Original article

Prevalence and factors associated with violence against elderly committed by strangers, Brazil, 2013*

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Abstract

Objective: to analyze the association between sociodemographic, behavioral and health characteristics and the prevalence of violence against the elderly committed by strangers. **Methods**: cross-sectional study with data from the 2013 National Health Survey on individuals aged 60 years and over; a log-linear Poisson model was used. **Results**: 11,143 elderly individuals were included in the study; the prevalence of violence committed by strangers in the 12 months prior to the interview was 1.61 (95%CI 1.28;1.94); in the multivariate analysis, a higher prevalence of violence committed by strangers was observed among elderly individuals aged 60-69 years (PR=2.03; 95%CI 1.02;4.06), those who had university education compared to those with no schooling (RP=4.00; 95%CI 1.89;8.33), those residing in Midwest versus Southeast Brazil (PR=2.00; 95%CI 1.16;3.45), and those living in households not registered with the Family Health Strategy (FHS) (PR=1.57; 95%CI 1.00;2.48). **Conclusion**: sociodemographic characteristics and region of residence were associated with violence against the elderly committed by strangers.

Keywords: Elder Abuse; Aging; Cross-Sectional Studies; Linear Models.

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Introduction

Community violence committed by strangers is one of many different types of violence and has different characteristics to family violence.[1] The occurrence of violent crimes within a community and the perception of the insecurity of the place by the person living there generate negative impacts especially for the health of the elderly population, such as the appearance of depressive symptoms[2] and the reduction of activity levels.[3] The main forms of violence against the elderly are physical, psychological and sexual, financial abuse, abandonment, neglect and self-neglect.

In Brazil, the proportion of elderly individuals (60 years or older) corresponded to 7.3% in 1991, 8.6% in 2000 and 14.3% of the total population in 2015.[4,5] It is estimated that the elderly will correspond to approximately 30% of the Brazilian population in 2050.[6] When the elderly are taken into account, it is especially the poorest who tend to present more health problems, greater economic dependence and greater susceptibility to situations of suffering due to abandonment, neglect, treatment and hospitalization in long-term institutions.[7]

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With regard to violence committed by strangers, there was a prevalence of 1.6% in the period from 2008 to 2012, in Araçatuba, a municipality of São Paulo State.[8] In Recife, Pernambuco, Brazil, this prevalence was 8.9% in the period from 2009 to 2012.[9] In another study carried out in 2010 at national level, it was found that 15.6% of the cases of violence against the elderly were committed by unknown attackers.[10]

The rapid aging of the Brazilian population may be a serious problem if longevity is not accompanied by adequate public policies. It is necessary to guarantee preventive policies and actions directed at the elderly, in order to promote improvements in the quality of life, ensuring them health, social participation and safety.[7]

Given the scarcity of studies in Brazil on violence against the elderly committed by strangers, while greater focus is given to the family context,[11-13] the present article aimed to analyze the association between sociodemographic, behavioral and health characteristics and prevalence of violence against the elderly committed by strangers.

Methods

A cross-sectional study was conducted with data collected from the 2013 National Health Survey (NHS). This is a national survey, based on household sampling, conducted by the Brazilian Institute of Geography and Statistics (IBGE) together with the Ministry of Health.[14]

The sample of households was selected using a complex sampling plan, considering stratification and conglomeration in three stages of selection: (i) census tracts – or set of tracts – represented the primary sampling units, (ii) households were the secondary units (iii) residents aged 18 or over were the tertiary units.[14]

All the elderly (60 years of age or older) living in permanent private households (PPH) in Brazil, who participated in the NHS 2013, were included. Therefore, non-elderly individuals (aged less than 60) and elderly who did not provide information on the outcome or any of the variables used in the study were excluded.

The outcome 'violence committed by a stranger' is a binary variable, obtained from the following question contained in the NHS 2013 questionnaire:

In the last 12 months, have you suffered any violence or aggression from a stranger (such as a thug, a police officer, a mugger, etc.)?

This question provides two possible answers: 'yes' and 'no'.

