Original Article

TEXTO & CONTEXTO ENFERMAGEM
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ANALYSIS OF INTERPERSONAL AND SELF-INFLICTED VIOLENCE IN OLDER ADULTS

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ABSTRACT

Objective: to identify the prevalence of interpersonal and self-inflicted violence in older adults in the state of Espírito Santo and its association with victim and aggression characteristics.
Method: this is a cross-sectional study with data on notifications of elder abuse registered in the state of Espírito Santo, Brazil between 2011 and 2018 in the Notifiable Diseases Information System (SINAN). Violence nature (interpersonal or self-inflicted) and victim and aggression characteristics were assessed. Multivariate analysis was conducted using Poisson regression with robust variance. The association was presented by Prevalence Ratio (PR) and 95% Confidence Interval (95%CI).
Results: the prevalence of interpersonal violence was 85.0% (95%CI: 83.3-86.5), and of self-inflicted violence was 15.0% (95%CI: 13.5-16.7). Interpersonal elder abuse was associated with higher prevalence in female victims, aged 80 years or older, black/brown and without disability/disorder, with repetition history, with suspected use of alcohol, outside the residence, in urban areas and motivated by intolerances. On the other hand, self-inflicted violence among older adults was more prevalent in male victims, aged 60 to 69 years, white, with disabilities/disorders, when aggression occurred at home, without repetition history, without suspicion of alcohol use, in rural areas and without intolerance.
Conclusion: Victim and aggression characteristics influence the occurrence of interpersonal and self-inflicted violence in older adults.

DESCRIPTORS: Violence. Elder abuse. Mandatory reporting. Epidemiological monitoring. Health information systems.

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ANÁLISE DA VIOLÊNCIA INTERPESSOAL E AUTOPROVOCADA NA PESSOA IDOSA

RESUMO

Objetivo: identificar a prevalência da violência interpessoal e autoprovocada na pessoa idosa no estado do Espírito Santo e sua associação com as características da vítima e da agressão.
Método: estudo transversal com dados das notificações de violência contra a pessoa idosa registradas no estado do Espírito Santo, Brasil entre os anos de 2011 e 2018 no Sistema de Informação de Agravos de Notificação. Foram avaliadas a natureza da violência (interpessoal ou autoprovocada) e as características da vítima e da agressão. A análise multivariada foi conduzida por meio da regressão de Poisson, com variância robusta. A associação foi apresentada por razão de prevalências (RP) e intervalo de confiança de 95% (IC95%).
Resultados: a prevalência da violência interpessoal foi de 85,0% (IC95%: 83,3-86,5), e da autoprovocada foi de 15,0% (IC95%: 13,5-16,7). A violência interpessoal contra a pessoa idosa esteve associada a maiores prevalências em vítimas do sexo feminino, com 80 anos ou mais, de cor preta/parda e sem deficiência/transtorno, com histórico de repetição, com suspeita de uso de álcool, fora da residência, em zonas urbanas e motivada por intolerâncias. Já a violência autoprovocada entre pessoas idosas se mostrou mais prevalente em vítimas do sexo masculino, com 60 a 69 anos, de cor branca, com deficiências/transtornos, quando a agressão ocorreu na residência, sem histórico de repetição, sem suspeita de uso de álcool, em zonas rurais e sem motivação por intolerâncias.
Conclusão: as características da vítima e da agressão influenciam a ocorrência da violência interpessoal e autoprovocada na pessoa idosa.

DESCRITORES: Violência. Abuso de idosos. Notificação de abuso. Monitoramento epidemiológico. Sistemas de informação em saúde.

