

## SUICIDE ATTEMPTS NOTIFIED IN A TEACHING HOSPITAL IN THE STATE OF RIO GRANDE DO SUL, 2014-2016

Tentativas de suicídio notificadas em um hospital de ensino no estado do Rio Grande do Sul, 2014-2016

Tentativas de suicidio notificadas en un hospital de enseñanza en el estado del Río Grande do Sul, 2014-2016

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### ABSTRACT

**Objective:** to characterize the suicide attempts reported in a teaching hospital in the state of Rio Grande do Sul, Brazil. **Method:** a quantitative and retrospective study that was carried out in the Center for Epidemiological Surveillance of a teaching hospital, based on the analysis of reports of attempted suicide recorded between the years 2014 and 2016. The analysis of the data occurred according to descriptive statistics. **Results:** there were 344 reports of attempted suicide, with a decreasing trend in the period. The characteristics were predominant for females (65,1%), aged between 25 and 59 years (67,7%), and self-harm due to exogenous intoxication (61,6%). For 93% of those who attempted suicide there was some associated disability or disorder. **Conclusion:** the declining trend of reporting needs to be clarified, as suicide numbers rise at the state and national levels. Giving visibility to this scenario enables the instrumentalization of management.

**Descriptors:** Suicide; Suicide, attempted; Notification; Mental health; Epidemiological surveillance.

### RESUMO

**Objetivo:** caracterizar as tentativas de suicídio notificadas em um hospital de ensino no estado do Rio Grande do Sul, Brasil. **Método:** pesquisa quantitativa e retrospectiva, que foi realizada no Núcleo de Vigilância Epidemiológica de um hospital de ensino, a partir da análise de notificações de tentativa de suicídio registradas entre os anos de 2014 e 2016. Os dados foram analisados segundo estatística descritiva. **Resultados:** registraram-se 344 notificações de tentativa de suicídio, com uma tendência decrescente no período.

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As características foram predominantes para o sexo feminino (65,1%), faixa etária de 25 a 59 anos (67,7%), e meio de autoagressão por intoxicação exógena (61,6%). Para 93% das pessoas que tentaram suicídio registrou-se alguma deficiência ou transtorno associado. **Conclusão:** a tendência decrescente de notificações precisa ser esclarecida, uma vez que os números de suicídios ascendem em nível estadual e nacional. Dar visibilidade a esse panorama possibilita a instrumentalização da gestão.

**Descritores:** Suicídio; Tentativa de suicídio; Notificação; Saúde mental; Vigilância epidemiológica.

## RESUMÉN

**Objetivos:** caracterizar los intentos de suicidio notificados en un hospital de enseñanza en el estado del Rio Grande do Sul, Brasil. **Método:** investigación cuantitativa y retrospectiva, que fue realizada en el Núcleo de Vigilancia Epidemiológica de un hospital de enseñanza, por la análisis de notificaciones de intento de suicidio registradas entre los años 2014 y 2016. Los datos fueron analizados según estadística descriptiva. **Resultados:** se registraron 344 notificaciones de intento de suicidio, con una tendencia decreciente en el período. Las características fueron predominantes para el sexo femenino (65,1%), grupo de edad de 25 a 59 años (67,7%), y autoagresión por intoxicación exógena (61,6%). Para 93% de las personas que intentaron suicidio se registró alguna deficiencia o trastorno asociado. **Conclusión:** la tendencia decreciente de notificaciones debe ser aclarada, ya que los números de suicidios ascienden a nivel estatal y nacional. Dar visibilidad a ese panorama posibilita la instrumentalización de la gestión.

**Descriptor:** Suicidio; Intento de suicidio; Notificación; Salud mental; Vigilancia epidemiológica.

## INTRODUCTION

Suicide is within the scope of investments under the Unified Health System (SUS) and is considered a public health problem. Suicide rates in Brazil are high, reaching 32 deaths per day. The country occupies the 8th position in the world in terms of suicide rates, and Rio Grande Sul (RS) is the state with one of the highest rates in the country. These rates have prevailed in men in their teens or early adulthood. The most common manner of suicide in Brazil is by hanging, with about 47% of cases; followed by firearm 19% and poisoning 17%. However, with regard to suicide attempts (SA), there are no records in the country to allow for national analysis.<sup>1</sup>

Data available from the SUS Department of Informatics (DATASUS) indicates that in the last five years (between 2012 and 2016) the total number of suicide attempts recorded was 14,850 in Rio Grande do Sul.<sup>2</sup> These are computerized indices from Service Registries of the Health System (SINAN), a notification system for cases of violence, suicide attempts, illness, accidents at work, among others. It is based on a questionnaire, which must be completed by health professionals appropriately and individually.