The variables considered in the statistical modeling refer to the sociodemographic, behavioral and health characteristics of the elderly:

- sex (male, female);
- age group (in years: 60 to 69, 70 to 79, 80 or more);
- skin color/ethnicity (white, not white [black/brown/Asian/indigenous]);
- macroregion of residence (North, Northeast, Southeast, South, Midwest);
- household location (urban, rural);
- education level (no schooling, no higher education, higher education);
- marital status (married, separated/legally separated/divorced, widowed, single);

- quality of housing construction (adequate, inadequate);
- alcohol consumption (no [never drinks], yes [less than once a month/once or more times a month]);
- practice of physical activity in the previous three months (yes, no);
- general health self-assessment (good, regular, poor);
- Family Health Strategy (FHS) visit frequency in the previous 12 months (not registered, does not know, registered but never visited, registered with at least one visit); and
- has any physical, intellectual, hearing or visual disability (none, one, two, three or more).
- In the National Health Survey (NHS), the indicator 'health self-assessment' was obtained by proposing a single question, in which the resident him or herself rated their health according to a five-point scale, condensed into just three points: good (very good or good), regular or bad (bad or very bad). Concerning the quality of the construction, the household was considered adequate when it presented adequate materials in the constitution of its walls and roof (ceiling), and considered inadequate if it had materials that were inadequate in terms of wall or roof (ceiling), or both (wall and ceiling).[15]

Poisson's log-linear regression model with robust variance,[16-18] was used by means of the maximum pseudo-likelihood method. In the adjustment, the strata (V0024), the primary sampling units (UPA_NHS) and the sample weights (V00291) were incorporated, with the Stata software survey module, recommended for the analysis of data from complex sampling plans. As for the modeling strategy, bivariate models were first adjusted; from these models, crude prevalence ratios (PR) and their respective 95% confidence intervals (95%CI) were estimated. Variables having association with the outcome in the crude analysis with a p-value of ≤0.20 were considered in the multivariate model. Only the variables that presented statistical association at a significance level of 5% were maintained in the selected model. To evaluate the adequacy of the model and its predictive capacity, Pearson residue analysis was performed and sensitivity and specificity measurements were calculated. Statistical analyses were performed using Stata version 11.0.

The study used only secondary data, without identification of the subjects, in accordance with the ethical principles of National Health Council (CNS) Resolution No. 510, dated April 7th, 2016.

Results

This study's sample was composed of 11,143 elderly people, of whom 1.61% (95%CI 1.28; 1.94) reported having suffered violence committed by a stranger in the previous 12 months, corresponding to more than 423,000 elderly people.

Of the total of elderly individuals, 56.3% were women, 56.3% were aged 60 to 69 years old, 53.6% self-declared white-skinned and more than half of them (53.3%) were married. It was also found that 85.2% of the elderly lived in urban areas. Only 9.6% of the elderly had higher education qualifications, while 18.4% had no schooling. Most of them (97.7%) lived in homes considered adequate regarding the quality of the construction, in terms of walls and ceiling (Table 1).

Regarding behavioral and health characteristics, it was found that 24.0% of the surveyed elderly people drank alcohol and 78.2% had not practiced physical exercise in the previous three months; 45.0% reported good health status, while 43.1% had regular health and 11.9%, poor health (Table 1).

Regarding the frequency of visits by FHS team received in the previous 12 months and the registration of the household with this Strategy, 46.2% of the elderly were registered and had received at least one visit from the team, and 9.9%, despite living in registered household, reported never having received a visit from the team. 34.8% of the remaining elderly reported not being registered with FHS and 9.1% did not know if their house was registered (Table 1).

Regarding the presence of physical, intellectual, hearing or visual impairment, 78.6% of the elderly reported having no disability, while 21.4% reported having at least one of these disabilities (Table 1).

In the crude analysis, it was found that violence committed by strangers against the elderly was more prevalent in the 60 to 69 years age group (PR = 2.54 - 95%CI 1.29; 5.00), among elderly individuals with white skin color (PR = 1.52 - 95%CI 1.01; 2.30), with higher education, who practiced physical activity and who reported better health levels. It was also observed that violence committed by strangers was more prevalent among elderly people living in urban areas (PR = 1.77 - 95%CI 0.79, 3.99), and among residents of the Midwest region in comparison with residents of the Southeast region (Table 1).

