

# Profile of care for violence against the elderly in urgency and emergency services: VIVA analysis Survey 2017

*Perfil dos atendimentos por violência contra idosos em serviços de urgência e emergência: análise do VIVA Inquérito 2017*

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**ABSTRACT:** *Objectives:* To characterize the profile of violent events among the elderly and to investigate the association between demographic factors and characteristics of violence. *Methods:* Cross-sectional study using data from the Violence and Accidents Survey (VIVA Survey) conducted at the emergency services in 2017. Descriptive analyses of the characteristics of violence were performed, according to demographic factors, followed by the correspondence analysis, using the main characteristics listed in this group, and considering  $p < 0.05$ . *Results:* Among the studied victims, most were male; the most common type of violence was physical, the most frequently body part affected was the head, the main places of occurrence were home and the public area, and, most often, the perpetrator was unknown. The fact of the aggressor being the victim's partner was associated with violence among the female elderly, as well as the use of threats. At the same time, violence among the male elderly was associated to being assaulted in the street, by strangers, including thorax injuries and the use of sharp objects. Younger elders have suffered physical aggression mostly through strength/ beating, inflicted by friends and reaching the upper limbs. Among the older elders, the negligence was more related to the household as the location where the violence occurred, aggression perpetrated by relatives, and violence affecting the lower limbs and multiple organs were related to negligence. *Conclusion:* The study led to insights about the violence suffered by the elderly patients attending urgency and emergency services in Brazil. Knowing the victims' profile is important for directing policies and actions that aim at preventing and addressing the problem of violence against the elderly.

**Keywords:** Violence. Aged. Aging. Elder Abuse. Health Surveys. Epidemiology.

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**RESUMO:** *Objetivos:* Caracterizar o perfil das ocorrências de violência contra os idosos e investigar a associação entre fatores demográficos das vítimas e características da ocorrência. *Métodos:* Estudo transversal, utilizando dados do inquérito Vigilância de Violências e Acidentes (VIVA), realizado em serviços de emergência em 2017. Foi realizada análise descritiva das características de violência, segundo fatores demográficos, seguida da análise de correspondência, visando identificar as principais características associadas nesse grupo. *Resultados:* Entre as vítimas estudadas, a maioria eram homens, a violência mais comum foi a física, a parte do corpo mais atingida foi a cabeça, os principais locais de ocorrência foram residência e via pública, por agressor desconhecido. Foi associado à violência entre idosos, o agressor ser o companheiro e a ameaça. Já entre os idosos foi sofrer violências em via pública, agressor desconhecido, lesões no tórax e uso de objeto perfurocortante. Idosos mais jovens sofreram mais violências físicas por meio de força, provocadas por amigos e atingindo membros superiores. Entre os mais idosos, estiveram relacionados à negligência residência como local de ocorrência, familiar como agressores membros inferiores e múltiplos órgãos afetados. *Conclusão:* O estudo permitiu obter uma visão sobre a violência sofrida por idosos atendidos em serviços de emergência no Brasil. O conhecimento do perfil das vítimas é importante para o direcionamento das políticas e ações que visem prevenir e enfrentar o problema da violência contra idosos. *Palavras-chave:* Violência. Idoso. Envelhecimento. Maus-tratos ao idoso. Inquéritos Epidemiológicos. Epidemiologia.

## INTRODUCTION

The rapid aging of the Brazilian population has been defined as a complex and challenging phenomenon for families, society and the government<sup>1</sup>. Estimations show that 12.7% of the Brazilian population is aged 60 year or more, and that, in 2015, this percentage can be 29.6%<sup>2</sup>. The aging process generates several risks to the elderly population, such as dependence to perform instrumental activities of daily living, the need for periodical care, limitation of financial resources, as well as of social, psychological and legal support, which makes them more vulnerable to violence, especially perpetrated by relatives and formal caregiver<sup>3</sup>.

