

## Factors associated with elder abuse: a systematic review of the literature

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**Abstract** *Elder abuse is a complex public health problem. It is of fundamental importance to ascertain which factors are associated with each specific type of abuse, as a way of enabling the creation of evidence-based public policies. The aim of the present study was to systematically review the literature regarding analytical epidemiological studies of factors associated with elder abuse. Four databases were used for the bibliographic search: Pubmed, Scopus, Web of Science and Lilacs, with no limitations regarding year of publication. Articles were selected by pairs of researchers in two stages: reading of abstracts (3.121) and reading of complete articles (64). The total number of articles selected was 27. The risk of bias was evaluated. The factors associated with general violence were age, sex, marital status, educational level, income, family arrangement, social support, solitude, mental disorder, depression, suicide attempt, dependence on others in daily activities, cognitive function, chronic diseases, alcohol or drug abuse, among others. Elder abuse was found to be a multifactorial and complex phenomenon that should not therefore be viewed in a partial one-dimensional manner, but in such a way as to take into account all dimensions and the interdependence of these.*

**Key words** *Violence, Aged 80 and over*

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## Introduction

The demographic profile of human beings is undergoing a worldwide transformation and the number of elderly people now stands at 962 million individuals aged 60 and over and is expected to double by 2050 and triple by 2100<sup>1</sup>. Parallel to the population growth of the elderly, there is also an increase in abuse in this population, as these individuals become more vulnerable and dependent on others, either for performance of basic daily activities, or in terms of psychological or economic dependence, especially in the case of those with impaired cognitive faculties or with the natural limitations of aging itself, which diminish the ability to defend oneself and leave the individual prone to acts of aggression<sup>2</sup>.

According to the World Health Organization (WHO), violence is defined as the which either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation use of physical force or power, threatened or actual, against other individuals, groups or communities, in such a way as is likely to result in death, physical, psychological or sexual harm, maldevelopment, financial deprivation, negligence, abandonment or self-neglect<sup>3</sup>.

Physical violence is characterized by the use of physical force to make someone to do something against their will, to harm, or to cause pain, incapacity or death. Psychological violence is a verbal or gestural offense, which many involve terrorizing individuals, humiliating them, limiting their freedom or alienating them from social life. Sexual violence aims to obtain arousal, sex, or erotic behavior by way of grooming, physical violence or threats of a homosexual or heterosexual nature. Financial or economic abuse is the improper and non-consensual ownership of the physical or financial assets of the elderly<sup>4</sup>.

Abandonment is the absence of provision, by the government, institutions or family, of relief to an elderly person in need of care. Negligence is the omission of care for the elderly, by relatives or institutions and self-neglect is the elderly's own lack of care for themselves, which may jeopardize their health and safety<sup>3,4</sup>. In relation to mistreatment of the elderly, the WHO defines this as a one-off or repeated event, or even an absence of an appropriate act, that occurs in the context of a relationship of trust and causes injury, suffering or distress to the elderly<sup>5</sup>.

In addition to physical injuries, the effects of violence on health include disability, depression, physical health problems, smoking, high-risk

sexual behavior, alcohol and drug abuse, a host of other chronic and infectious diseases, and death<sup>2</sup>. Abuse has a major impact on health systems and criminal justice, as well as social services. All types of abuse are strongly associated with social determinants, cultural and gender norms, unemployment, income inequality, limited education, greater access to firearms and other types of weapons, and excessive consumption of alcohol, among other factors<sup>6</sup>.

As elder abuse is a complex public health problem, it is of fundamental importance to ascertain which factors are associated with it, and, in particular, the specific factors associated with each type of abuse, as a way of ensuring the creation of well-substantiated evidence-based public policies.

Only 17% of the 133 countries studied in the World Report on the Prevention of Violence in 2014 carried out representative national population-based surveys of elder abuse. Most countries, therefore, adopt strategies to contain violence without addressing this specific problem<sup>6</sup>. The identification of associated factors contributes to the prevention of violence by reducing risk or generating protection for the elderly population.

The present study thus involved a systematic review of the literature regarding analytical epidemiological studies of factors associated with violence against the elderly.

## Method

A systematic review of the literature was carried out, according to the guidelines contained in Main Items for Reporting Systematic Reviews and Meta-analyses (PRISMA)<sup>7</sup> and Meta-analysis of Observational Studies in Epidemiology (MOOSE)<sup>8</sup>. The review was guided by the following question: "What factors associated with elder abuse appear in the literature in analytical epidemiological studies?"

Articles included were observational epidemiological studies of a cohort, case-control or cross-sectional type, whose outcome (dependent variable) was elder abuse. The variables associated with the outcome found in each study were considered. The following types of article were excluded: studies of elderly people with specific diseases; studies without multivariate analysis; and studies of specific populations (institutionalized elderly or home care).

The bibliographic search was guided by the descriptors "violence" and "aged, 80 and over",

located in the list of Descriptors in Health Sciences, the Virtual Health Library (<http://decs.bvs.br>) and the Medical Subject Headings - Mesh, available from the US National Library of Medicine (<http://www.nlm.nih.gov/mesh/>). Four databases were used for the bibliographic search: Pubmed, Scopus, Web of Science and Lilacs. In the Pubmed database, the following search key was used: (age, 80 and over [MeSH Terms]) AND violence [MeSH Terms] In Scopus the search key was: (KEY (violence) AND KEY (aged, 80 AND over)). In the Web of Science the search was guided by the following key: Topic: (violence) AND Topic: (aged, 80 and over). In Lilacs the search key was: "VIOLENCIA" [Subject descriptor] and "elderly of 80 years or more" [Subject descriptor]. All searches were performed on July 12, 2017, and there were no time or language limits, in order to identify as many articles as possible on the subject under review.