ANÁLISIS DE LA VIOLENCIA INTERPERSONAL Y AUTOINFLIGIDA EN ANCIANOS

RESUMEN

Objetivo: identificar la prevalencia de violencia interpersonal y autoinfligida en ancianos del estado de Espírito Santo y su asociación con las características de la víctima y de la agresión.
Método: estudio transversal con datos de las notificaciones de violencia contra ancianos registradas en el estado de Espírito Santo-Brasil entre 2011 y 2018 en el Sistema de Información de Enfermedades de Declaración Obligatoria (SINAN). Se evaluó la naturaleza de la violencia (interpersonal o autoinfligida) y las características de la víctima y de la agresión. El análisis multivariado se realizó mediante regresión de Poisson con varianza robusta. La asociación se presentó por razón de prevalencia (RP) e intervalo de confianza del 95% (IC95%).
Resultados: la prevalencia de violencia interpersonal fue del 85,0% (IC95%: 83,3-86,5), y de violencia autoinfligida fue del 15,0% (IC95%: 13,5-16,7). La violencia interpersonal contra los ancianos se asoció con mayor prevalencia en víctimas mujeres, con 80 años o más, negras/morenas y sin discapacidad/trastorno, con antecedentes de reincidencia, con sospecha de consumo de alcohol, fuera del hogar, en zona urbana y motivada por intolerancias. Por otro lado, la violencia autolesiva entre adultos mayores fue más prevalente en víctimas hombres, de 60 a 69 años, blancos, con discapacidades/trastornos, cuando la agresión ocurrió en el hogar, sin antecedentes de reincidencia, sin sospecha de consumo de alcohol, en zonas rurales y sin motivación para intolerancias.
Conclusión: las características de la víctima y de la agresión influyen en la ocurrencia de violencia interpersonal y autoinfligida en ancianos.

DESCRIPTORES: Violencia. Abuso de ancianos. Notificación obligatoria. Monitoreo epidemiológico. Sistemas de información en salud.

INTRODUCTION

Elder abuse is a widespread problem around the world, being multicausal and complex. It occurs in all social spheres, being an agent for low quality of life, psychological stress, emotional disturbances, isolation, injuries and physical traumas[1-3]. Furthermore, it increases the risk of hospitalizations or nursing homes, and may even lead to death.[1-2] Elder abuse consists of any single or repeated act, or lack of action, that results in physical harm or psychological suffering to an older adult[1,4].

There are different ways to classify violence, and one of them is to identify the aggressor. There is self-inflicted violence, when aggression is committed against oneself, and interpersonal violence, when aggression is committed by others. Self-inflicted violence comprises acts of self-harm, self-neglect, ideation, attempt and suicide, while interpersonal violence comprises situations of psychological, physical, sexual, financial and neglectful abuse[1].

The occurrence of self-inflicted violence in older adults is still vaguely explored in the literature, resulting in the difficulty of finding statistical data on the subject. A study carried out with data from the Hospital Information System (HIS) and the Notifiable Diseases Information System (SINAN - *Sistema de Informação de Agravos de Notificação*) in Brazil showed that the morbidity rate due to suicide attempts, among older Brazilian adults, they are higher in the North and Midwest regions and that, among the states in the Southeast region, Espírito Santo has the highest rate, with a record of 25.4 hospitalizations per 100,000 inhabitants, between 2012 and 2014. This problem is considerably higher among male older adults, 66.3/100,000 inhabitants[5].

With regard to interpersonal violence, systematic reviews estimate that 1 in 6 older adults around the world suffer from it; however, prevalences vary considerably between countries[6-7]. In Brazil, studies carried out in Brazilian capitals estimate that the prevalence of elder abuse is around 14.4%[8].

In the fight against these problems, special attention must be given to the health sector, since the consequences of violence cause new challenges for the demand for health care and service availability, making this phenomenon always on the agenda of discussions and health agendas[2,9]. Health professionals have broad access to older adults, their families and communities, so they can contribute to publicizing this issue in society, detecting risk situations, monitoring identified cases and treating victims[10-12]. To this end, it is important that professionals are prepared not only for tracking and notifying different types of violence, but also for providing adequate care for victims and their families, offering support and support, in addition to an adequate referral and counter-referral network for the management of elder abuse[13].

Thus, understanding the need to reveal information about elder abuse (self-inflicted or interpersonal) and with the aim of contributing to a better understanding and, therefore, collaborating for prevention and coping with this problem, this study aimed to identify the prevalence of interpersonal and self-inflicted elder abuse in Espírito Santo, and its association with victim and aggression characteristics.

METHOD

This is an analytical, cross-sectional epidemiological study, based on notifications of elder abuse (understanding older adults as individuals aged 60 years or more) in the state of Espírito Santo, Brazil, between 2011 and 2018.

Espírito Santo is located in southeastern Brazil and has about 3.9 million inhabitants, distributed in 46 thousand/Km² and in 78 municipalities[14]. Similar to Brazil, Espírito Santo is experiencing an accelerated demographic transition, with a considerable increase in the number of older adults, at higher frequencies than most Brazilian states[15]. Espírito Santo is among the five most violent states in Brazil, according to the Atlas of Violence,[16] legitimizing the concern to investigate the prevalence and characteristics of elder abuse in this region.