Violence against the elderly is defined by the International Network for the Prevention of Elder Abuse as: “an act (both single or repeated) or omission that causes damage or affliction and is produced in any relationship in which there is the expectation of trust”<sup>4</sup>. It reaches high proportions and is a major cause of injuries and death in this age group<sup>5</sup>. The most frequent types of violence registered among the elderly are physical, psychological, sexual, financial and negligence<sup>6</sup>. However, even though there are many studies pointing to the relevance of the problem, cases are still underreported<sup>5</sup>.

This problem has increased among the elderly in the past few years. A recent study analyzing data from several regions of the world, including low and medium-income countries, estimated that, in 2016, about 16.0% of the elderly people have suffered some type of violence<sup>7</sup>. A study conducted in Brazil, using the data from the Notifiable Diseases Information System (Sinan), showed the factors associated with physical violence among male elders, being aged between 60 and 69 years, occurrence in the household, aggressors who were not their

children and suspect of alcohol consumption. Regarding psychological violence, it was associated with the female gender, occurrence in the household, aggressor being their own children, and suspicion of alcohol consumption by the aggressor. Negligence was prevalent in the female gender after the age of 70 years, in the household, and practiced by the children. For sexual violence, the associated factors were female gender, unknown aggressors and suspect of alcohol consumption<sup>8</sup>.

The consequences of violence against the elderly can be particularly serious due to the fragility and vulnerability of this age group<sup>9</sup>. Depression, social isolation, suicide attempt, difficulties in communication and decision making, alcohol and drug dependence, physical conditions are some of the consequences<sup>10</sup>. Besides these damages, violence also has consequences for the health systems, social services and criminal justice, as well as the economic structure of society<sup>9</sup>.

Considering the relevance of violence and accidents for public health, the Ministry of Health (MS) in Brazil implemented the VIVA system in 2006. The system is composed of an epidemiological survey, carried out every three years in the sentinel emergency services, and the continuous notifications are made by Sinan. The main purpose of this system is to get to know the magnitude and severity of these issues, thus allowing effective actions against violence in the country, and the promotion of a culture of peace.

Therefore, this article aimed at characterizing the profile and investigate the association between the demographic variables and the characteristics of violence against the elderly assisted in urgency and emergency services in the Brazilian capitals.

## METHODS

This is an exploratory, cross-sectional study, conducted through the analysis of the VIVA Survey data, which composes the Violence and Accidents Survey, referring to the care addressed to elderly people due to violence. The survey was carried out in 90 urgency and emergency services, located in 23 Brazilian capitals and in the Federal District, and in 13 cities selected in 2017. The capitals of Porto Alegre (RS), Florianópolis (SC) and Macapá (AP) were not part of the study.

Data collection was performed during 30 consecutive days, between the months of September and December, in 12 hour shifts selected through probabilistic selection. The primary sampling units (PSU) were the emergency services related to the Unified Health System (SUS), used as strata of the sampling plan. The selected researchers in each city were professionals or students attending graduate courses in the health field. They were trained by the Technical department of the Violence and Accidents Prevention Surveillance / CGDANT, from the MS, for the correct approach of patients and data collection, which consisted of a standardized questionnaire, the Form VIVA Survey 2017. Data were collected through interviews and analysis of medical charts. The interviews were conducted with the patients, or, when their clinical condition did not allow it, with the companion. Cities received financial incentives to perform the survey.

The total number of interviewed participants was 48. 532 people, including victims of accidents and violence in all age groups. However, for this publication, we analyzed the care provided to people aged 60 years or older, who were victims of violence, accounting for 133 elders. At first, we performed the descriptive analysis of the cases, considering the characteristics of violence (type, form, place of occurrence, relationship between victim/aggressor and body part affected), according to demographic variables: sex (male and female) and age group (60 to 65 years of age and 66 years of age or more), using the Pearson  $\chi^2$  test for comparison between both groups. The categorization in these two age groups occurred because of the reduced number of care services addressed to older elders during the data collection from VIVA Survey 2017. To verify the association between the demographic variables and the characteristics of violence, we used the correspondence analysis simple (CAS). This technique is adequate for the analysis of categorical variables<sup>11,12</sup>, applied in contingency tables, in which it is possible to verify the dependence between the table rows and columns. Besides, this is an exploratory technique that synthesizes the structure of data variability in terms of dimensions, in which the number of dimensions is lower than the number of variables. The CAS is equivalent to the factor analysis however, the results are presented in a graphic manner, in which the lowest distances between the rows and columns represent the strongest associations between them, whereas the longest distances represent the dissociations<sup>13</sup>.