Using the descriptors, the search of the selected databases led to the identification of 3121 articles for potential inclusion in the systematic review. The selection of these articles was carried out in two stages: reading abstracts and reading the full article. Initially, a pilot study was conducted, which involved reading the first 100 abstracts found so as to establish the inclusion and exclusion criteria, and then the other abstracts were read. The abstracts were read by two researchers, authors of this study (MABS and PFF), independently, based on the inclusion and exclusion criteria pre-defined in the research protocol.

After reading the abstracts, the Kappa Index was applied to analyze the agreement between the two researchers and to validate protocol selection criteria. For the pilot of the first 100 abstracts a Kappa of 0.81 was found, and for all 3121 abstracts the Kappa was 0.57, representing near perfect and moderate agreement, respectively. Of the 3121 abstracts read, there was agreement on 33 for inclusion in the full reading phase and 3040 for exclusion. There were divergences regarding 48 abstracts and these were then read by a third researcher, also an author of the present study (VLS), and a consensus meeting was held with the three readers to refine the pre-defined criteria. After the meeting, there was consensus for inclusion of 31 abstracts and exclusion of 17. Finally, 64 abstracts were included in the second stage of full reading of the articles.

The full reading of the articles was carried out independently by the same two readers from the previous stage. There was agreement on 19

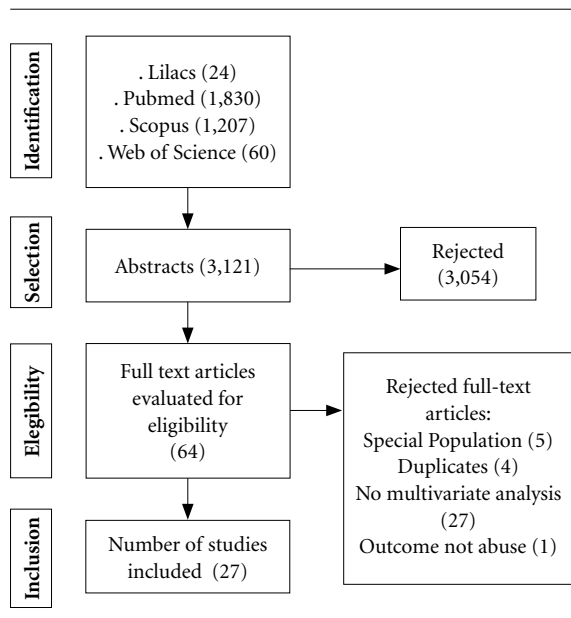
articles for inclusion in the review and 32 for exclusion. There was a divergence regarding 13 articles, which were subsequently read by a third researcher (VLS). A consensus meeting of the three readers agreed to include 8 articles on which there were divergent opinions. Four duplicate articles and four articles covering a special population were identified and these were also excluded, leaving at total of 27 articles (Figure 1). The Kappa index for this stage was 0.59, indicating moderate agreement.

Twenty-seven articles were thus selected for the systematic review, all from the Pubmed and Scopus databases. Data was extracted from the articles independently by two readers (MABS and PFF), using a protocol established by the researchers. The data extracted were: author(s), year, title, publication language, country, study objective, study population, studied age, study design, study period, sample size (elderly), type of violence, violence measured, type of aggressor, measure of violence, statistical analysis, associated factors and authors' conclusion. Statistical data were expressed in terms of relative risk (RR), odds ratio (OR), adjusted prevalence ratio (APR), confidence interval (95% CI) and  $p < 0.05$ .

Having extracted the data, the risk of bias in the articles was analyzed using the Newcastle-Ottawa Scale (NOS)<sup>9</sup>. The NOS scale measures the methodological quality of a study by the number of stars received in the selection of study groups, comparability of groups and verification of exposure/outcome. The original scale was devised for cohort studies. For cross-sectional studies, an adapted version of the case-control study scale was used. The risk of bias was assessed for each scale question as follows: if the answer was "Yes for low risk of bias," one star was allocated (\*), if "No for high risk of bias," no star was not allocated. All items are worth one star (\*), except for comparability, which can receive up to two stars. Cross-sectional studies can receive a maximum total of eight stars and cohort studies a maximum of nine (Chart 1).

## Results

Twenty-seven studies were included in this systematic review, of which 23 were of cross-sectional design, two case-control studies and two cohort studies. Most of the articles selected were produced in the United States, followed by China, Korea and Spain, with only one study each for



**Figure 1.** Flowchart of selection of articles for the systematic review.

other countries (Chart 2). The countries covered span three continents: the Americas, Asia and Europe. No studies were from Africa or Oceania. Only one article was written in the Portuguese language and one in Korean. All the others were written in English. The sample size of the studies ranged from 164 to 24,343 elderly individuals and the year of publication ranged from 1997 to 2016 (Chart 2).

In relation to the population studied, most studies included covered the elderly population as a whole. Among these, a cut-off point of 60 years or more was more common than a cut-off point of 65 years or more. Only one study covered elderly individuals aged 75 years or older and no article used a cut-off point of 80 or older (Chart 2).

The types of abuse studied varied. Most studies generalized and used terms such as general violence, mistreatment or abuse; others were more specific and cited the types of abuse studied, with emotional or psychological abuse and financial abuse being the most prevalent, followed by physical abuse, neglect, self-neglect, sexual abuse and verbal aggression (Chart 2).

Violence was measured in numerous ways. Data were obtained using questionnaires, interviews or forms or through secondary data. The most commonly used instrument was the Scales

of Tactics and Conflicts (CTS)/(CTS2) questionnaire, in four studies<sup>10-13</sup> (Chart 2).