The database for this study was provided by the Espírito Santo State Health Department (SESA - *Secretaria Estadual de Saúde do Espírito Santo*). It results from the production that epidemiological surveillance made from SINAN records, operationalized through the Interpersonal and Self-Inflicted Violence Notification/Investigation Form. This form, in turn, includes information about victim and aggressor profile, violence characteristics and referrals made, and can be completed by any health professional.

The period analyzed in a database of notification forms of interpersonal and self-inflicted elder abuse in Espírito Santo was from 2011 to 20188. This time cut was determined because in 2011, from Ordinance 104 in the Ministry of Health, violence became part of the List of Compulsory Notifiable Diseases, making its investigation and notification universal for all health services (public or private) throughout the national territory[2].

In the present study, notifications of violence were analyzed according to injury nature (interpersonal or self-inflicted), which constitute the outcomes under study.

Independent variables were about victim, aggression and aggressor characteristics.

Victim characteristic variables were sex (male; female), age group (60 to 69 years; 70 to 79 years; 80 years and older), color (white; black-brown), education (years of study: 0 to 4 years; 5 to 8 years; 9 years and more), marital status (with partner; without partner) and presence of disability/disorder (yes; no).

Aggression characteristic variables were repetition history (yes; no), suspected alcohol use (yes; no), if it occurred at home (yes; no), shift (morning-afternoon; night-dawn), area (urban; rural), motivation for intolerance (yes; no) and referrals (yes; no).

Aggressor characteristic variables, which are only presented descriptively for cases of interpersonal violence, were aggressor's age (0-19 years; 20-59 years; 60 years or more), aggressor's sex (male; female; both), bond with victim (child; partner; another family member; unknown) and number of people involved (one; two or more).

Before carrying out statistical analyses, a descriptive exploratory database analysis was conducted to qualify and correct possible errors or inconsistencies in the variables of interest, following the Violence Notification Instruction guidelines. Form duplicity was verified based on record organization by date of notification, comparing date of occurrence, name of victim, mother and date of birth. In this process, five duplicate forms were excluded, leaving a total of 1,924 cases for analysis.

Data were processed using Stata version 13.0 and analyzed using descriptive statistics in crude and relative frequency and 95% confidence intervals (95%CI). Bivariate analyzes were conducted using Pearson's chi-square test, with a significance level of $p < 0.05$. Association between variables was tested using Poisson regression with robust variance, expressed as crude and adjusted Prevalence Ratio (PR) and the respective confidence intervals were 95%. For adjusted analysis, the inclusion in the model happened with p-value <0.20, and permanence with $p < 0.05$. Adjusted analysis for confounding factors occurred with the entry into the model at two levels: at the first level, victim data; at the second level, variables related to aggression. We emphasize that aggressor characteristics were not considered for inferential analyses, as they are present only in interpersonal violence notification, making it impossible to compare the analysis groups.

This study was approved by the Research Ethics Committee. All rules and guidelines of Resolutions 499/2012 and 510/2016 of the Brazilian National Health Council were respected.

RESULTS

A total of 1,924 cases of elder abuse were notified from 2011 to 2018 in Espírito Santo, Brazil. It is observed that 85.0% (N: 1635; 95%CI: 83.3-86.5) were interpersonal violence, and 15.0% (N: 289; 95%CI: 13.5-16.7) were self-harm.

Among older adult victims of violence (interpersonal or self-inflicted), the majority are women (60.6%), between 60 and 69 years old (54.5%), black/brown (54.4%), with low education (60.9%), with a partner (56.4%) and without disabilities or disorders (75.4%). With regard to occurrence, most aggressions have repetition history (58%), occurred without suspicion of alcohol use (60.1%), at home (83.5%), during the day (59%), in urban areas (86.5%), not motivated by intolerance (37.2%) and were referred to other sectors (83.3%), as shown in Table 1. Regarding aggressor characteristics among the cases of interpersonal elder abuse, violence was most frequently perpetrated by an individual (69.8%), aged between 20 and 59 years (79%), male (63.6%) and the victim's child (47.2%).

Table 1 - Characterization of notified cases of elder abuse according to victim and occurrence data. Espírito Santo, Brazil, 2011-2018.