Notification is relevant to define a profile of people involved, as well as to locate the occurrence, magnitude, typology and severity of self-inflicted violence, contributing to care planning and qualification, health promotion and prevention of new cases.<sup>3</sup>

The need to ensure assistance to people who attempt suicide reaffirms the epidemiological importance of recording

these occurrences. Rather than producing quantifiable data on this problem, the analysis of notified registries provides information that can (re-)orient new intervention policies/programs on suicide in a contextualized and strategic manner. Thus, the following research problem was delimited for this study: what are the characteristics of suicide attempts reported in a teaching hospital in the state of Rio Grande do Sul, Brazil?

The present work is justified by the possible contribution to the planning of assistance to people who attempted suicide, as well as their families. We believe that it will provide visibility to the attempted suicides within the analyzed context, drawing a parallel with other studies, which will enable better prevention and health promotion measures based on a biopsychosocial perspective.

Thus, the objective was: To characterize the suicide attempts reported in a teaching hospital in the state of Rio Grande do Sul, Brazil.

## METHODS

This is a quantitative, retrospective and descriptive research based on data from SINAN notification on suicide attempt of persons treated in a teaching hospital in the state of Rio Grande do Sul, Brazil.

The research was conducted in an Epidemiological Surveillance Center (NVE) of the said educational institution. Study population consisted of all records in SINAN of suicide attempt of people treated at this institution, from January 2014 to December 2016. The choice for this period considered standardization criteria of the documents to be analyzed, considering that NVE started to use the self-reported violence report standard in 2014.

Data were collected from August to September 2017. To help organize and process the data, we used an instrument built into Google's online search forms tool, which ordered the selection of the following variables according to the SINAN file: Chronological data on suicide attempts (year and month of occurrence); Sociodemographic data (age, gender, education, marital status, race / color, if pregnant, sexual orientation, occupation, presence of any type of disability / disorder); Spatial-temporal location data (location, municipality and area of suicide attempt, municipality and area of residence of the person attempting suicide); Data related to the causes attributed to the suicide attempt; Data related to the means of self-inflicted violence; History of previous suicide attempts; Referrals made.

Data were analyzed and interpreted according to descriptive statistics. The data matrix has been saved to files in Excel. Data was organized and presented using bar and pie charts for easy viewing and subsequent analysis and description of the results. It was not necessary to calculate the minimum sample size because it was a survey of the total sample available.

The authors based the study respecting all ethical aspects applicable to research with human beings. As required by the Resolution of the National Health Council (CNS) No. 510,<sup>4</sup> as well as by the institutional requirements, the Research

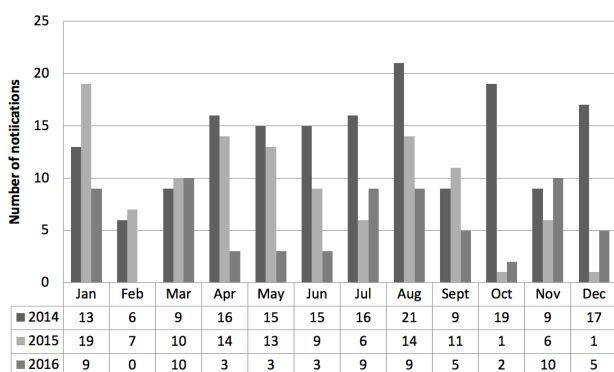
Project Protocol was submitted to the Committee of Ethics in Research (CEP) where it was approved on 08/09/2017, under registration No. 2,210,575 and Opinion CAAE No. 71489617.9.00005346.

## RESULTS

The collection took place from August to September 2017 and covered the total population of 344 suicide attempt notification records registered between 2014 and 2016. Of these, 165 (48%) refer to the year 2014, 111 (32.2%) to the year 2015 and 68 (19.8%) to the year 2016.

In 2014, the highest incidence of attempts was registered in August, with 21 (12.7%) records. In 2015, the highest incidence occurred in January, with 19 (17.1%) attempts. And, in 2016, the highest incidence was identified in March and November, with 10 (14.7%) records each month. In the total of records from 2014 to 2016, the month with the highest notification rate was August, as presented (Graph 1).

**Graph 1** - Notifications of suicide attempts according to month and year of occurrence, Santa Maria, RS, Brazil, 2017



Regarding the sociodemographic data observed in the notification forms, the results showed that the majority of people who attempted suicide were: female (65.1%), pregnant (0.9%); adult (67.7%); white (84.6%); with incomplete elementary school (29.9%); single (42.7%); heterosexual (86.9%); students (10%); with some type of disability / associated disorder (93%) (Table 1).