The algorithm of the CAS technique available in statistical software assumes that data come from the simple random sampling plan. However researchers<sup>14</sup> discuss the use of this technique for data coming from complex sampling plans (CSP), as is the case of the VIVA Survey, and warn the researchers that, when disregarding the sampling plan, the quality of the results can be questionable. Therefore, in this study we considered the sampling weights in the calculation of the proportions of each cell in the table, due to the expansion of the sample, so that the resulting graphic would maintain the same proportion of the population. Besides, previous studies indicated that in the correspondence graphic, the best estimation of the points is obtained when the table is expanded<sup>14</sup>.

The variables selected for this analysis were the same as the ones in the descriptive analysis, considering as column variables the demographic aspects: sex and age group; and as row variables, the characteristics of violence. Data analysis was carried out using the Stata, version 14, and SPSS, version 25 software.

The VIVA Survey project was submitted to and approved by the National Research Ethics Committee (CONEP) from the MS opinion N° 2.234.509.23 - CAAE: 67709417.0.0000.0008. Because this is a national epidemiological surveillance initiative, the informed consent form was replaced by the verbal agreement of the victims or their tutors, which was registered in a specific field of the form.

## RESULTS

The results showed that the most common type of violence practiced against the elderly was physical (85.0%), followed by negligence (9.1%) and others (5.6%). The most frequent

place of occurrence was the household (48.0%), followed by the public area (36.3%). The most frequent aggressors were unknown and male, the most body part affected was the head, followed by the upper limbs. There were differences between sexes, female elders suffered more physical violence, with the use of physical force, in their residence, and perpetrated by relatives, followed by friends. Among male elders, there was a higher frequency of physical violence, with use of physical force, but also with expressive percentage of sharp objects, especially in the public area, perpetrated by unknown people. The differences found between sexes were statistically significant for the variables: form of violence, relationship between victim/aggressor and nature of injury, considering  $p < 0.05$  in the Pearson  $\chi^2$  test (Table 1).

The analysis according to age group shows that physical violence, through beating, was the most frequent type of violence in both groups. Among the youngest (60 to 65 years of age), the public area was the main location where the violences occurred, perpetrated by unknown male people, whereas among the oldest (66 years of age or more), the household was the location for most of the violences, and relatives were the main perpetrators. The difference between age groups was significant only regarding the place of occurrence (Table 1).

The results of the CAS showed that two dimensions were necessary to explain the total-ity of the conjunct variance of columns (demographic) and rows (characteristics of the violence, the aggressor and the injury). The first dimension contributed with 85.3%, and the second, 14.7% (Table 2). The independence test of the table showed that the hypothesis of independence between the rows and columns was rejected, and that in this sample there was an association between the analyzed variables.

Table 3, shows the contributions of each variable for both dimensions. Dimension 1 can be explained by the variables of the relationship between victim/aggressor (family and stranger), who contributed 29.4% of the explanation, followed by the form of violence (sharps and threats) with 25.5% and place of occurrence (Household and street) with 23.2%. Among demographic variables, the sex of the victim contributed with dimension 1 with 70.6%. Dimension 2 shows the relationship between victim/aggressor (family and friend) as the variables that contributed most to the explanation (45.5%), followed by the type of violence (negligence) with 16.0%, and the body part affected (multiple organs) with 9.2%. The demographic variable age of the victim contributed in dimension 2, with 70.6%.

