



Characterization of self-inflicted violence committed by older people in southern Brazil from 2009 to 2016

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Abstract

Objective: To describe the characteristics of older people who committed self-inflicted violence, reported in the Notifiable Diseases Information System (SINAN) in southern Brazil, from 2009 to 2016. **Method:** This is a retrospective, descriptive study with a quantitative approach, and with secondary data. The variables in relation to the sociodemographic characteristics of the places and means of violence were selected based on the notification forms. Variables were subjected to descriptive statistical analysis using simple frequency and proportion (%), stratified by age group (60-69 years; 70-79 years; 80 years or more) and confidence intervals were performed (95%CI). Statistical significance was tested using the chi-square test (χ^2) and considered the value of $p \leq 0.05$. **Results:** The results showed that, in the southern region of Brazil, the profile of older people who committed self-inflicted violence are predominantly aged 60 to 69 years (61.3%), male (56.1%), white (90.9%), with low educational level (56.3%) and married (54.0%). Among the states, Rio Grande do Sul recorded the highest number of notifications (50.7%), urban areas (81.8%) and residences/collective housing (90.2%) predominated as places of occurrence. The most used means of violence were hanging (29.9%) and poisoning (24.9%). The occurrence of two outcomes was observed, repetition (31.5%) of self-inflicted violence and death records (43.8%). **Conclusion:** The outlining of the epidemiological profile, in the southern region of Brazil, identified groups of older people who need more attention in the actions of prevention and occurrence of self-inflicted violence, being male older people, younger and with low education.

Keywords: Violence. Suicide Attempted. Elderly. Health Information Systems.

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INTRODUCTION

Aging is a dynamic, individual, irreversible process that promotes a progressive decline in physiological functions that interfere with the organic and functional capacity of older people¹. These changes can be perceived positively or negatively by older people, that is, their life history will determine future behaviors, which for many may culminate in self-inflicted violence².

Thus, self-inflicted violence can be understood as that which occurs when a person practices the conscious action of self-destruction, which is subdivided into suicidal behavior and self-harm. The first includes suicidal ideation, suicide attempts and suicides; while self-harm encompasses acts such as self-mutilation and self-injury, from mild to severe forms³.

Therefore, suicide attempts are understood to be the deliberate act of taking one's own life, but without carrying it out⁴. Some authors consider that there is a fine line between ideation, attempt and suicide, although there is a need to understand that ideation and attempts can be alternated⁵.

Trying to explain the reasons why a person commits self-inflicted violence or wants to do so comes from a range of elements that influence this behavior, such factors come from personal, social, psychological, cultural, biological and environmental situations⁶. In general, people who commit self-inflicted violence are experiencing a feeling of impossibility in identifying alternatives for solving their conflicts³. Cavalcante et al.⁷, report that the older population has the same behaviors as other age groups related to the difficulties in solving their conflicts, as such difficulties come from different social factors⁸.

It is estimated that suicide attempts are up to four times greater than suicides for people aged 60 years or more, and may reach the limit ratio of one act for one death². The risk of death increases as the number of suicide attempts increases, as well as being associated with shorter time intervals between one act of violence and another⁹.

Regarding self-inflicted death, an average of 11 thousand people take their own lives per year in

Brazil. The southern region of Brazil concentrates 23% of suicide cases in the national territory¹⁰. The suicide rate in this same region in 2012 for people aged 60 years and over was 16 per 100,000 inhabitants¹¹. Regarding suicides, science has already quantified numbers related to older people, but there is a lack of studies involving this population when referring to suicide attempts¹².

Thus, self-inflicted violence in older people is a social and public health problem, as there is an urgent need to invest in studies on the subject, since there is a lack of published research with this population in the southern region of Brazil.

In Brazil, one of the possibilities to establish epidemiological results regarding self-inflicted violence is using the national database of the Surveillance System for Interpersonal and Self-Inflicted Violence (VIVA/SINAN), which is fed by notifications made by health professionals or institutions¹². More than just producing quantifiable data on self-inflicted violence, there is a need to provide professionals and health authorities with knowledge about the reality of older people in a contextualized way in order to enable the creation of new public policies^{13,14}. Therefore, we aimed to describe the characteristics of older people who committed self-inflicted violence, reported in the Notifiable Diseases Information System (SINAN) in southern Brazil from 2009 to 2016.

METHOD

This is a study with a quantitative, descriptive, retrospective approach, with secondary data. The notifications of self-inflicted violence among the older people studied are concentrated in the southern region of Brazil (Rio Grande do Sul, Santa Catarina and Paraná), from January 1, 2009 to December 31, 2016. The Older People statute¹⁵ considers as an older person in Brazil, the one who turns sixty or more years old, so this was the target population of this study.