The identification of factors associated with violence was organized into two axes, according to the outcome of each study included. Initially, the factors associated with any type of abuse were identified. Subsequently, factors associated with specific types of abuse (self-neglect, negligence, verbal abuse, emotional or psychological abuse, financial abuse, sexual and physical violence) were also investigated.

The factors associated with general violence were age, sex, marital status, education level, income, family arrangement, family relationship, social support, solitude, mental disorder, depression, suicide attempt, ADL dependence, cognitive function, chronic diseases, abuse of alcohol or drugs and poor bodily or oral hygiene (Chart 3).

Age was included as a factor in four studies. Two articles found that being under 70 years of age is a risk factor for abuse<sup>10,14</sup>. This diverged from the findings of two other articles that found this age to provide protection<sup>12,15</sup>. Three studies stated that women are more at risk of abuse<sup>16-18</sup>, while another came to the opposite conclusion<sup>14</sup> (Chart 3).

One study showed that those who live alone or with children are ten times more likely to be suspected of being abused<sup>18</sup>. Arguments and conflict with family members or friends were also found to pose a high risk of abuse<sup>18,19</sup>, and elderly individuals with some kind of mental disorder were nine times more likely to be subject to abuse than those without<sup>17</sup> (Chart 3).

Dependence on others for activities of daily living (ADL) was also found to be a risk factor in three studies<sup>15,18,20</sup>, with only one article diverging and arguing that lower ADL provided a 4% protection<sup>14</sup>. Alcohol abuse was considered significant for general violence, with an eight-fold increased risk for alcohol abusers<sup>19</sup>. Those with poor bodily or oral hygiene ran a 12-fold greater risk of abuse<sup>18</sup> (Chart 3).

As for the factors associated with specific types of abuse, age greater than 80 years was associated with the risk of mild, moderate and severe self-neglect<sup>21</sup>. Black men and black women were six and four times more likely to self-neglect, respectively<sup>22</sup>. Fewer years of schooling were found to be a risk factor in two studies<sup>21,22</sup> and lower income individuals were found to be five times more likely to self-neglect<sup>22</sup> (Chart 4).

Being separated or divorced doubled the risk of elder neglect, as did living below the poverty line, which was shown to be a risk factor in

**Chart 1.** Bias risk analysis of studies included in the review.

Author/Year	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
De Donder et al. (2016) <sup>10#</sup>	*	*	*	*	*	*		NA	NA	NA	NA	NA	NA	NA	NA
Dong(2016) <sup>21#</sup>	*	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Ruelas-González et al. (2016) <sup>34#</sup>	*	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Burnes et al. (2015) <sup>11#</sup>	*	*	*	*	*	*		NA	NA	NA	NA	NA	NA	NA	NA
Roepke-Buehler et al.( 2015) <sup>35#</sup>	*	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Gil et al. (2014) <sup>15#</sup>	*	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Chokkanathan. (2014) <sup>12#</sup>		*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Cannell et al. (2014) <sup>26#</sup>	*	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Hernandez-tejada et al.( 2013) <sup>27#</sup>	*	*	*	*	*	*		NA	NA	NA	NA	NA	NA	NA	NA
Jang & Park (2012) <sup>28#</sup>	*	*	*		*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Duque et al. (2012) <sup>16#</sup>		*	*		*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Wu et al. (2012) <sup>24#</sup>	*	*	*		*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Dong et al. (2012) <sup>22@</sup>	NA	NA	NA	NA	NA	NA	NA	*	*	*		*			
Naughton et al. (2012) <sup>13#</sup>	*	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Friedman et al. (2011) <sup>17+</sup>		*	*		*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Beach et al. (2010) <sup>25#</sup>		*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Dong et al. (2010) <sup>36#</sup>		*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Garre-Olmo et al. (2009) <sup>23#</sup>	*	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Choi et al. (2009) <sup>20#</sup>	*		*	*	*	*		NA	NA	NA	NA	NA	NA	NA	NA
Pérez-Cárceles et al. (2009) <sup>18#</sup>	*	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Dong & Simon (2008) <sup>37#</sup>		*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Dong et al. (2008) <sup>38#</sup>		*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Dong et al. (2007) <sup>39#</sup>		*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Oh et al. (2006) <sup>14#</sup>	*	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Shugarman et al. (2003) <sup>19#</sup>		*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA
Comijs et al. (1999) <sup>40+</sup>	*		*	*	*			NA	NA	NA	NA	NA	NA	NA	NA
Lachs (1997) <sup>41@</sup>	NA	NA	NA	NA	NA	NA	NA	*	*	*		*	*	*	

A = Definition of violence appropriate, B = Representative sample, C = Random sampling, D = Definition of Associated Factors, E = Comparability, F = Associated Factor Assessment, G = Nonresponse Rate, H = I = Exposure assessment, K = Demonstration that the outcome of interest was not present at the beginning of the study, L = Comparability of the cohort at the base of the design or analysis, M = Evaluation of the outcome, N = Was the follow-up long enough for the outcome to occur ?, O = Adequacy of cohort follow-up, NA = Not applicable, # = Cross-sectional study, + = control case and @ = cohort.

two studies<sup>11,14</sup>. Those who live with other family members were five times more likely to be neglected than those who live alone<sup>23</sup> and those who had depression twice as likely<sup>24</sup> (Chart 4).

The lowest economic level poses a threefold risk of verbal abuse and a very good family relationship was found to provide protection in 100% of cases<sup>14</sup> (Chart 4).