The association between the variables, shown in Graphic 1, can be observed by the proximity of the points that represent the categories of each variable. The characteristics that have been associated with female elders were the aggressor being the partner, and the threat being the main form used for violence. Regarding male elders, the related factors were being assaulted in the public area, the use of sharp or blunt objects, probable aggressor being an unknown person, and injuries in the thorax/back. In the group of younger elders (60 to 65 years of age), the factors associated with physical violence were use of physical force or beating, action provoked by friends, impact on the upper limbs (hip/back and other region of the head). Among the group of older elders (66 years of age or more), the factors associated with negligence were the household being the place

Table 1. Proportion of the characteristics of violence against the elderly attended in sentinel services, according to sex and age group. VIVA Survey, 2017.

Variable	Category	Sex		p-value*	Age group		p-value*
		Male	Female		60 to 65	66 and older	
Type of violence	Physical	88.3%	79.3%	0.11	92.0%	78.3%	0.19
	Negligence	9.1%	9.0%		4.5%	13.8%	
Form of violence	Physical force	45.4%	71.8%	0.00	54.0%	54.0%	0.35
	Sharp object	35.3%	0.0%		29.8%	17.6%	
	Threat	2.6%	10.4%		3.4%	6.9%	
Place of occurrence	Household	37.2%	70.2%	0.08	33.1%	63.5%	0.01
	Street	44.2%	20.0%		43.0%	29.2%	
Relationship between victim/aggressor	Partner	5.6%	20.6%	0.00	11.7%	9.3%	0.06
	Another relative	13.2%	30.2%		6.9%	31.1%	
	Friend	13.8%	23.5%		18.1%	15.7%	
	Stranger	53.0%	17.0%		49.6%	32.5%	
Body part affected	Head	27.3%	36.4%	0.08	28.0%	32.6%	0.69
	Thorax	11.2%	0.0%		11.5%	3.5%	
	Hip	3.4%	4.5%		4.2%	3.3%	
	Upper Limb	24.2%	22.4%		27.5%	19.6%	
	Lower Limb	10.2%	8.2%		7.9%	11.4%	
	Multiple organs	12.3%	10.9%		8.2%	15.6%	

\*Pearson  $\chi^2$  Test.

Table 2. Dimensions and proportion of variance explained in the correspondence analysis. VIVA Survey, 2017.

Dimension	Singular Amount	Inertia	$\chi^2$	Sig.	Explained Variance	
					% abs.	% accum.
1	0.266	0.071			85.3	85.3
2	0.110	0.012			14.7	100
Total		0.083	295.885	.000	100	100

\*48 degrees of freedom; Sig: significance; abs: absolute; accum.: accumulated.

Table 3. Coordinates and contributions of the characteristics of violence among the elderly. VIVA Survey, 2017.