According to the Brazilian Institute of Geography and Statistics¹⁶, the projection of the older population in the southern region of Brazil in the year 2025 will correspond to 6,047,338 people. The percentage

perspective for the older population, referring to the mentioned year, will be approximately 18% for the states of Paraná and Santa Catarina and 22% for Rio Grande do Sul.

The period studied was delimited from 2009 to 2016, due to the notifications of violence having been entered in SINAN in 2009 and in 2016 due to the availability of the database being consolidated by the Ministry of Health (MS). The selection of the variables present in the study was based on the Individual Notification/Investigation Forms of Domestic, Sexual and/or other Violence, published in 2008 and the Individual Interpersonal/Self-provoked Violence Notification Form, published in 2015. Changes made by the MS in 2015 were considered, and most of the data were chosen in common in the two notification models¹¹. The selected variables, from the forms, aimed to respond to the study objectives.

We chose to separate the variables into sociodemographic characteristics (age, sex, skin color, education and marital status), location (federal unit, area of occurrence, place of occurrence and shift of occurrence) and violence (means of violence, repeated violence and evolution), of the older people who committed self-inflicted violence.

In the 2008 notification form, the evolution field was present, which registered the outcome of the case, including death due to violence. The researchers understood that the inclusion of this data in the study was relevant, even though it was not included in the 2015 form. In this study, it was decided to use all notifications of self-inflicted violence by older people present in the database, even if some are not fully completed.

The variables were extracted from the national database of the SINAN system between November and December 2019 and submitted to descriptive statistical analysis, using simple frequency and proportion (%), stratified by age group (60-69 years; 70-79 years; 80 years or more) and confidence intervals were performed (95%CI). Statistical significance was tested using the chi-square test (χ^2) and considered the value of $p \leq 0.05$.

The database was requested by a researcher from the research group on Violence and Health at the

Federal University of Santa Catarina through the information access system, and provided by the Health Surveillance Department of the Ministry of Health, after signing the term of responsibility for cession of the databases of the health surveillance department, with the approval of the General Coordination of Surveillance of Non-Communicable Diseases. As for ethical care, the research used secondary data, so it did not need to be submitted to the ethics committee due to the resolution of the National Health Council (CNS) 510/2016, article 1, sole paragraph and subparagraph V, states that research with databases, whose information is aggregated, without the possibility of individual identification, are not registered and passed on to the Research Ethics Committee/National Research Ethics Committee (CEP/CONEP).

RESULTS

A total of 2,290 SINAN notifications of self-inflicted violence by older people in the South of Brazil between 2009 and 2016 were analyzed. The average age of older people was 68.9 years, with 43.9% female and 56.1% male. 90.9% declared themselves as white and 5.9% as brown, of which 6.3% had zero to four years of education, followed by 28.6% who had five to eight years of education; these characteristics prevail in the three age stratifications. 54.0% declared themselves married or in a stable relationship and 23.0% widowed, it is noted that married people predominate in the three stratified age groups. These information are found in table 1.

Table 2 describes the characteristics of the places where self-inflicted violence among older people occurred in the southern region of Brazil. The state of Rio Grande do Sul registered 50.7% of notifications, followed by Santa Catarina 27.1% and finally Paraná with 22.2%, showing that the state of Rio Grande do Sul has the highest percentage of records of self-inflicted violence in the three stratified age groups. Self-inflicted violence occurred predominantly in urban or peri-urban areas, with 81.8% of registered cases. The place with the highest occurrence of self-inflicted violence recorded was residence/collective housing with 90.2%. The time of occurrence was 33.3% in the morning and in the afternoon with 33.1%.

Table 1. Sociodemographic characteristics of older people who committed self-inflicted violence, notified in SINAN. (N=2,290). Southern Region. Brazil. 2009-2016.