Table 1 – Distribution of the elderly by variables of interest and occurrence (or not) of violence committed by strangers (n = 11,143), according to sociodemographic, behavioral and health characteristics of the victim, Brazil, 2013

Characteristics	Percentage of elderly people (%) n=11.143	Violence committed by stranger (%)		Crude analysis			Adjusted analysis		
		Yes	No	PR[a]	95%CI[b]	p-value	PR[a]	95%CI[b]	p-value
Sex									
Male (n=4,546)	43.7	1.5	98.5	0.85	0.58;1.26	0.423			
Female (n=6,597)	56.3	1.7	98.3	1.00	–				
Age group (years)									
60-69 (n=6,213)	56.3	1.9	98.1	2.54	1.29;5.00		2.03	1.02;4.06	0.044
70-79 (n=3,435)	30.0	1.4	98.6	1.80	0.87;3.70	0.017	1.62	0.79;3.34	0.188
≥80 (n=1,495)	13.7	0.8	99.2	1.00	–		1.00	–	–
Ethnicity/skin color									
White (n=5,294)	53.6	1.9	98.1	1.52	1.01;2.30	0.046			
Non-white (n=5,849)	46.4	1.3	98.7	1.00	–				
Marital Status									
Separated (n=1,126)	7.8	1.8	98.2	1.06	0.62;1.81				
Widowed (n=3,417)	26.6	1.3	98.7	0.75	0.44;1.26	0.684			
Single (n=1,802)	12.3	1.5	98.5	0.88	0.46;1.69				
Married (n=4,798)	53.3	1.7	98.3	1.00	–				
Macroregion of residence									
North (n=1,678)	5.4	1.9	98.1	0.76	0.41;1.42		0.80	0.42;1.49	0.479
Northeast (n=3,387)	25.2	1.4	98.6	0.58	0.33;1.02		0.67	0.38;1.19	0.169
Southeast (n=3,197)	47.9	1.4	98.6	0.56	0.32;0.98	0.205	0.50	0.29;0.86	0.013
South (n=1,620)	15.1	2.1	97.9	0.87	0.46;1.62		0.82	0.44;1.52	0.537
Midwest (n=1,261)	6.4	2.5	97.5	1.00	–		1.00	–	–
Household location									
Urban (n=8,966)	85.2	1.7	98.3	1.77	0.79;3.99	0.166			
Rural (n=2,177)	14.8	1.0	99.0	1.00	–				
Education level									
No schooling (n=2,329)	18.4	0.6	99.4	0.20	0.10;0.43		0.25	0.12;0.53	<0.001
No higher education (n=7,731)	72.0	1.7	98.3	0.58	0.31;1.09	<0.001	0.65	0.35;1.20	0.168
Higher education (n=1,083)	9.6	2.9	97.1	1.00	–		1.00	–	–
Quality of housing construction									
Inadequate (n=366)	2.3	2.1	97.9	1.29	0.46;3.59	0.627			
Adequate (n=10,777)	97.7	1.6	98.4	1.00	–				
Alcohol consumption									
No (n=8,723)	76.0	1.6	98.4	0.93	0.60;1.45	0.746			
Yes (n=2,420)	24.0	1.7	98.3	1.00	–				
Exercise in the previous three months									
No (n=8,798)	78.2	1.4	98.6	0.65	0.43;0.98	0.039			
Yes (n=2,345)	21.8	2.2	97.8	1.00	–				

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Table 1 – Conclusion

Characteristics	Percentage of elderly people (%) n=11.143	Violence committed by stranger (%)		Crude analysis			Adjusted analysis		
		Yes	No	PR[a]	95%CI[b]	p-value	PR[a]	95%CI[b]	p-value
General health self-assessment									
Good (n=4,913)	45.0	1.6	98.4	1.56	0.80;3.04				
Regular (n=4,769)	43.1	1.7	98.3	1.64	0.85;3.19	0.330			
Poor (n=1,461)	11.9	1.1	98.9	1.00	–				
Frequency of the Family Health Strategy visits									
Not registered (n=3,754)	34.8	2.0	98.0	1.73	1.08;2.76		1.57	1.00;2.48	0.050
Does not know (n=1,200)	9.1	1.6	98.4	1.32	0.67;2.63		1.29	0.66;2.54	0.450
Registered but never visited (n=1,082)	9.9	2.1	97.9	1.82	0.96;3.44	0.095	1.73	0.92;3.29	0.090
Registered, with at least one visit (n=5,107)	46.2	1.2	98.8	1.00	–		1.00	–	–
Disabilities									
None (n=8,822)	78.6	1.4	98.6	0.39	0.05;2.79				
One (n=1,921)	17.9	2.4	97.6	0.68	0.09;5.07	0.206			
Two (n=362)	3.2	1.7	98.3	0.47	0.06;3.75				
Three or more (n=38)	0.3	3.6	96.4	1.00	–				

a) PR: prevalence ratio.
b) 95%CI: 95% confidence interval.
Note: Expanded sample: 26,326,806.