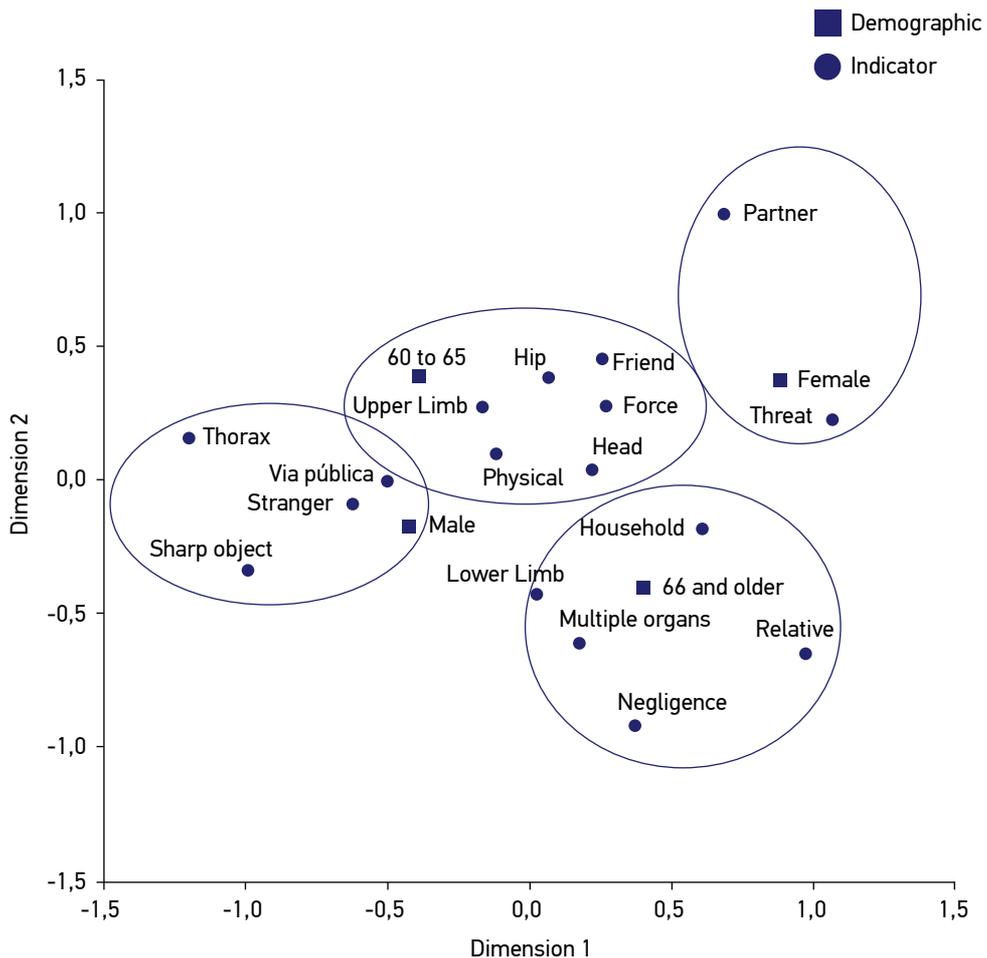
Variables	Mass	Score in Dimension		Inertia	Absolute Contribution		Relative Contribution		Total	
		Dim. 1	Dim. 2		Dim. 1	Dim. 2	Dim. 1	Dim. 2		
Demographic variables										
Sex	Male	0.337	-0.425	-0.177	0.017	<b>0.230</b>	0.096	0.933	0.067	1,000
	Female	0.163	0.882	0.366	0.036	<b>0.476</b>	0.198	0.933	0.067	1,000
Age group	60 to 65	0.254	-0.389	0.388	0.014	0.145	<b>0.347</b>	0.708	0.292	1,000
	66 or more	0.246	0.402	-0.401	0.015	0.150	<b>0.359</b>	0.708	0.292	1,000
Characteristics of violence										
Body part Affected	Thorax	0.017	-1.199	0.155	0.007	<b>0.094</b>	0.004	0.993	0.007	1,000
	Hip	0.009	0.065	0.381	0.000	0.000	0.011	0.066	0.934	1,000
	Upper Limb	0.054	-0.168	0.270	0.001	0.006	0.036	0.484	0.516	1,000
	Multiple organs	0.027	0.171	-0.611	0.001	0.003	<b>0.092</b>	0.159	0.841	1,000
	Lower Limb	0.022	0.022	-0.428	0.000	0.000	0.037	0.006	0.994	1,000
	Head	0.069	0.219	0.039	0.001	0.012	0.001	0.987	0.013	1,000
Aggressor	Relative	0.043	0.972	-0.653	0.013	<b>0.153</b>	<b>0.166</b>	0.842	0.158	1,000
	Stranger	0.095	-0.628	-0.091	0.010	<b>0.141</b>	0.007	0.991	0.009	1,000
	Partner	0.024	0.681	0.995	0.006	0.042	<b>0.217</b>	0.531	0.469	1,000
	Friend	0.039	0.254	0.450	0.002	0.009	<b>0.072</b>	0.434	0.566	1,000
Form of violence	Sharp object	0.055	-0.995	-0.335	0.015	<b>0.204</b>	<b>0.056</b>	0.955	0.045	1,000
	Force	0.124	0.264	0.276	0.003	0.033	<b>0.086</b>	0.688	0.312	1,000
	Threat	0.012	1.066	0.224	0.004	<b>0.051</b>	0.005	0.982	0.018	1,000
Type of violence	Negligence	0.021	0.370	-0.919	0.003	0.011	<b>0.160</b>	0.281	0.719	1,000
	Physical	0.196	-0.118	0.098	0.001	0.010	0.017	0.777	0.223	1,000
Place of occurrence	Public area	0.083	-0.503	-0.010	0.006	<b>0.079</b>	0.000	1.000	0.000	1,000
	Household	0.110	0.606	-0.182	0.011	<b>0.152</b>	0.033	0.964	0.036	1,000
Total - active		1.000			0.083	1.000	1.000			