**Table 1** - Sociodemographic data of individuals who attempted suicide. Santa Maria, RS, Brazil, 2017

Variables	Nº	%
<b>Age group (years)</b>		
0 to 9	0	0%
10 to 19	52	15,1%
20 to 24	41	11,9%
25 to 59	234	67,7%
60 or more	17	5,3%
<b>Gender</b>		
Female	224	65,1%
Male	120	34,9%

Variables	Nº	%
<b>Pregnancy</b>		
1st trimester	03	0,9%
2nd trimester	02	0,6%
3rd trimester	0	0%
No	206	59,8%
NA	120	34,9%
Ignored	13	3,8%
<b>Marital status</b>		
Single	147	42,7%
Married/ Stable union	118	34,3%
Separated	43	12,5%
Widowed	03	0,9%
Ignored	33	9,6%
<b>Education</b>		
Analfabet	01	0,3%
Incomplete fundamental education	103	29,9%
Complete fundamental	33	9,6%
Incomplete high-school	27	7,8%
Complete high-school	38	11%
Incomplete higher education	15	4,4%
Complete higher education	10	2,9%
Ignored	117	34%
<b>Race/ Colour</b>		
White	291	84,6%
Black	24	7%
Yellow	0	0%
Brown ( <i>pardo</i> )	22	6,4%
Indigenous	01	0,3%
Ignored	6	1,7%
<b>Occupation</b>		
Student	35	10%
Housewife	24	7%
Farmer	17	5%
Without occupation	14	4%
Retired	07	2%
Other	58	17%
Ignored	189	55%
<b>Sexual orientation</b>		
Heterosexual	299	86,9%
Homosexual	08	2,3%
Bisexual	0	0%
Ignored	37	10,8%
<b>Disability or disorder</b>		
Yes	320	93%
No	20	5,8%
Ignored	04	1,2%

Variables	Nº	%
<b>Type of disability or disorder</b>		
Physical deficiency	0	0%
Intellectual deficiency	0	0%
Mental/ behavioral disorder	344	100%
Other	0	0%

As for location data, it was found that, in most cases, the attempt occurred in the municipality of Santa Maria (69%), in an urban area (52.3%), in a home area (85.4%). Regarding the municipality of residence of the person with TS, most lived in Santa Maria (68%), in an urban area (54.8%) (Table 2).

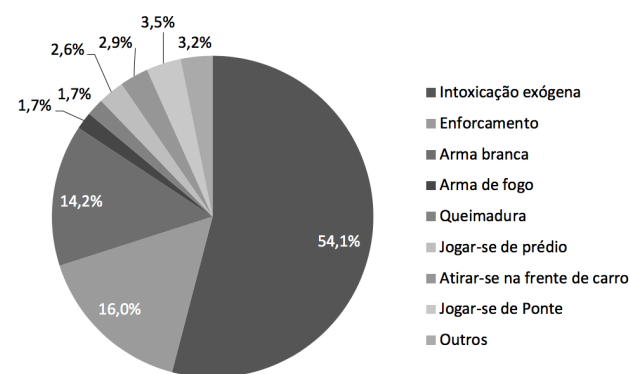
**Table 2** - Location data of reported suicide attempts. Santa Maria, RS, Brazil, 2017

Variables	Nº	%
<b>Location</b>		
Home	294	85,4%
School	01	0,3%
Public road	35	10%
Work/commercial area	02	0,6%
Other	12	3,7%
<b>Municipality</b>		
Santa Maria	237	69%
Paraíso do Sul	11	3,1%
Júlio de Castilhos	08	2,3%
São Pedro do Sul	08	2,3%
Restinga Seca	07	2%
Agudo	06	1,7%
Other < 5	67	19,6%
<b>Type of area</b>		
Urban	180	52,3%
Peri-urban	89	25,9%
Rural	56	16,3%
Ignored	19	5,5%
<b>Municipality of residence</b>		
Santa Maria	234	68%
Paraíso do Sul	14	4%
São Pedro do Sul	9	2,6%
Restinga Seca	7	2%
Júlio de Castilhos	6	1,7%
Agudo	6	1,7%
Other < 5	68	20%
<b>Zone of residence</b>		
Urban	189	54,8%
Rural	60	17,5%
Peri-urban	93	27,1%
Ignored	2	0,6%

In the description of the causes attributed to AS, it was identified that most of the occurrences were motivated by family conflict (n = 54), followed by the breakup of the relationship (n = 27), among other diverse causes, such as imprisonment or irritation due to noise pollution.