Four studies showed that being older is a protective factor for emotional or psychological violence<sup>11,14,24,25</sup>, and two studies indicated that being single, divorced or separated are risk factors<sup>11,24</sup>. This diverged from the findings of another survey, which found these factors to provide protection<sup>25</sup>. While a low level of schooling was found to be a protective factor in two studies<sup>11,24</sup>, one

found it to be a risk<sup>25</sup>. The lowest economic level conferred a fourfold increased risk of elder abuse<sup>14</sup>, whereas those who had a diagnosis of depression were victims of emotional abuse seven times more often than those who did not<sup>24</sup> (Chart 4).

Financial abuse was three times greater in those aged over 85 years<sup>23</sup>, nine times higher in those who had the lowest economic level<sup>14</sup> and twice as likely in those who had depression<sup>25</sup> or a physical disability<sup>24</sup> (Chart 4).

One study showed that being single doubled the risk of sexual violence and tripled it for those with no income<sup>26</sup>. Another study found that poor social support increased the risk of this type of abuse fourfold<sup>27</sup> (Chart 4).

**Chart 2.** Characteristics of studies included in the systematic review.

Author / Year	Country	Design	Sample size	Study population	Type of violence	Measure of violence
De Donder et al. (2016) <sup>10</sup>	Austria, Belgium, Finland, Lithuania and Portugal	Cross-sectional	2880	Older women > 60 years old	Negligence, emotional, financial, physical and sexual abuse; and violation of personal rights.	Scale of Conflict Tactics Scale 2 (CTS2)
Dong (2016) <sup>21</sup>	United States	Cross-sectional	3159	Elderly ≥ 60 years	Self-neglect	Instrument of self-neglect, validated (interview)
Ruelas-González et al. (2016) <sup>34</sup>	Mexico	Cross-sectional	8894	Elderly ≥ 60 years	Theft, assault or violence	NHNS 2012 secondary data from Mexico
Burnes et al. (2015) <sup>11</sup>	United States	Cross-sectional	4156	Elderly ≥ 60 years	Physical abuse, emotional abuse and neglect of the elderly.	Scale of Tactics and Conflicts (CTS) and Scale of Resources and Services for Older Americans (OARS)
Roepke-Buehler et al. (2015) <sup>35</sup>	United States	Cross-sectional	10419	Elderly ≥ 65 years	All types of abuse	Questionnaire
Gil et al. (2014) <sup>15</sup>	Portugal	Cross-sectional	1123	Elderly ≥ 60 years	Financial, physical, psychological, sexual and negligent abuse	Questionnaire
Chokkanathan (2014) <sup>12</sup>	India	Cross-sectional	902	Elderly ≥ 61 years	Psychological abuse. Physical, Financial, Neglect	Questionnaire-version of the Tactical Conflict Scale (CTS) (Straus, 1979)
Cannell et al. (2014) <sup>26</sup>	United States	Cross-sectional	24343	Elderly ≥ 60 years	Sexual violence	Surveillance of the Behavioral Risk Factor System (BRFSS)
Hernandez-Tejada et al. (2013) <sup>27</sup>	Canada	Cross-sectional	5776	Elderly ≥ 60 years	Emotional, physical, sexual and financial mistreatment, as well as negligence	Interview (RDD)
Jang e Park (2012) <sup>28</sup>	Korea	Cross-sectional	416	Elderly ≥ 65 years	Psychological abuse, physical abuse and general abuse	Self-report questionnaires
Duque et al. (2012) <sup>16</sup>	Braxil	Cross-sectional	274	Elderly ≥ 60 years	Physical, psychological, financial and economic abuse and sexual violence.	Instrument of the Ministry of Health in Basic Care Notebooks.
Wu et al. (2012) <sup>24</sup>	China	Cross-sectional	2.000	Elderly ≥ 60 years	Psychological, financial or physical abuse, as well as negligence	Questionnaires: (Hwalek-Sengstock screening for elder abuse and the Vulnerability Scale for Abuse-VASS)
Dong et al. (2012) <sup>22</sup>	United States	Cohort	4.627	Elderly ≥ 65 years	Self-neglect	Standardized questionnaires
Naughton et al. (2012) <sup>13</sup>	United Kingdom	Cross-sectional	2.000	Elderly ≥ 65 years	Economic, psychological abuse. physical abuse negligence and sexual abuse	Conflict Tactics Scale (CTS) and Daily Life Activities Tool (ADL)
Friedman et al. (2011) <sup>17</sup>	United States	Case-control	41 cases, 123 controls	Elderly ≥ 60 years	Abuse and neglect	Data entry form linked to trauma record bank.

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**Chart 2.** Characteristics of studies included in the systematic review.

Author / Year	Country	Design	Sample size	Study population	Type of violence	Measure of violence
Beach et al. (2010) <sup>25</sup>	United States	Cross-sectional	903	Elderly ≥ 60y ears	Financial exploitation and psychological maltreatment	Interviews
Dong et al. (2010) <sup>36</sup>	United States	Cross-sectional	1812	Elderly ≥ 65 years	Self-neglect	Cases reported to CDOA. A total of 15 were used.
Garre-Olmo et al. (2009) <sup>23</sup>	Spain	Cross-sectional	673	Elderly ≥ 75 years	All abuse	American Medical Association Screen (AMA)
Choi et al. (2009) <sup>20</sup>	United States	Cross-sectional	400	Elderly ≥ 60 years	Self-neglect and neglect	Customer assessment and risk assessment (CARE)
Pérez-Cárceles et al. (2009) <sup>18</sup>	Spain	Cross-sectional	460	Elderly ≥ 65 years	Suspected Abuse	Questionnaire (Canadian Task Force CTF) and AMA.
Dong and Simon (2008) <sup>37</sup>	China	Cross-sectional	412	Elderly ≥ 60 years	All abuse	Validity index of social instrument support (SSI); Modified Vulnerability to Abuse Triage Scale (VASS)
Dong et al. (2008) <sup>38</sup>	China	Cross-sectional	412	Elderly ≥ 60 years	Abuse and neglect	Geriatric Depression Scale.
Dong et al. (2007) <sup>39</sup>	China	Cross-sectional	412	Elderly ≥ 60 years	Mistreatment	Instruments and direct questions on mistreatment
Oh et al. (2006) <sup>14</sup>	Korea	Cross-sectional	15.230	Elderly ≥ 65 years	Physical, emotional, economic and verbal abuse and neglect.	Interviews conducted at home
Shugarman et al. (2003) <sup>19</sup>	United States	Cross-sectional	701	Elderly ≥ 60 years	Physical, emotional and negligence.	Data evaluation for minimum home care (MDS-HC).
Comijs et al. (1999) <sup>40</sup>	Netherlands	Case-control	217	Elderly ≥ 65 years	Verbal aggression, physical assault and financial mistreatment	The BDHI-D. The translated version of the Lie scale of the Eysenck Personality Questionnaire (EPQ-L)
Lachs (1997) <sup>41</sup>	United States	Cohort	2.812	Elderly ≥ 65 years	Abuse and neglect	Standardized instruments were used wherever possible.