Variables	N	%
Sex		
Male	757	39.4
Female	1167	60.6
Older adults' age		
60 to 69 years	1048	54.5
70 to 79 years	529	27.5
80 years and older	347	18.0
Skin color		
White	781	45.6
Black/brown	932	54.4
Education (years of study)		
0 to 4 years	702	60.9
5 to 8 years	180	15.6
9 years and older	270	23.5
Marital status		
With a partner	889	56.4
Without a partner	689	43.6
Disability/disorder		
Yes	393	24.6
No	1201	75.4
Repetition history		
Yes	923	58.0
No	669	42.0
Suspected alcohol use		
Yes	486	39.9
No	731	60.1
Occurred at their homes		
Yes	1445	83.5
No	285	16.5
Occurrence shift		
Morning/afternoon	705	59.0
Night/dawn	490	41.0

Table 1 - Cont.

Variables	N	%
Occurrence area		
Urban	1562	86.5
Rural	244	13.5
Motivated by intolerance		
Yes	414	37.2
No	699	62.8
Referrals		
Yes	1541	83.3
No	310	16.7
Aggressor's age		
0-19 years	39	4.0
20-59 years	763	79.0
60 years and older	164	17.0
Aggressor's sex		
Male	924	63.6
Female	350	24.1
Both sexes	178	12.3
Relationship with the victim		
Child	604	47.2
Partner	256	20.0
Other family member	238	18.6
Unknown	181	14.2
Number of people involved		
One	1069	69.8
Two and more	462	30.2

Absolute frequency totals differ due to missing data (blank or ignored in the notification forms). Source: Data from SINAN provided by the Secretary of Health of Espírito Santo, Brazil, 2011 to 2018.

Bivariate analyzes show that violence nature is related to age group, color, marital status and disability/disorder in older adults. As for aggression characteristics, there is a relationship with repetition history, suspicion of alcohol use, occurrence place and area, motivation and referrals (Table 2).

After adjusting for confounding factors, interpersonal violence was more frequently perpetrated against female older adults (PR: 1.06; 95%CI: 1.01-1.10), aged 80 years or older (PR: 1.17; 95%CI: 1.12-1.22), black/brown (PR: 1.07; 95%CI: 1.03-1.12) and without disability/disorder (PR: 1.16; 95%CI: 1.09-1.23). The occurrence was more prevalent among those with repetition history (PR: 1.27; 95%CI: 1.15-1.40), with suspected alcohol use (PR: 1.20; 95%CI: 1.11-1.29), away from home (PR: 1.25; 95%CI: 1.12-1.40), in urban areas (PR: 1.16; 95%CI: 1.09-1.34), motivated by intolerances (PR: 1.35; 95%CI: 1.26-1.45) and were more frequently referred to other sectors (PR: 1.22; 95%CI: 1.09-1.35) (Table 3).

With regard to self-inflicted violence, after adjustments, this injury was more prevalent among older male adults (PR: 1.04; 95%CI: 1.01-1.08), aged 60 to 69 years (PR: 1.13; 95%CI: 1.09-1.17), white (PR: 1.05; 95%CI: 1.02-1.09), with disabilities/disorders (PR: 1.11; 95%CI: 1.07-1.15). Furthermore, it occurred more frequently at home (PR: 1.14; 95%CI: 1.07-1.22), without repetition history (PR: 1.14; 95%CI: 1.09-1.20), without suspected alcohol use (PR: 1.12; 95%CI: 1.07-1.18), in rural areas

Table 2 - Distribution of prevalence of interpersonal and self-inflicted violence according to victim and occurrence characteristics. Espírito Santo, Brazil, 2011-2018.