The elderly who lived in FHS registered households the FHS and who had received at least one visit from the team (PR = 0.58 - 95%CI 0.36; 0.92) had a lower prevalence of violence committed by strangers than those living in unregistered households (Table 1).

In the adjusted analysis, prevalence of violence committed by strangers against elderly people aged 60 to 69 years was approximately twice as high as the same prevalence presented by elderly people aged 80 or over (PR = 2.03 - 95%CI 1.02; 4, 06). Violence prevalence among the elderly living in Southeast Brazil was 50.0% lower compared to the elderly in the Midwest (PR = 0.50 - 95%CI 0.29, 0.86). This prevalence was four times greater among the elderly with Higher Education qualifications in comparison with those who did not have any formal schooling (PR = 4.00 - 95%CI 1.89; 8.33) (Table 1).

Prevalence of violence committed by strangers against elderly people living in households not registered with FHS was 57% higher than among those who lived in FHS registered households and who had received at least one visit from the FHS team (PR = 1.57 - 95%CI 1, 00; 2.48) (Table 1).

Based on the analysis of the Pearson residuals for the adjusted model, the presence of outliers (small residues and between -2 and 2), or systematic patterns of variation were not observed, indicating the adequacy of the model. Measures of sensitivity (S = 56.0%) and specificity (E = 64.1%) greater than 50% indicated that the model has a reasonable predictive capacity.

Discussion

The socio-demographic and health characteristics of the elderly people surveyed were associated with the prevalence of violence against the elderly committed by strangers and without any affective or kinship ties. Younger and more educated elderly people were the most victimized, contrasting with the profile of the victims of intrafamily violence. We highlight the association between the household being registered with FHS (with at least one team visit) and the lower prevalence of violence against the elderly perpetrated by strangers.

Prevalence of violence committed by strangers against the elderly in the 60-69 age group was higher,

when compared to those aged 80 or over. According to Minayo[19] and Paz et al., [20] it is in the 60 to 69 year-old range that victimization due to violence occurs more frequently. One possible explanation for this finding is that individuals aged 80 or over are the ones with the highest degree of dependence (psychological, physical and economic) on their family or shelter institution, not leaving their homes very often; and when they do leave them, they are usually accompanied by a person or caregiver, this being a possible factor of protection against violence.[21]

The higher prevalence of violence against the elderly by strangers in the Midwest can be explained by the greater economic and social inequalities and the accelerated population growth in that region. Among the six Brazilian states with the highest rates of violence against the elderly from 1980 to 1998, three are from the Midwest region: Goiás, Mato Grosso and Mato Grosso do Sul, which, together with two states in the North – Rondônia and Roraima – and one from the Southeast – Rio de Janeiro – had general mortality rates varying from 133.7 to 249.5 deaths per 100,000 inhabitants.[19]

In the present study, there was no association between the household location (urban versus rural) and the outcome of violence against the elderly committed by strangers. There are still some divergences between studies regarding the multiple outcomes of urbanization. Although urbanization can have negative effects on the population, related to poverty, environmental degradation and violence, entailing great costs for the general population, the urban environment can also bring positive opportunities such as better employment conditions, education, health care and culture, among others.[22]

There is no consensus in the scientific literature about the relationship between education level and the occurrence of violence. Most studies on the elderly in the family environment conclude that lower levels of education among the elderly is associated with higher incidence of violence against them, and this association is justified by a series of factors related to the elderly, such as higher financial dependence, lack of social support, less access to information, and fear of breaking family ties, among others.[23,24] However, in the context where the perpetrator is a stranger, more educated elderly people (with higher education qualifications) showed a higher prevalence of violence than the uneducated elderly. One possible explanation for this association is that older people with higher education levels tend to have higher income and greater financial and/or material assets, and are, therefore, more susceptible to robbery and the more aggressive action of aggressors.[25]