Lower economic level or feeling desperate was found to pose a fourfold greater risk of physical violence<sup>14,28</sup> and those who have a diagnosis of depression were six times more likely to be victims of such violence<sup>24</sup> (Chart 4).

## Discussion

Elder abuse is a universal phenomenon. Although this is a relatively new topic, there are numerous

published studies on the subject. The issue was first publicized in 1975 as “grandparent beating” in British magazines. It was seen as a social and policy problem in a population-based epidemiological survey that estimated the prevalence of such mistreatment in the United States in 1988<sup>29</sup>. In the 1980s and 1990s, scientific research and government action was undertaken in a number of countries. Elder abuse was initially identified in more developed countries, where most of the studies were conducted<sup>3</sup>.

**Chart 3.** Factors associated with general abuse among the elderly.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P or CI	Type of Abuse
De Donder et al. (2016) <sup>10</sup>	Age			Negligence, emotional, financial, physical and sexual abuse and violation of personal rights
	60 to 69 years	3.00	< 0.05	
	70 to 79 years	2.11	< 0.05	
	80 or more	1		
Gil et al. (2014) <sup>15</sup>	Age			Financial, physical, psychological, sexual abuse and negligence
	60 to 75 years	0.92	0.004	
	76 years or +	1.1	0.037	
Oh et al. (2006) <sup>14</sup>	Age			Physical, emotional, economic, verbal abuse and neglect
	65 to 69 years	1.33	< 0.05	
	75 to 79 years	1.31	< 0.05	
	80 years or +	1		
Chokkanathan (2014) <sup>12</sup>	Age			Psychological abuse. Physical, Financial abuse, Neglect
	Greater than 71	1.48	0.05	
	61- 70	1		
Duque et al. (2012) <sup>16</sup>	Sex			Physical and psychological abuse, financial and economic abuse, and sexual violence.
	Female	2	0.05	
	Male	1		
Friedman et al. (2011) <sup>17</sup>	Sex			Abuse and neglect
	Female	3.5	0.008	
	Male	1		
Pérez-Cárceles et al. (2009) <sup>18</sup>	Sex			Suspected Abuse
	Female	1.17	0.01	
	Male	1		
Oh et al. (2006) <sup>14</sup>	Sex			Physical, emotional, economic, verbal abuse and neglect
	Male	1.34	< 0.01	
	Female	1		
De Donder et al. (2016) <sup>10</sup>	Marital status			Negligence, emotional, financial, physical and sexual abuse and violation of personal rights
	Married	1.57	<0.05	
	Not married	1		
Gil et al. (2014) <sup>15</sup>	Education Level			Financial, physical, psychological, sexual abuse and negligence
	less than 5 years	0.34	0.003	
	5 to 9 years	0.17	0.001	
	10 or more years	0.3	0.021	
Choi et al. (2009) <sup>20</sup>	Economic hardship			Self-neglect and neglect
	Yes	2.062	<0.001	
	No	1		
Pérez-Cárceles et al. (2009) <sup>18</sup>	Income			Suspected Abuse
	≤600/month	3.51	0.001	
	≥600/month	1		
Oh et al. (2006) <sup>14</sup>	Economic capacity			Physical, emotional, economic, verbal abuse and neglect
	Partially dependent	0.78	< 0.05	
	Totally dependent	1		