Variables	Interpersonal violence				Self-inflicted violence			
	n=1635				n=289			
	n	%	95%CI*	*p*-value	n	%	95%CI	*p*-value
Sex								
Male	629	83.1	80.2 – 85.6	0.062	128	16.9	14.3 – 19.7	0.062
Female	1006	86.2	84.1 – 99.1		161	13.8	11.9 – 15.9	
Older adults' age								
60 to 69 years	840	80.2	77.6 – 82.4		208	19.8	17.5 – 22.4	
70 to 79 years	471	89.0	86.1 – 91.4	<0.001	58	11.0	8.6 – 13.9	< 0.001
80 years and older	324	93.4	90.2 – 95.6		23	6.6	4.4 – 9.8	
Skin color								
White	645	82.6	79.8 – 85.1	<0.001	136	17.4	14.9 – 20.2	< 0.001
Black/brown	827	88.7	86.5 – 90.6		105	11.3	9.4 – 13.5	
Education (years of study)								
0 to 4 years	598	85.2	82.3 – 87.6		104	14.8	12.4 – 17.6	
5 to 8 years	151	83.9	77.8 – 88.6	0.905	29	16.1	11.1 – 22.2	0.905
9 years and older	230	85.2	80.4 – 88.9		40	14.8	11.0 – 19.6	
Marital status								
With a partner	777	87.4	85.0 – 89.4	0.020	112	12.6	10.6 – 14.9	0.020
Without a partner	571	83.2	80.2 – 85.8		115	16.8	14.1 – 19.7	
Disability/disorder								
Yes	1062	88.4	71.9 – 80.3	<0.001	139	11.6	19.7 – 28.1	< 0.001
No	300	76.3	86.5 – 90.1		93	23.7	9.9 – 13.5	
Repetition history								
Yes	820	88.8	86.6 – 90.7	<0.001	146	11.2	9.3 – 13.3	< 0.001
No	523	78.2	74.9 – 81.1		103	21.8	18.8 – 25.1	
Suspected alcohol use								
Yes	442	91.0	88.0 – 93.2	<0.001	44	9.0	6.8 – 11.9	< 0.001
No	561	76.7	73.5 – 79.7		170	23.3	20.3 – 26.5	
Occurred at their homes								
Yes	1201	83.1	81.1 – 84.9	<0.001	244	16.9	15.0 – 18.9	< 0.001
No	263	92.3	88.5 – 94.9		22	7.7	5.1 – 11.4	
Occurrence shift								
Morning/afternoon	596	84.5	81.7 – 87.0	0.510	109	15.5	13.0 – 18.3	0.510
Night/dawn	421	85.9	82.5 – 88.7		69	14.1	11.2 – 17.4	
Occurrence area								
Urban	1337	85.6	83.8 – 87.2	0.048	225	14.4	12.7 – 16.2	0.048
Rural	197	80.7	75.3 – 85.2		47	19.3	14.8 – 24.7	
Motivated by intolerance								
Yes	401	96.9	94.7 – 98.2	<0.001	13	3.1	1.8 – 5.3	< 0.001
No	464	66.4	62.8 – 69.8		235	33.6	30.2 – 37.2	
Referrals								
Yes	1.336	86.7	84.9 – 88.3	<0.001	205	13.3	11.7 – 15.1	< 0.001
No	234	75.5	70.4 – 79.9		76	24.5	20.0 – 29.6	

*95% CI: 95% confidence interval. Test: Pearson's chi-square; Source: Data from SINAN provided by the Secretary of Health of Espírito Santo, Brazil, 2011 to 2018.

Table 3 - Unadjusted and adjusted analysis of the effects of victim characteristics and occurrence on interpersonal elder abuse. Espírito Santo, Brazil, 2011-2018.

Variables	Unadjusted analysis			Adjusted analysis		
	PR*	95% CI†	*p*-value	PR	95%CI	*p*-value
Sex						
Male	1.0		0.068	1.0		< 0.001
Female	1.04	1.00-1.08		1.06	1.01-1.10	
Older adults' age						
60 to 69 years	1.0			1.0		
70 to 79 years	1.11	1.07-1.16	< 0.001	1.10	1.05-1.15	< 0.001
80 years and older	1.17	1.12-1.21		1.17	1.12-1.22	
Skin color						
White	1.0		< 0.001	1.0		0.001
Black/brown	1.07	1.03-1.12		1.07	1.03-1.12	
Marital status						
With a partner	1.05	1.01-1.10	0.022	1.03	0.99-1.08	0.179
Without a partner	1.0			1.0		
Disability/disorder						
Yes	1.0		< 0.001	1.0		< 0.001
No	1.16	1.09-1.23		1.16	1.09-1.23	
Repetition history						
Yes	1.14	1.09-1.19	< 0.001	1.27	1.15-1.40	< 0.001
No	1.0			1.0		
Suspected alcohol use						
Yes	1.19	1.13-1.24	< 0.001	1.20	1.11-1.29	< 0.001
No	1.0			1.0		
Occurred at their homes						
Yes	1.0		< 0.001	1.0		< 0.001
No	1.11	1.07-1.16		1.25	1.12-1.40	
Occurrence area						
Urban	1.06	0.99-1.13	0.076	1.16	1.09-1.34	0.035
Rural	1.0			1.0		
Motivated by intolerance						
Yes	1.46	1.38-1.54	< 0.001	1.35	1.26-1.45	< 0.001
No	1.0			1.0		
Referral						
Yes	1.15	1.08-1.23	< 0.001	1.22	1.07-1.38	< 0.001
No	1.0			1.0		

*PR= Prevalence Ratio; 95% CI: 95% confidence interval. Test: Poisson regression with robust variance; Source: Data from SINAN provided by the Secretary of Health of Espírito Santo, Brazil, from 2011 to 2018.