Characteristics	Total	60-69 years		70-79 years		80 years or more		p value
	N (%)	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI	
Sex (n=2,290)								<0.001
Female	1,005 (43.9)	666 (66.3)	63.2-69.1	237(23.6)	21.0-26.3	102 (10.1)	8.4-12.1	
Male	1,285 (56.1)	738 (57.4)	54.7-60.1	382 (29.7)	27.2-32.2	165 (12.9)	11.1-14.7	
Skin color (n=2,229)								0.252
White	2.026 (90.9)	1.231(60.8)	58.6-62.8	561(27.7)	25.7-29.6	234 (11.5)	10.2-13.0	
Black	58 (2.6)	33 (56.9)	43.5-69.2	17(29.3)	18.8-42.6	8 (13.8)	06.9-25.6	
Yellow/Indigenous	13 (0.6)	8 (61.5)	30.5-85.3	3 (23.1)	6.3-57.1	9 (15.4)	3.0-50.9	
Brown	132 (5.9)	94 (71.2)	62.8-78.3	23 (17.4)	11.7-24.9	15 (11.4)	6.9-18.1	
Education (years) (n=1,519)								<0.001
0-4	855 (56.3)	493 (57.7)	54.3-60.9	253 (29.6)	26.6-32.7	109 (12.7)	10.6-15.1	
5-8	434 (28.6)	304 (70.1)	65.5-74.1	99 (22.8)	19.0-27.0	31 (7.1)	5.0-9.9	
9-11	171 (11.2)	128 (74.9)	67.7-80.8	30 (17.5)	12.5-24.0	13 (7.6)	4.4-12.7	
12 or more	59 (3.9)	508 (4.7)	72.7-92.0	8 (13.6)	6.7-25.2	1 (1.7)	0.2-11.6	
Marital Status (n=1,970)								<0.001
Single	241 (12.2)	158 (65.6)	59.2-71.3	57 (23.6)	18.6-29.4	26 (10.8)	7.4-15.4	
Married/Stable union	1.063 (54.0)	703 (66.1)	63.2-68.9	273 (25.7)	23.1-28.3	87 (8.2)	6.6-9.9	
Widow	453 (23.0)	177 (39.1)	34.6-43.6	160 (35.3)	31.0-39.8	116 (25.6)	27.1-29.8	
Separated	213 (10.8)	163 (76.5)	70.3-81.7	41 (19.3)	14.4-25.1	9 (4.2)	2.2-7.9	

Source: VIVA/SINAN, 2009-2016.

Table 2. Characteristics of places where self-inflicted violence was committed by older people notified to SINAN. (N=2,290). Southern Region. Brazil. 2009-2016.

Characteristics	Total	60-69 years		70-79 years		80 years or more		p value
	N (%)	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI	
State (n=2,290)								<0,001
Paraná	509 (22.2)	323 (63.5)	59.1 -67.5	144 (28.3)	24.5-32.3	42 (8.2)	6.1-10.9	
Santa Catarina	620 (27.1)	417 (67.3)	63.4-70.8	146 (23.5)	20.3-27.0	57 (9.2)	7.1-11.7	
Rio Grande do Sul	1,161(50.7)	664 (57.2)	54.3-60.0	329 (28.3)	25.8-31.0	267 (14.5)	12.5-16.6	
Occurrence zone (n=2,163)								0.023
urban/periurban	1,769 (81.8)	1,105 (62.5)	60.1-64.6	470 (26.6)	24.5-28.6	194 (10.9)	9.5-12.5	
Rural	394 (18.2)	217 (55.1)	50.1-59.9	123 (31.2)	26.8-35.9	54 (13.7)	10.6-17.4	
Location of occurrence (n=2,234)								0.064
Residence/collective housing	2,016 (90.2)	1,226 (60.8)	58.6-62.9	545 (27.0)	25.1-29.0	245 (12.2)	10.7-13.6	
Public road	106 (4.8)	74 (69.8)	60.2-77.8	25 (23.6)	16.3-32.7	7 (6.6)	3.1-13.3	
Others	112 (5.0)	74 (66.0)	56.6-74.3	32 (28.6)	20.8-37.7	6 (5.4)	2.3-11.5	

to be continued

Continuation of Table 2

Characteristics	Total	60-69 years		70-79 years		80 years or more		p value
	N (%)	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI	
Time of occurrence (n=1,490)								0.086
Morning	491 (33.0)	276 (56.2)	51.7-60.5	149 (30.4)	26.4-34.5	66 (13.4)	10.6-16.7	
Afternoon	493 (33.1)	299 (60.6)	56.2-64.8	138 (28.0)	24.1-32.1	56 (11.4)	8.8-14.4	
Night	361 (24.2)	236 (65.4)	60.2-70.1	85 (23.5)	19.4-28.2	40 (11.1)	8.2-14.7	
Late night	145 (9.7)	98 (67.6)	59.4-74.7	35 (24.1)	17.7-31.8	12 (8.3)	4.7-14.0	

Source: VIVA/SINAN, 2009-2016.