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**Chart 3.** Factors associated with general abuse among the elderly.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P or CI	Type of Abuse
Oh et al. (2006) <sup>14</sup>	Economic level			Physical, emotional, economic, verbal abuse and neglect
	Lower	4.84	< 0.01	
	Low	3.5	< 0.01	
	Medium	1.61	< 0.05	
	High	1.92	< 0.05	
	Highest	1		
Oh et al. (2006) <sup>14</sup>	Expected type of family arrangement			Physical, emotional, economic, verbal abuse and neglect
	Living with the family of a married child	1.96	< 0.05	
	Other Arrangements	1		
Pérez-Cárceles et al. (2009) <sup>18</sup>	Living alone or with children			Suspected Abuse
	yes	10.25	0.001	
	Not	1		
Duque et al. (2012) <sup>16</sup>	Living alone or with children			physical, psychological, financial and economic abuse and sexual violence.
	yes	10.25	0.001	
	Not	1		
Jang e Park (2012) <sup>28</sup>	Family support			Psychological, physical and general abuse
	High level of family support	0.44	< 0.001	
	Less support from family	1		
Oh et al. (2006) <sup>14</sup>	Family relationship			Physical, emotional, economic, verbal abuse and neglect
	Very good	0.02	< 0.01	
	Good	0.04	< 0.01	
	Average	0.18	< 0.01	
	Bad	1		
Pérez-Cárceles et al. (2009) <sup>18</sup>	Frequent arguments with relatives			Suspected Abuse
	Yes	9.01	0.001	
	No	1		
Shugarman et al. (2003) <sup>19</sup>	Reported conflict with family or friends			Physical, emotional abuse and neglect.
	Yes	2.28	1.21- 4.28*	
	No	1		
Naughton et al. (2012) <sup>13</sup>	Social support			Economic, psychological abuse. Physical violence, neglect and sexual abuse
	Weak	3.11	1.29 – 7.46	
	Strong	1		
Dong et al. (2007) <sup>39</sup>	Solitude score			Mistreatment
	4 to 6	1.32	0.81- 2.13	
	7 to 9	2.74	1.19 – 6.26	
	1 to 3	1		
Dong e Simon (2008) <sup>37</sup>	Someone to speak to			Abuse and neglect
	All the time	0.18	< 0.001	
	Not at all	1		
Dong e Simon (2008) <sup>37</sup>	Someone to give you good advice			Abuse and neglect
	All the time	0.15	< 0.001	
	Not at all	1		
Dong e Simon (2008) <sup>37</sup>	Someone shows love and affection			Abuse and neglect
	All the time	0.3	< 0.001	
	Not at all	1		

it continues

**Chart 3.** Factors associated with general abuse among the elderly.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P or CI	Type of Abuse
Dong e Simon (2008) <sup>37</sup>	Someone helps with daily chores			Abuse and neglect
	All the time	0.43	< 0.05	
	Not at all	1		
Dong e Simon (2008) <sup>37</sup>	Can get in touch with someone you trust			Abuse and neglect
	Sometimes	0.27	< 0.05	
	All the time	0.08	< 0.001	
	Not at all	1		
Dong e Simon (2008) <sup>37</sup>	Someone provides emotional support			Abuse and neglect
	All the time	0.11	< 0.001	
	Not at all	1		
De Donder et al. (2016) <sup>10</sup>	Behavioral disengagement			Negligence, emotional, financial, physical and sexual abuse and violation of personal rights
	Mechanism of coping with behavioral attrition (quitting)			
	Yes	1.43	< 0.05	
	No	1		
De Donder et al. (2016) <sup>10</sup>	Loneliness (Feeling lonely)			Negligence, emotional, financial, physical and sexual abuse and violation of personal rights
	Yes	1.35	< 0.05	
	No	1		
Shugarman et al. (2003) <sup>19</sup>	Not willing to interact with others			Physical and emotional abuse and neglect.
	Yes	2.50	1.17- 5.368*	
	No	1		
Shugarman et al. (2003) <sup>19</sup>	Indicates feelings of loneliness			Physical and emotional abuse and neglect.
	Yes	2.36	1.25- 4.48*	
	No	1		
Shugarman et al. (2003) <sup>19</sup>	Fragile support system			Physical and emotional abuse and neglect.
	Yes	3.54	1.54- 8.13*	
	No	1		
Friedman et al. (2011) <sup>17</sup>	Mental disorder			Abuse and neglect
	Yes	9.1	< 0.001	
	No	1		
Naughton et al. (2012) <sup>13</sup>	Mental health			Economic, psychological, physical abuse, neglect and sexual abuse
	Below average	4.51	2.22- 9.14	
	Above average	1		
Shugarman et al. (2003) <sup>19</sup>	Some psychiatric diagnosis			Physical and emotional abuse and neglect.
	Yes	2.39	1.17- 4.89*	
	No	1		
Ruelas-González et al. (2016) <sup>34</sup>	Depression			Robbery and aggression or violence
	Yes	3.4	0.06	
	No	1		
Roepke-Buehler et al. (2015) <sup>35</sup>	Depression			Physical abuse, sexual abuse, emotional abuse, neglect, self-neglect and financial exploitation.
	Yes	1.75	< 0.01	
	No			
Dong et al. (2008) <sup>38</sup>	Depression score			Elder abuse and neglect
	3 - 5	3.26	< 0.01	
	0- 2	1		

it continues

**Chart 3.** Factors associated with general abuse among the elderly.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P or CI	Type of Abuse
Jang e Park (2012) <sup>28</sup>	History of attempted suicide			Psychological, physical and general abuse
	Yes	2.39	0.005	
	No	1		
Ruelas-González et al. (2016) <sup>34</sup>	Woman not head of house	2.9	0.06	Robbery and aggression or violence
	Woman head of house	1		
Gil et al. (2014) <sup>15</sup>	Functional status		0.015	Financial, physical, psychological, sexual abuse and negligence
	Dependent on ADL help	2.19		
	Not dependent on ADL help	1		
Choi et al. (2009) <sup>20</sup>	Activ. Impaired daily life	2.802	< 0.001	Self-neglect and neglect.
	Activ. Independent daily life	1		
Pérez-Cárceles et al. (2009) <sup>18</sup>	Functional incapacity for daily activ.			Suspected Abuse
	Yes	4.39	0.001	
	No	1		
Oh et al. (2006) <sup>14</sup>	Physical health			Physical, emotional, economic, verbal abuse and neglect
	ADL lower			
	Yes	0.96	< 0.05	
Oh et al. (2006) <sup>14</sup>	Lower IADL			
	Yes	1.03	< 0.05	
	No	1		
Oh et al. (2006) <sup>14</sup>	More sick days			
	Yes	1.05	< 0.01	
	No	1		
Lachs (1997) <sup>41</sup>	Change in cognitive function (decline)			Abuse and neglect
	New disability	5.1	2.0-12.7	
	Without impairment	1		
Choi et al. (2009) <sup>20</sup>	Cognitive impairment			Self-neglect and neglect.
	Yes	2.126	<0.001	
	No	1		
Shugarman et al. (2003) <sup>19</sup>	Short-term memory problems			Physical, emotional, economic and neglect
	Yes	2.88	1.47- 5.69*	
	No	1		
Jang e Park (2012) <sup>28</sup>	N ° of chronic diseases			Psychological, physical and general abuse
	≥3 diseases	0.20	0.019	
	None	1		
Friedman et al. (2011) <sup>17</sup>	Drug or alcohol abuse			Abuse and neglect
	Yes	8	0.001	
	No	1		
Shugarman et al. (2003) <sup>19</sup>	Alcohol abuse			Physical and emotional abuse and neglect.
	Yes	8.80	2.63- 29.3*	
	No	1		
Pérez-Cárceles et al. (2009) <sup>18</sup>	Poor bodily or oral hygiene			Suspected Abuse
	Yes	12.23	0.001	
	No	1		

