careful observation by family members and other close relatives.

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