In this study, it was found that the elderly registered with the FHS and who had received at least one FHS team visit least reported having suffered violence by a stranger, compared to the elderly living in non-registered households. The mission of the FHS is to provide comprehensive health care, incorporating the person, the environment and interpersonal behaviors as the object of its actions, as well as seeking to reduce violence.[26] With regard to coping with community (or extrafamilial) violence, FHS has a multi-professional team that can contribute to the identification and notification of the cases to the competent authorities, based on recent and past reports of violence suffered by elderly people in the community, resulting from the actions of strangers, including the sensation of fear and perception of insecurity by the elderly. We can highlight the importance of FHS, particularly of its community health agents (CHA), whose continuous contact with the individuals covered by the strategy can help to prevent the causes of elderly abuse, to better understand the problem, as well as to serve as a guide to the implementation of effective public policies in the promotion of interventions and in the reduction of violence in the community.[13] FHS actions in partnership with other sectors (Education, Social Assistance, media, Security, non-governmental organizations [NGO], etc.) can contribute to the promotion of safer and healthier societies.[1] Investments in community safety and the implementation of strategies to overcome feelings of fear (and consequent immobilization), such as the creation of social activities aimed at strengthening relationships between people, can contribute to the reduction of community violence and to the promotion of health in Brazil.[3,27]

The present study has some potentialities that should be highlighted. The first one concerns the application of the Poisson log-linear model[16,17] with data from sectional studies, such as the NHS. It is a more appropriate method – as a measure of association – for calculating the prevalence ratio (PR), rather than the odds ratio (OR). PR is a measure that is easy to interpret and of great interest in sectional studies.[28]

The second potentiality of this study refers to the adoption of the Maximum Pseudo-Likelihood method: an estimation method that allows the inclusion of sampling plan information (conglomerate, stratification and sample weights) in the model adjustment, capable of producing robust estimators for coefficients and standard errors.[29]

Regarding the limitations of the study, it is possible to mention the non-inclusion of other variables that are relevant for the analysis of violence against the elderly, such as history of violence in the family, use of psychoactive substances, insecurity in the dwelling place and household income. These variables were not included in the study because they were not found in the NHS questionnaire or because of non-disclosure by the institute responsible. In addition, there is a possibility of non-differential information bias, since the violence outcome is a self-reported measure raised in a nationwide population study. Another limitation to consider is the cross-sectional nature of the study, making it impossible to establish a causal relationship between the outcome and the variables investigated.

As there are still few studies on violence against elderly people in Brazil, this study has sought to contribute to greater knowledge about the subject, besides emphasizing the need to formulate and apply specific policies aimed at this population.

In general, in order to reduce and deal with elder abuse, the importance of health services in the identification of cases is highlighted in the context of prevention and intervention. By improving the practices developed by the FHS, the critical incorporation of available knowledge and technologies, taking into account the specific characteristics of the population served – usually residing in areas at risk –, it is possible to develop territorial actions for the prevention of injuries and diseases.[30] Based on the perception of health professionals regarding the risks of community violence and the complaints of the elderly about any type of aggression committed by strangers, it is possible to take assistance measures that are adequate for the victims, to notify and to communicate violence to the Elderly Protection Department. The need to promote initiatives to raise awareness and educate the general population about the problem of violence against the elderly is also highlighted in the context of violence prevention. The use of media resources in this awareness and education of the population should emphasize the role of the elderly in society, as well as increase popular knowledge about the rights granted to the elderly and the consequences of the violation of these rights. It is important to emphasize the need for greater oversight of the application of elder protection laws, in order to (i) condemn violent acts in their different forms, and (ii) intervene in risk factors of violence at different levels (individual, community relations and in general society).[1]

Among the specific actions to reduce violence against the elderly, we can mention the expanded coverage of the Specialized Offices for Protection of the Elderly in Brazilian municipalities, as well as free psychological and legal support centers for those who are victims of violence. In addition, periodic discussions on issues related to violence against the elderly in schools, universities and public spaces, and the dissemination of information on the subject via printed and digital media are recommended.

Authors' contributions

Alencar Júnior FO and Moraes JR contributed with the design of the study, data analysis, writing and critical review of the content of the article. Both authors have approved the final version of the manuscript and declared themselves to be responsible for all aspects of the study, ensuring its accuracy and integrity.

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