\*CI = 90%.

**Chart 4.** Factors associated with specific violence.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P ou CI	Type of Abuse
Dong (2016) <sup>21</sup>	Age			Self- neglect (slight)
	> 80 years	1.43	< 0.05	
	60-70 years	1		
Dong (2016) <sup>21</sup>	Age			Self-neglect (moderate/severe)
	> 80 years	1.61	< 0.001	
	71-80 years	0.7	< 0.001	
	60 - 70 years	1		
Dong (2016) <sup>21</sup>	Sex			Self- neglect
	Female	0.73	< 0.001	
	Male	1		
Dong et al. (2012) <sup>22</sup>	Race/ethnicity			Self- neglect
	Black Men	6.21	< 0.005	
	White Men	1		
	Black women	4.52	< 0.005	
	White women	1		
Dong (2016) <sup>21</sup>	Education/years of study			Self- neglect (slight)
	0 to 6 years	2.13	< 0.001	
	7 to 12 years	1.67	< 0.001	
	> 12 years	1		
Dong (2016) <sup>21</sup>	Education / years of study			Self-neglect (moderate/severe)
	0 to 6 years	2.88	< 0.01	
	7 to 12 years	2.76	< 0.001	
	> 12 years	1		
Dong et al. (2012) <sup>22</sup>	Education			Self- neglect
	< Secondary School - Men	2.73	< 0.005	
	college – Men	1		
	< Secondary School – women	1.66	< 0.005	
Dong et al. (2012) <sup>22</sup>	college – women	1		Self- neglect
	Annual income			
	< US \$15,000 –Men	5.02	< 0.005	
	> US \$30,000-Men	1		
	< US \$15,000- women	5.11	< 0.005	
Roepke-Buehler et al. (2015) <sup>35</sup>	> US \$30,000-women	1		Self-neglect confirmed
	Depression			
	Yes	1.32	<0.001	
Dong et al. (2010) <sup>36</sup>	No	1		Self- neglect
	Social network			
	Lower levels	1.02	1.01 – 1.04	
Dong et al. (2010) <sup>36</sup>	Higher levels	1		Self- neglect
	Social Engagement			
	Lower levels	1.15	1.09 – 1.22	
Burnes et al. (2015) <sup>11</sup>	Higher levels	1		Negligence
	Age			
	greater than or equal to 85	0.3	0.01	
Wu et al. (2012) <sup>24</sup>	60-69	1		Negligence
	Sex			
	Female	0.6	0.5- 0.8	
	Male	1		

it continues

**Chart 4.** Factors associated with specific violence.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P ou CI	Type of Abuse
Burnes et al. (2015) <sup>11</sup>	Marital status			Negligence
	Separated or divorced	2.3	≤0.05	
	Married	1		
Burnes et al. (2015) <sup>11</sup>	Ethnicity			Negligence
	Hispanic	0.2	≤0.05	
	Caucasian	1		
Burnes et al. (2015) <sup>11</sup>	Below the poverty line			Negligence
	Yes	2.2	≤0.05	
	No	1		
Oh et al. (2006) <sup>14</sup>	Economic level			Negligence
	Very low	3.36	<0.01	
	Low	2.47	<0.05	
	Higher	1		
Oh et al. (2006) <sup>14</sup>	Economic capacity			Negligence
	Partially dependent	0.49	<0.01	
	Totally dependent	1		
Garre-Olmo et al. (2009) <sup>23</sup>	Who do you live with?			Negligence
	With other family members	5.29	2.65- 10.56	
	Alone	1		
Oh et al. (2006) <sup>14</sup>	Family relationship			Negligence
	Very good	0.01	<0.01	
	Good	0.01	<0.01	
	Average	0.14	<0.01	
	Bad	1		
Garre-Olmo et al. (2009) <sup>23</sup>	Access to a trusted person			Negligence
	Yes	0.52	0.27-0.99	
	No	1		
Garre-Olmo et al. (2009) <sup>23</sup>	Beneficiary of social services			Negligence
	Yes	1.83	1.05- 3.20	
	No	1		
Wu et al. (2012) <sup>24</sup>	Intensity of work			Negligence
	Moderate	1.6	1.1- 2.3	
	High	1.8	1.3- 2.4	
	Low	1		
Wu et al. (2012) <sup>24</sup>	Depression			Negligence
	Yes	2.6	1.9- 3.5	
	No	1		
Oh et al. (2006) <sup>14</sup>	Physical health			Negligence
	Lower IADL			
	Yes	0.92	<0.05	
	No	1		
Burnes et al. (2015) <sup>11</sup>	Poor health			Negligence
	Yes	2.1	≤0.05	
	No	1		
Oh et al. (2006) <sup>14</sup>	Age			Verbal abuse
	75-79 years	1.61	<0.01	
	80 years or +	1		