Dim.: dimension.

of occurrence, having injuries, especially in the lower limbs and multiple organs, and relatives being the probable aggressors.

## DISCUSSION

The analyses of the care services provided to elders who were victims of violence, registered in the VIVA Survey 2017, indicated that physical violence was prevalent, through the use of physical force of beating, mostly affecting the head. In the CAS, there was association between being female and suffering threats from the partners. Among males, the



Graphic 1. Bi-plot graphic presentation of the associations between demographic variables and characteristics of violence among the elderly. VIVA Survey, 2017.

association between physical violence in the public area, perpetrated by an unknown person, and injuries caused by sharp objects stands out. Among the people aged between 60 and 65 years, it was associated with physical violence, and among the elderly aged 60 year or more, it has been related to negligence as the main type of suffered violence, experienced in the household and perpetrated by a relative.

These characteristics demonstrate that the severity of the experiences of violence among the elderly, especially involving the participation of relatives in the occurrences in the household, and the violence perpetrated in the public area, by strangers, especially against male elders, is different from the data shown in the survey conducted in 2014, which showed prevalence of notifications in the household<sup>15</sup>. The type of violence also ranged in the two surveys in 2014, between female elders, negligence stood out (54.1%), in the household (92.1%), with trauma (51.6%), which reached the upper limbs (47.7%); for male elders, there was higher frequency of physical violence (60.9%), which almost completely took place in the victim's household (97.7%), causing cuts and lacerations (41.9%) in multiple organs (42.6%)<sup>15</sup>.

Being a victim of violence in the public area is unusual for elderly men in many published studies. Among the cases notified in Brazilian health services, in 2010, the percentage of elders who were assaulted in the household reached 69.0%<sup>8</sup>; in the period of 2011 to 2016, the percentage reached 88.5% of the notifications<sup>16</sup>. In Minas Gerais, the notifications between 2011 and 2012 also show that elderly men mainly suffered physical violence (87.9%) in the household (70.5%)<sup>17</sup>.

Some hypotheses can be considered based on the identified changes. Among them, that the Brazilian elderly population is living longer, preserving their functionality and autonomy, which enables more insertion in activities that are external to the household, therefore being exposed to interpersonal conflict in public areas. This is particularly true regarding people aged between 60 and 65 years old, as observed in the data analyzed here. Another hypothesis can be related to the difference in traditional gender roles that are expected for men and women, therefore being more remarkable among the elderly. For men, the public and social area is reserved, whereas women should address to caring for the house and the family<sup>18</sup>.

The analyses of cases of elderly who are victims of violence attended in urgency and emergency Brazilian services show that, for being more present in private environments, in the household, women have been more victimized by close people, such as partners, other relatives and friends, with little involvement of alcohol consumption, both for the victim and the alleged aggressor. Instead, for elderly men, the authors of the violence are unknown and alcohol consumption is usually involved. This observation was confirmed in the correspondence analysis that showed an association between being in the female gender and suffering threats from the partner, and being in the male gender and suffering physical violence perpetrated by a stranger in the public area.