Table 3 refers to the characteristics of the means of violence used by older people in self-inflicted violence, with hanging with 29.9%, poisoning 24.9%, piercing object 11.5%, body strength/beatings 6.4% and firearm 6.2%. It was recorded that 31.5%

of cases of self-inflicted violence were repeated. 397 older people (43.8%) died as a result of self-inflicted violence, 203 (51.3%) aged 60 to 69 years, 126 (31.7%) aged 70 to 79 years and 68 (17.1%) of 80 years or more.

Table 3. Characteristics of the means of violence of self-inflicted violence committed by older people notified in SINAN. (N=2,290). Southern Region. Brazil. 2009-2016.

Characteristics	Total	60-69 years		70-79 years		80 years or more		p value
	N (%)	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI	
Means of self-harm								
Body strength/beatings (n=2,220)								0.860
Yes	143 (6.4)	91 (63.6)	55.3-71.1	36 (25.2)	18.6-33.0	16 (11.2)	6.9-17.5	
No	2,077 (93.6)	1,274 (61.3)	59.2-63.4	559 (26.9)	25.0-28.8	244 (11.8)	10.4-13.2	
Hanging (n=2,236)								0.014
Yes	669 (29.9)	383 (57.2)	53.4-60.9	191(28.6)	25.2-32.1	95 (14.2)	11.7-17.0	
No	1,567 (70.1)	990 (63.2)	60.7-65.5	409 (26.1)	23.9-28.3	168 (10.7)	9.2-12.3	
Blunt object (n=2,224)								0.328
Yes	36 (1.6)	21 (58.3)	41.1-73.7	8 (22.2)	11.1-39.4	7 (19.5)	9.2-36.4	
No	2,188 (98.4)	1,347 (61.6)	59.5-63.5	588 (26.9)	25.0-28.7	253 (11.6)	10.2-12.9	
Sharp piercing object (n=2,229)								0.089
Yes	257 (11.5)	145 (56.4)	50.2-62.3	84 (32.7)	27.1-38.6	28 (10.9)	7.6-15.3	
No	1,972 (88.5)	1,223 (62.0)	59.8-64.1	517 (26.2)	24.3-28.2	232 (11.8)	10.4-13.2	
Hot substance/object (n=2,222)								0.691
Yes	31 (1.4)	19 (61.3)	42.4-77.2	7 (22.6)	10.6-41.5	5 (16.1)	6.5-34.6	
No	2,191 (98.6)	1,347 (61.5)	59.4-63.4	589 (26.9)	25.0-28.7	255 (11.6)	10.3-13.0	
Poisoning (n=2,222)								<0.001
Yes	553 (24.9)	406 (73.4)	69.5-76.9	118 (21.3)	18.1-24.9	29 (5.3)	3.6-7.4	
No	1,669 (75.1)	960 (57.5)	55.1-59.8	478 (28.7)	26.5-30.8	231 (13.8)	12.2-15.5	

to be continued

Continuation of Table 3

Characteristics	Total	60-69 years		70-79 years		80 years or more		<i>p</i> value
	N (%)	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI	
Firearm (n=2,230)								
Yes	138 (6.2)	61 (44.2)	36.0-52.6	57 (41.3)	33.3-49.7	20 (14.5)	9.4-21.5	<0.001
No	2,092 (93.8)	1,309 (62.6)	60.4-64.6	543 (25.9)	24.1-27.8	240 (11.5)	10.1-12.9	
Repetition (n=1,812)								
Yes	571 (31.5)	376 (65.9)	61.8-69.6	136 (23.8)	20.4-27.4	59 (10.3)	8.0-13.1	0.081
No	1,241 (68.5)	749 (60.4)	57.5-63.0	345 (27.8)	25.3-30.3	147 (11.8)	10.1-13.7	
Evolution*								
Death (n=906)								
Yes	397 (43.8)	203 (51.3)	46.2-56.0	126 (31.7)	27.3-36.5	68 (17.1)	13.7-21.1	<0.001
No	509 (56.2)	325 (63.8)	59.5-67.9	130 (25.5)	21.9-29.5	54 (10.6)	8.2-13.6	

* present in notifications until June 2015; Source: VIVA/SINAN, 2009-2016.

DISCUSSION

In this study, the sociodemographic profile of older people who committed self-inflicted violence reported on SINAN in southern Brazil was characterized. The main results show that the predominant age group was 60-69 years old, male, white-skinned people, low education level and married.

In this context, the age group with the highest occurrence of self-inflicted violence among older people proved to be at the beginning of the aging cycle. The literature¹⁷ emphasizes that as age advances, the lethality of suicide attempts increases, as the aging process is multifactorial, promoting anatomical and functional changes in the body¹⁸, naturally, as age advances, the body is more fragile and susceptible to external actions.