(PR: 1.08; CI95%: 1.01-1.16) and without motivation for intolerances (PR: 1.21; CI95%: 1.17-.26). Moreover, self-inflicted violence was 10% more prevalent among notifications that were not forwarded to other sectors (PR: 1.10; 95%CI: 1.04-1.17) (Table 4).

Table 4 - Unadjusted and adjusted analysis of the effects of victim characteristics and occurrence on self-inflicted violence by older adults. Espírito Santo, Brazil, 2011-2018.

Variables	Unadjusted analysis			Adjusted analysis		
	PR*	95% CI†	*p*-value	PR	95%CI	*p*-value
Sex						
Male	1.03	1.00-1.06	0.065	1.04	1.01-1.08	0.008
Female	1.0			1.0		
Older adults' age						
60 to 69 years	1.12	1.09-1.16	< 0.001	1.13	1.09-1.17	< 0.001
70 to 79 years	1.04	1.01-1.08		1.05	1.01-1.09	
80 years and older	1.0			1.0		
Skin color						
White	1.06	1.02-1.09	< 0.001	1.05	1.02-1.09	0.001
Black/brown	1.0			1.0		
Marital status						
With a partner	1.0		0.021	1.0		0.171
Without a partner	1.04	1.01-1.07		1.02	0.99-1.06	
Disability/disorder						
Yes	1.11	1.07-1.15	< 0.001	1.11	1.07-1.15	< 0.001
No	1.0			1.0		
Repetition history						
Yes	1.0		< 0.001	1.0		< 0.001
No	1.10	1.06-1.13		1.14	1.09-1.20	
Suspected alcohol use						
Yes	1.0		< 0.001	1.0		< 0.001
No	1.13	1.09-1.17		1.12	1.07-1.18	
Occurred at their homes						
Yes	1.09	1.05-1.12	< 0.001	1.14	1.07-1.22	< 0.001
No	1.0			1.0		
Occurrence area						
Urban	1.0		0.065	1.0		0.031
Rural	1.04	1.00-1.09		1.08	1.01-1.16	
Motivated by intolerance						
Yes	1.0		< 0.001	1.0		< 0.001
No	1.30	1.26-1.34		1.21	1.17-1.26	
Referral						
Yes	1.0		< 0.001	1.0		< 0.001
No	1.10	1.06-1.15		1.10	1.04-1.17	

*PR= Prevalence Ratio; †CI 95%: 95% confidence interval. Test: Poisson regression with robust variance; PR = Prevalence Ratio; Source: Data from SINAN provided by the Secretary of Health of Espírito Santo, Brazil, 2011 to 2018.

DISCUSSION

The notifications of elder abuse analyzed in this study show a relevant frequency of violence interpersonal nature. A similar result was identified in another study that analyzed notified cases of elder abuse throughout Brazil, which showed that 89% of cases reflected interpersonal violence, reinforcing the predominance of interpersonal violence among the cases notified in this population[17].

With regard to self-harm violence, the prevalence of notification of this phenomenon in Espírito Santo is similar to the results of a study carried out at the national level[17] and a study carried out in the state of Minas Gerais, when analyzing this injury and showing a prevalence of 12% of self-harm nature[18]. Although this typology is less frequent than interpersonal harm, this type of violence has grown considerably among the older adult population, reflecting the need for attention to this issue[5,11].

Regarding factors associated with the injuries studied, we observed that self-inflicted violence was more prevalent among older young adults (60 to 69 years old) and males, similar to the findings of other studies[17-18]. Still on the study about self-harm carried out in Minas Gerais, it was shown that older male adults are 40% more likely to suffer self-harm compared to female older adults, and those aged 60 to 69 years were 3 times more likely to self-inflict violence when compared to older adults[18].

The aging process, functional difficulties and changes in social roles commonly associated with this life cycle weaken the model of masculinity rooted in our society[19]. The loss of social status conferred by work/employment to these individuals, an aspect that changes radically with retirement, in addition to the observation of younger people taking on more powerful roles in environments previously commanded by them, these are factors closely associated with the occurrence of self-harm among older male adults[19].