Violence against the elderly women that occurs in the household is different from that observed against men, because<sup>19</sup>, it involves intergenerational conflict, which seems to be visible due to gender relationships. The latter, for the author, are indissociable matters that seem to affect mostly the most fragile individuals.

Fragility among the elderly is considered as a clinical state in which they present with decline in strength, resistance and physiological function, becoming more vulnerable and at risk of a unfavorable evolution due to stressor agents, such as aggressions and acute diseases<sup>20</sup>. The prevalence of fragility increases with age, and may reach 59.0% among the elderly who live in the community<sup>21</sup>.

In this sense, by analyzing the care provided to the elderly who are victims of violence, according to age group, the percentage levels were higher among the elderly aged 66 years or more in comparison to those aged from 60 to 65 years, suffering violations such as negligence in the household, perpetrated by relatives, hitting the head and multiple organs. All of these indications lead to the possibility of higher severity in the presented injuries, which was observed by the need of hospitalizations since the first attended in the urgency and emergency service.

Among the study limitations, there is the selection bias, once the audience is only composed of the elderly attended in urgency and emergency services from SUS located in the country's capitals, especially the more severe cases. Besides, it does not allow estimating risks for the events of interest, since this is not a population-based sample, but a convenience sample<sup>22</sup>. Another important matter is related to collection, in which the information is reported by the participants or their companions, or taken from medical charts, being subjected to errors of measurement, which can result in underreporting.

## CONCLUSION

The factors associated with violence against the elderly women were the aggressor being the partner, and the threat being the form of violence. The elderly men were assaulted in the public areas, by strangers, and the injuries in the thorax/back were caused by a sharp or blunt object. Regarding age, among the younger elders, physical violence using force/ beating, provoked by friends and mainly hitting the upper limbs, hip/back and the head was prevalent. Among the older individuals, violence was associated with negligence in the household, mainly affecting the lower limbs and multiple organs, and relatives being the probable aggressors.

The study points to the importance of monitoring the profile of the elderly who are victims of violence due to the significant changes presented, as well as the need for studies that show the violence perpetrated against the elderly because of their vulnerability, often unable to externalize their pain. The records in the VIVA Survey complement the notifications that are continuous in Sinan, especially for presenting the most severe aggressions, besides promoting the articulation between the health sector and the entire protection network addressed to the victims of violence, thus integrating actions of health promotion, prevention and control of violence and injuries due to external causes. This mobilization aims at ensuring the principles that are legally established in the National Policy for Older Persons, guaranteeing the social rights of protection and care. It is necessary to make progress in this understanding and in the realization of these rights.