Regarding the means of self-inflicted violence, most individuals (54%) used exogenous intoxication, by drugs and pesticides (Graph 2).

**Graph 2** - Means of suicide attempt. Santa Maria, RS, Brazil, 2017



(Legend: exogenous intoxication, hanging, white weapon, gun, burns, jumping of the building, jumping in front of a car, jumping off the bridge, other)

Regarding the history of occurrences, 55.5% (n = 191) of the cases had previous AS. Regarding referrals after AS, it was found that in 98.2% of the situations (n = 338), people were referred to services of the health network, followed by services of the Social Assistance Network (CRAS, CREAS) with 1.5% (n = 5) receiving other referrals, such as home hospitalization in 0.3% (n = 1) of cases.

## DISCUSSION

Research data indicates a downward trend of notifications in recent years. Considering the state and national scenario that presents increasing rates of suicides and suicide attempts, it is believed that these findings may indicate underreporting in the institution.

The attempted suicide must be notified immediately (within 24 hours) by the municipality and decision making and referral must be rapid. This is important for preventing a new case.

The identification of chronological data, referring to the month of the attempt, allows the analysis as to AS seasonality according to the climate. The literature and the results found in this research indicate that the highest rate of suicide attempt occurred in winter months in 2014, autumn in 2015 and winter in 2016. Higher suicide rates may occur in cold weather months, because the lack of sunlight in these stations decreases the serotonin neurotransmitters, which regulate sleep, appetite, mood, and so on.<sup>5</sup> In consequence, the lack of serotonin increases cases of depression as well as aggression and depression, including self-harm.<sup>6</sup>

Regarding the sociodemographic characteristics of individuals who attempted suicide, this research showed a higher occurrence in adults, single (42.7%), female (65.1%), heterosexual (86.9%), 25 to 59 years of age (67.7%), white (84.6%), and low level of education (29.9%).

Other studies have also pointed out the highest incidence in adults. For example, the survey conducted in the state of Paraná found 308 records of women who attempted suicide, most of them are young and adult (20-59 years old). The data appears to indicate the suffering that affects the adult population today. This is a portion of the population that is considered economically and socially responsible, but experiences difficulties to find jobs associated with family vulnerabilities, which generates suffering and increases the risk.<sup>7</sup>

The higher occurrence in women is supported by the data in other studies. Some data indicate that women try to commit suicide twice as much as men, thus leading to higher morbidity. In addition, women are more concerned with disfigurement and end up using more drugs, i.e. exogenous intoxication. Men, meanwhile, use more lethal means, thus achieving greater success in the attempt.<sup>8</sup>

Other factor that may be associated with the gender according to the data is the fact that women are more susceptible to moral / sexual violence and physical aggression. Also, they are more prone to unemployment, in addition to burdens linked to women's social role.<sup>1</sup>

Furthermore, 1.5% of notifications of suicide attempts in pregnant women were recorded. Of these, 0.9% of were pregnant women in the 1st trimester and 0.6% in the 2nd trimester. Regarding pregnant women, there is no data to indicate a predominance of suicide attempts in pregnant women in Brazil, but a survey of 358 pregnant women showed that 7.8% of them had suicidal thoughts. The main reasons given for suicidal thoughts and attempted suicide are: unwanted, unplanned pregnancy, sexual violence, domestic violence, mental disorders during this period.<sup>9</sup>

The data on color/race shows that the majority of AS were white, in line with the predominant profile of the population of the state of Rio Grande Sul, which has more than 10 million inhabitants and, according to IBGE survey in 2012, 80.3% of that population declared themselves white. It is possible to infer the existence of cultural aspects related to this finding, such as, for example, the more severe German cultural heritage, as well as a significant portion of the population linked to rural work with an easy access to pesticides.<sup>10</sup>

Another social indicator that needs to be discussed concerns the level of education of the population. Attempted suicide is related to low education, as this situation reduces economic and social opportunities, thus generating stress and losses for the individual as well as the family.

A survey conducted in Brazil analyzed the profile of people who attempted suicide from 2000 to 2012 and it was observed that, in relation to education, the same trend remained. In 2000, 75% of people who committed suicide had up to seven years of schooling, and in 2012, 63% of people had up to seven years of schooling.<sup>11</sup>

Social inequality and lack of access to housing, education, work, leisure, which affects a large portion of the Brazilian population, imply greater vulnerability to mental illness and loss of expectations in life. Moreover, in addition to prejudice, this population group suffers from exclusion and violence.