In relation to interpersonal violence, we found that this injury was more frequently perpetrated against female older adults, aged 80 or over, which is strongly endorsed by other studies[17-18,20-21]. Some hypotheses can be raised in an attempt to justify this finding. One of them is that, due to the fact that women live longer than men, they are more likely to have disabilities and dementia,[22-23] demanding more care for daily activities; therefore, they are at greater risk of being victims of interpersonal violence[20,24]. Another strongly defended hypothesis concerns gender inequality in patriarchal society, in which women continue to be discriminated against and treated oppressively, increasing their vulnerability to experiencing violence[24]. Finally, a hypothesis that cannot be disregarded is that the higher rates of interpersonal violence against women may actually be a continuation of violence perpetrated by intimate partners suffered throughout life[20,24].

As for color, we found that black/brown older adults had a higher prevalence of interpersonal violence, while self-inflicted violence was more frequent among white older adults. In a systematic literature review, it was observed that the risk for different types of elder abuse may vary according to different racial groups. The need for studies that address this topic in greater depth stands out[7].

With regard to the presence of disabilities or disorders, it is clear that interpersonal violence was more frequent among older adults without disabilities/disorders, contrary to the literature, which points out that older adults with disabilities or with disorders are at greater risk of being victims of interpersonal violence[7-8,21,25]. As for self-inflicted violence, we observed that this injury was more frequent among older adults with some type of disability or disorder, which, in addition to the fact that this typology is more frequent among men, reinforces the propositions of other studies, which point to the difficulty for male older adults to see themselves as dependent and incapable of effectively exercising the role they previously played in society. Sometimes, we understand this as a fragility of his masculinity, which can result in self-harm[19].

It was found that violence interpersonal nature was more prevalent among older adults with repetition history, an association also observed by another study,[18] which points out that most types of interpersonal violence happen recurrently against older adults. On the other hand, the chance of self-inflicted violence is twice as high when it occurs in isolation, without repetition,[18] also corroborating the findings of this study. Interpersonal violence, as it is more frequently perpetrated by a family member,[4,7] especially when victim and aggressor live in the same house,[25-26] provides a more favorable environment for repetition. Another point to be considered is that, due to the possible bond with the aggressor, older adults do not always feel comfortable notification the act suffered, increasing undernotification

and the possibility of continuation of the aggressions[10]. Self-inflicted violence, in turn, characterized mainly by suicide attempts,[27] tends to arrive more frequently at health services in the first attempt, as it is something more evident.

Another studied characteristic that was shown to be associated with the analyzed outcomes is the suspicion of alcohol use. This was more prevalent in cases of interpersonal violence, corroborating the literature that points to the abusive use of alcohol and other substances by the aggressor as a strong risk factor for the victimization of older adults[7,25]. Self-inflicted violence, on the other hand, occurred more frequently without suspicion of alcohol use, in line with the literature found on this problem in older adults[18].

As for place of occurrence, interpersonal violence was more prevalent outside the residence, contrary to literature, which indicates the residence as the main place of interpersonal aggression against older adults[4,7]. It may be that this difference results from the different types of violence grouped as interpersonal, which may have different characteristics, especially when one takes into account that the main type of notified interpersonal violence is usually physical,[17] which is the one that most commonly occurs outside the home[17-18]. The higher occurrence of self-inflicted violence in older adults' homes corroborates the findings in the literature,[18] in addition to reinforcing the results found in a study that analyzed the characteristics related to self-inflicted injuries in all life cycles in several Brazilian capitals: it was shown that more than 85% of cases occurred in the victim's residence[27].

Despite the phenomenon of violence being multicausal and complex, there is a consensus in the literature about the fact that the vulnerability of older adults to different types of violence can differ according to sex,[17-18,21] Which brings us to an important point of discussion: motivation. In this study, we found that interpersonal violence was more frequently motivated by intolerances. Considering that this injury nature was also more prevalent among female older adults, this finding takes us back to social representation of female elder abuse and to reflection on inequality present in a sexist society, in which women are continually subjugated and oppressed[24]. When they reach the third or fourth age, with increasing physical, emotional and social fragility, this older adult woman becomes even more vulnerable to interpersonal violence.