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## REFERENCES

1. Brasil. Brasil: manual de enfrentamento à violência contra a pessoa idosa. É possível prevenir. É necessário superar. Secretaria de Direitos Humanos da Presidência da República. Brasília: Secretaria de Direitos Humanos da Presidência da República; 2014.
2. United Nations. World Population Ageing 2017. Department of Economic and Social Affairs, Population Division; 2017.
3. Inelmen EM, Sergi G, Manzato E. Intern Emerg Med 2019; 14: 503-5. <https://doi.org/10.1007/s11739-019-02063-x>
4. World Health Organization. World report on violence and health. Geneva: World Health Organization; 2002.
5. Bolsoni CC, Coelho EBS, Giehl MWC, D'Orsi E. Prevalência de violência contra idosos e fatores associados, estudo de base populacional em Florianópolis, SC. Rev Bras Geriatr Gerontol 2016; 19(4): 671-82. <http://dx.doi.org/10.1590/1809-98232016019.150184>
6. Bond MC, Butler KH. Elder abuse and neglect: definitions, epidemiology, and approaches to emergency department screening. Clin Geriatr Med 2013; 29(1): 257-73. <http://dx.doi.org/10.1016/j.cger.2012.09.004>
7. Paiva MM, Tavares DM. Physical and psychological violence against the elderly: prevalence and associated factors. Rev Bras Enferm 2015; 68(6): 1035-41. <http://dx.doi.org/10.1590/0034-7167.2015680606i>
8. Mascarenhas MDM, Andrade SSSCA, Neves ACM, Pedrosa AAG, Silva MMA, Malta DC. Violência contra a pessoa idosa: análise das notificações realizadas no setor saúde - Brasil, 2010. Ciênc Saúde Coletiva 2012; 17(9): 2331-41. <http://dx.doi.org/10.1590/S1413-81232012000900014>
9. World Health Organization. Global status report on violence prevention 2014. Geneva: WHO Press; 2014.
10. Barcelos EM, Madureira MDS. Violência contra o idoso. In: Chaimowicz F, editor. Saúde do idoso. 2ª ed. Belo Horizonte: UFMG; 2013. p. 138-49.
11. Souza AMR. Análise de Correspondência [dissertação]. São Paulo: Instituto de Matemática e Estatística da Universidade de São Paulo; 1982.
12. Mingoti SA. Análise de Dados Através de Métodos Estatísticos Multivariados. Uma Abordagem Aplicada. Belo Horizonte: UFMG, 2005.
13. Ramos EMLS, Almeida SS, Araújo AR. Segurança pública: uma abordagem estatística e computacional. Belém: EDUFPA; 2008.
14. Souza AC, Bastos RR, Vieira MT. Análise de Correspondência Simples e Múltipla para Dados Amostrais Complexos [Internet]. São Paulo; 2010 [acessado em 14 set. 2019]. Disponível em: <http://www.ime.unicamp.br/sinape/19sinape/node/819>
15. Avanci JQ, Pinto LW, Assis SG. Atendimento dos casos de violência em serviços de urgência e emergência brasileiros com foco nas relações intrafamiliares e nos ciclos de vida. Ciênc Saúde Coletiva 2017; 22(9): 2825-40. <http://dx.doi.org/10.1590/1413-81232017229.13352017>
16. Brasil. Saúde Brasil 2017: uma análise da situação de saúde e os desafios para o alcance dos objetivos de desenvolvimento sustentável. Brasília: Ministério da Saúde; 2018. 426 p.
17. Rocha RC, Côrtes MCJW, Dias EC, Gontijo ED. Violência velada e revelada contra idosos em Minas Gerais-Brasil: análise de denúncias e notificações. Saúde Debate 2018; 42(Esp. 4): 81-94. <http://dx.doi.org/10.1590/0103-11042018s406>
18. Fernandes MGM. Papéis sociais de gênero na velhice: o olhar de si e do outro. Rev Bras Enferm [Internet] 2009 [acessado em 17 out. 2019]; 62(5): 705-10. Disponível em: <https://doi.org/10.1590/S0034-71672009000500009>
19. Motta AB. Violência contra as mulheres idosas: questão de gênero ou de gerações? In: XI Encontro de Ciências Sociais Norte e Nordeste [anais]. Sergipe: Universidade Federal de Sergipe; 2003.

20. Lana LD, Schneider RH. The frailty syndrome in elderly: a narrative review. *Rev Bras Geriatr Gerontol* 2014; 17(3): 673-80. <http://dx.doi.org/10.1590/1809-9823.2014.12162>
21. Collard RM, Boter H, Schoevers RA, Oude Voshaar RC. Prevalence of frailty in community-dwelling older persons: a systematic review. *J Am Geriatr Soc* 2012; 60(8): 1487-92. <http://dx.doi.org/10.1111/j.1532-5415.2012.04054.x>
22. Luz TCB, Malta DC, Sá NNB, Silva MMA, Lima-Costa MF. Violências e acidentes entre adultos mais velhos em comparação aos mais jovens: evidências do Sistema de Vigilância de Violências e Acidentes (VIVA), Brasil. *Cad Saúde Pública* 2011; 27(11): 2135-42. <https://doi.org/10.1590/S0102-311X2011001100007>

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