As for the place of occurrence recorded in most suicide attempts, for 85.3% AS took place at home. This shows that the family participates in the suicidal crisis through conflicts and relationship breakdowns, among other factors. It may also be related to the lack of dialogue and understanding among family members.<sup>12</sup> This reinforces the family's role in preventing new attempts.

Regarding the municipality of residence, the data indicates a higher incidence in Santa Maria, with 68% (n = 234). Suicide cases are spread throughout Brazil. Proportionally, the Southern region is the most affected: it concentrates 23% of cases while only 14% of the country's population is located there<sup>(13)</sup>. In this scenario, Santa Maria records an annual average of 23 suicide cases, thus occupying the 4th place among Rio Grande do Sul cities.<sup>14</sup>

Regarding occupational data, the findings of this research indicated variability of occupations / professions associated. The higher occurrence in students (10%) may be related to the fact that the study was carried out at a teaching hospital. Among students, those most exposed to AS are medical students. Some factors, such as sleep deprivation, unhealthy environments, heavy work and study load, can lead students to attempted suicide.<sup>15</sup> In addition, during the academic career, the students end up in contact with the suffering of others and even with death.

Regarding clinical factors associated with the occurrence of AS, 93% of the people who originated the notification had some mental or behavioral disorder. Research shows that mental disorders are relevant factors for AS, especially depression. In addition, they indicate other factors that further potentiate this problem, such as sociodemographic factors and family conflicts, among others.<sup>16</sup>

A study that analyzed the prevalence of mental disorders in AS at an emergency hospital in Rio de Janeiro, in which 96 people were interviewed, showed that 71% of this population had mental disorders and of these, the most frequent disorder was major depression with 35.4%,<sup>17</sup> findings similar to the results of this research. It is noteworthy that not all people who perform AS have pre-existing depression. Depression and suicide are complex phenomena that bring intense suffering to the lives of affected people, their families and communities. Both result from the interaction of biological, genetic, psychological, sociological, cultural and environmental factors, representing an important indicator of the population's quality of life.<sup>18</sup>

Regarding the means of suicide, most individuals (54%) used exogenous intoxication. Another research that analyzed 308 profiles of women who attempted suicide, showed that, for the age group of 20 to 59 years (70.38%), the main means of aggression was the use of medicines (81.70 %), and point out depression as the main mental disorder.<sup>7</sup>



Tighter control over drug and pesticide sales is of utmost importance in curbing the suicide risk. Easy access to these materials, as well as firearms or other lethal means, is a risk factor for AS.<sup>6</sup>

Regarding referrals, 98% of patients were referred to the health network (Hospital, CAPS, Ambulatory). In general, the first contact of people who attempt suicide is with emergency services, allowing health professionals to identify the potential risk and intervene by making the necessary referrals. In terms of healthcare services, it is important to provide appropriate reception, trying to ensure the safety of the person and be aware of their behavior, avoiding access to means that may be lethal. In cases of imminent risk, psychiatric hospitalization may be required. However, the care should not be restricted to curative measures, and to ensure continuity of out-of-hospital treatment.<sup>1,19</sup>

As pointed out in the results, 55.5% of the cases had previous AS. The first AS is one of the most important factors for future suicidal behaviors.<sup>20</sup> Thus, important protective factors in suicide prevention include activities that promote higher self-esteem, self-efficacy, social skills, and strengthening intrafamilial affective bonds and support network.<sup>21</sup>

Faced with a phenomenon permeated by taboos and prejudice, with which most health professionals are not or do not feel adequately prepared to deal with, thus generating intolerance, negativity, and emotional conflicts, requires urgent investment in continuing education for health professionals in the different service areas to assist the suicidal crisis.

## CONCLUSION

The results show some aspects that may (re) direct new policies / intervention programs, namely: higher incidence of AS in female, heterosexual, white, adult, single and poorly educated people. The self-inflicted violence was mostly due to exogenous intoxication at the residence itself. This study adds to evidence that all people who had some type of disorder associated with AS were reported as mental and behavioral disorders.

The decreasing trend of notifications found in this research needs to be further clarified as suicide numbers are on the rise at the state and national levels. In this aspect, we identified an underreporting of cases due to changes in the flow of care for psychiatric emergencies in the region as a possible limitation of this study.

By defining an AS profile, we seek to instrumentalize the management of health care network services for the planning of prevention strategies for these events. Furthermore, the data indicates the necessity for further analysis of this subject, besides indicating the importance of continuous professional education for healthcare professionals who attend the suicide crisis in addition to the correct registration of the notification of AS.

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