On the other hand, self-inflicted violence, more frequent among male older adults, was more prevalent in cases not motivated by intolerance, going against literature findings that point out that self-harm in male older adults is generally motivated by difficulties in accepting the loss of the social role previously exercised[5,19]. This is particularly prevalent in rural areas, where the social representation of men as the highest authority and responsible for family support and protection is severely modified with the advent of chronic diseases and adverse conditions that compromise individuals' functionality and autonomy. This is supported by the results of this study, which show a higher prevalence of self-inflicted violence in rural areas. Other studies suggest special attention to male older adults in the transition between working life and retirement, in addition to greater discussion and encouragement of changes in the social roles assigned to people according to gender. In this way, it will be possible to work on greater acceptability of men when faced with situations in which, for various reasons, they cannot fully exercise the masculinity required of them by society[19].

In another nuance about the place of occurrence, we found that interpersonal violence was more practiced in urban areas, corroborating the findings of Jeon *et al*.[21] Possibly, this is a reflection of the large crowds observed in urban areas, in addition to the greater possibility of access to sectors and services that allow the notification of violence, such as health centers, hospitals and police stations. This supposed ease of access to services and sectors in urban areas to the detriment of rural areas may also be the justification for the finding that interpersonal violence is more prevalent in urban areas and has been more frequently referred for follow-up in other sectors. Self-inflicted violence, in turn, was more prevalent among cases that did not continue to be followed up, but no data were found in the literature to support these results.

However, regardless of occurrence area or injury nature, cases of violence experienced by older adults must be included in the care network through referrals and follow-ups by the various sectors involved in the entire network of care for victims of aggression[15]. Works on the discussion of the ills to be covered in an attempt to face this problem reinforce that the lack of an established support network, plus the considerable delay in referrals to public bodies, only contribute to the already established and complex situation of vulnerability of these individuals and their families[18]. However, it is not uncommon for notifications of violence to be limited to bureaucratic procedures, i.e., sometimes cases are notified, but not properly forwarded[18].

Finally, we point out as limitations of this study database secondary analysis with possible undernotification and inconsistency. However, to minimize this limitation, the database underwent extensive qualification prior to the analysis and, with regard to undernotification, associations found lead us to believe that they could be even more evident if this were not a problem faced by the entire information system. In this sense, we reinforce the importance of training and qualification of health professionals to adequately fill in the notification forms so that, in the future, these limitations will not be a reality among studies that use data from health information systems, especially considering that this is the main epidemiological surveillance tool in the country.

CONCLUSION

Interpersonal and self-inflicted violence in older adults represented a high magnitude among the types of violence notified in Espírito Santo from 2011 to 2018. Victim and aggression characteristics influence the occurrence of these injuries.

Interpersonal elder abuse was associated with higher prevalence in female victims, aged 80 years or older, black/brown and without disability/disorder, with repetition history, with suspected alcohol use, outside the residence, in urban areas and motivated by intolerance. Self-inflicted violence among older adults was more prevalent in male victims, aged 60 to 69 years, white, with disabilities/disorders, at home, with no repetition history, without suspicion of alcohol use, in rural areas and without motivation for intolerance.

The results presented allow us to infer that there are important differences regarding the characteristics associated with the interpersonal and self-inflicted nature of violence experienced by older adults. We emphasize that such characteristics must be taken into account when thinking about actions and strategies to face these problems, in order to promote health, quality of life and dignity for older adults and their families.

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NOTES

ORIGIN OF THE ARTICLE

This study is part of a thesis entitled "*Panorama da violência contra a pessoa idosa no Espírito Santo: uma análise dos casos notificados entre 2011 e 2018*", presented to the Graduate Program in Collective Health, *Universidade Federal do Espírito Santo*, in 2020.

CONTRIBUTION OF AUTHORITY

Study design: Pampolim G; Leite FMC.
Data collection: Pampolim G; Leite FMC.
Data analysis and interpretation: Pampolim G; Pedroso MRO; Leite FMC.
Discussion of results: Pampolim G; Leite FMC.
Writing and/or critical review of content: Pampolim G; Pedroso MRO; Santos DF; Leite FMC.
Review and final approval of the final version: Pampolim G; Pedroso MRO; Santos DF; Leite FMC.

APPROVAL OF ETHICS COMMITTEE IN RESEARCH

This study was approved by the Research Ethics Committee of the *Universidade Federal do Espírito Santo*, under Opinion 2.819.597/2018 and CAAE (*Certificado de Apresentação para Apreciação* Ética - Certificate of Presentation for Ethical Consideration) 88138618.0.0000.5060.

CONFLICT OF INTEREST

There is no conflict of interest.

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