Regarding gender, in the southern region of Brazil, the male individual was the main author of self-inflicted violence, a study carried out in São Paulo, Capital, found similar data¹⁹, however, other researches showed that women in the studied age group present greater attempts to take their own lives than men¹⁷⁻²².

The hierarchies of social power between the sexes follow the demands of patriarchy, that is, a model that highlights the authority of men over women and children²³. Older women were referred

in a process not to realize their basic needs, however their obligations were in favor of taking care of the other, whether husband, children or family members. Masculinity and virility are terrifying conflicts for older men, when they step away from work, from the familiar social position of providers that is imposed by the social hierarchical power. In this line of thought, older males are victims of this social model, which does not allow and does not forgive showing vulnerability²⁴.

In the last IBGE Census²⁵, 78.3% of the population in the southern region of Brazil declared themselves white, followed by 16.7% brown. This information may be related to the result of this study, as the number of notifications was predominantly in white (91.0%) and brown (5.9%) people. Other Brazilian studies that address the theme of self-inflicted violence in older people reported that the victims were of mixed race/color, followed by whites^{18,26,27}. It is known that the processes of skin color identification are subjective, complex, multifaceted, involving historical and sociocultural factors²⁸. In addition to these factors, the greater concentration of whites in the southern region is explained by the colonization process in that region. Colonized mainly by German, Italian and Polish immigrants, in the southern region, the phenotypic characteristics and cultural preferences of the inhabitants are very close to European standards, including with regard to the predominantly white skin color²⁹.

As for the aspect of schooling, this is an important factor to measure the characteristics of a society. The educational level of the studied population predominated with low educational level, information that corroborates the national and international literature^{19,26,27,30}. The low educational level of older people increases the probability of a low socioeconomic level, which can harm individual, family and social life, and may be a triggering factor for self-inflicted violence, as it hinders aging with dignity³¹.

Surveys conducted in Turkey and Colombia with older people corroborate the epidemiological data of this study, which pointed out that most self-inflicted, non-fatal violence occurred with people who were married or who lived in a stable relationship^{22,32}. Understanding the cultural aspect of the southern region of Brazil, it is necessary to point out that when older people got married they assumed an indissoluble commitment, a decision made for life³⁰.

Regarding the characteristics of violence, the state of Rio Grande de Sul was the one with the highest number of records of notifications for self-inflicted violence. A study carried out in that state showed an annual and gradual increase in cases of self-inflicted violence in the population studied, from 85/100,000 in 2005 to 149/100,000 in 2013³³. When self-inflicted violence results in death in older people, the South of Brazil is the region with the highest rates, especially Rio Grande do Sul^{14,34}.

Regarding the location, the highest incidence of occurrences occurred in the urban area, other researchers found equivalent findings²⁶. This data is understood when observing the Brazilian population concentration, since the largest number of people reside in urban areas²⁵. Added to this fact, it is known that in urban centers there is a concentration of health services³⁵. Another relevant information, regarding the location, is that self-inflicted violence occurred predominantly in the residence/collective housing, corroborating other studies^{18,22,27}.

As for the means of violence used for self-inflicted violence, hanging was chosen by the majority of the sample in question, there are also studies on suicide among older people reporting that this is

the most used method^{21,27}. From this perspective, it is observed that the most used means of violence produces different outcomes.-

It was possible to find important outcomes in this study through the notifications: the high percentage of repetition of cases of self-inflicted violence in older people and the 397 deaths. This last information was included in the notification form until 2015, if the field was kept, in the current form, the value could be higher.

A limitation found in this study stems from the probable underreporting of cases of self-inflicted violence, as many cases do not reach the health services for adequate care, as self-inflicted violence is a taboo for society, the victim's family and the victims themselves³⁴.

This is a descriptive work, which does not propose to demonstrate associations between the variables of older people who committed self-inflicted violence in southern Brazil. The ability to determine possible causal interferences and to extrapolate the results to other populations is limited.

CONCLUSION

The study presented data that, for the most part, corroborate international and national research on self-inflicted violence with older people, therefore, it is noted that there is similarity in the profile of victims, places and means of violence used. With a delineated epidemiological profile, it becomes possible to identify the risk factors at an early stage and, in this way, prevent attempts at self-inflicted violence from occurring.

The data presented here encourage public policies for the prevention and promotion of self-inflicted violence to be carried out within the Unified Health System and the network responsible for the care of older people. Further research on the subject is suggested so that further studies can occur on self-inflicted, non-fatal violence committed by older people, as this subject still lacks studies.

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