it continues

**Chart 4.** Factors associated with specific violence.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P ou CI	Type of Abuse
Oh et al. (2006) <sup>14</sup>	Sex			Verbal abuse
	Male	1.33	<0.05	
	Female	1		
Oh et al. (2006) <sup>14</sup>	Economic capacity			Verbal abuse
	Partially dependent	0.69	<0.05	
	Totally dependent	1		
Oh et al. (2006) <sup>14</sup>	Economic level			Verbal abuse
	Very Low	3.63	<0.01	
	Low	3.38	<0.01	
	Higher	1		
Oh et al. (2006) <sup>14</sup>	Family relationship			Verbal abuse
	Very good	0	<0.01	
	Good	0.01	<0.01	
	Average	0.15	<0.01	
	Bad	1		
Oh et al. (2006) <sup>14</sup>	Physical health			Verbal abuse
	More sick days			
	Yes	1.07	<0.01	
Comijs et al. (1999) <sup>40</sup>	Self control			Verbal abuse
	Yes	1.17	<0.05	
Burnes et al. (2015) <sup>11</sup>	Age			Emotional abuse
	70-84	0.6	0.05	
	greater than or equal to 85	0.3	0.05	
	60-69	1		
Wu et al. (2012) <sup>24</sup>	Age			Psychological mistreatment
	70-84	0.4	0.001	
	greater than or equal to 85	0.5	≤0.05	
	60-69	1		
Beach et al. (2010) <sup>25</sup>	Age			Psychological mistreatment
	75- 84 years	0.38	0.005	
	65 - 74 years	1		
Oh et al. (2006) <sup>14</sup>	Age			Emotional abuse
	75 – 79 years	1.36	<0.05	
	80 years or +	1		
Oh et al. (2006) <sup>14</sup>	Sex			Emotional abuse
	Male	1.49	<0.01	
	Female	1		
Burnes et al. (2015) <sup>11</sup>	Marital Status			Emotional abuse
	Separated or divorced	2.7	0.01	
	Married	1		
Wu et al. (2012) <sup>24</sup>	Marital Status			Psychological mistreatment
	Single /divorced/separated	2.1	1.5-2.8	
	Married	1		

it continues

**Chart 4.** Factors associated with specific violence.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P ou CI	Type of Abuse
Beach et al. (2010) <sup>25</sup>	Marital status			Psychological mistreatment
	Widowed	0.18	0.049	
	Never married	0.12	0.037	
	Married	1		
Burnes et al. (2015) <sup>11</sup>	Education			Emotional abuse
	< college	0.4	0.05	
	college	0.4	0.05	
	postgraduate studies	1		
Wu et al. (2012) <sup>24</sup>	Education			Psychological mistreatment
	< high school	0.2	0.01	
	high school	0.3	0.001	
	college	0.3	0.001	
	postgraduate studies	1		
Beach et al. (2010) <sup>25</sup>	Education			Psychological mistreatment
	High school	1.88	0.044	
	Postgraduate studies	1		
Burnes et al. (2015) <sup>11</sup>	Family income			Emotional abuse
	< \$30,000	1.7	0.05	
	> \$30,000	1		
Wu et al. (2012) <sup>24</sup>	Financial Resources			Psychological mistreatment
	Depending partly on own income	0.6	0.5- 0.8	
	Relying solely on own income	1		
Oh et al. (2006) <sup>14</sup>	Economic capacity			Emotional abuse
	Partially dependent	0.51	<0.01	
	Totally dependent	1		
Oh et al. (2006) <sup>14</sup>	Economic level			Emotional abuse
	Very Low	4.1	<0.01	
	Low	4.09	<0.01	
	High	2.56	<0.01	
	Very High	1		
Hernandez-Tejada et al. (2013) <sup>27</sup>	Social support x Ethnicity			Emotional abuse
	Low	2.28	0	
	High	1		
Hernandez-Tejada et al. (2013) <sup>27</sup>	Social support x Race			Emotional abuse
	Low	2.16	0	
	High	1		
Jang e Park (2012) <sup>28</sup>	Family support		<0.001	Psychological abuse
	High level of family support	0.43		
	Less support from family	1		
Beach et al. (2010) <sup>25</sup>	Family relationship			Psychological mistreatment
	Very good	0	<0.01	
	Good	0.01	<0.01	
	Average	0.14	<0.01	
	Bad	1		
Garre-Olmo et al. (2009) <sup>23</sup>	Access to a trusted person			Psychological abuse
	Yes	0.35	0.18- 0.69	
	No			

it continues

**Chart 4.** Factors associated with specific violence.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P ou CI	Type of Abuse
Wu et al. (2012) <sup>24</sup>	Life arrangement			Psychological mistreatment
	Living with spouse	0.6	0.4- 0.9	
	Living with spouse and children	0.7	0.4- 0.9	
	Living with other family members	0.5	0.3- 0.9	
	Living alone	1		
Beach et al. (2010) <sup>25</sup>	Risk of depression			Psychological mistreatment
	Yes	3.14	<0.001	
	No	1		
Garre-Olmo et al. (2009) <sup>23</sup>	Geriatric depression scale 5			Psychological abuse
	Suspicion of depression	1.65	1.01- 2.72	
	Normal	1		
Wu et al. (2012) <sup>24</sup>	Depression			Psychological mistreatment
	Yes	6.9	5.2- 9.1	
	No	1		
Hernandez-Tejada et al. (2013) <sup>27</sup>	Health x Ethnicity			Emotional abuse
	Poor	1.61	0.005	
	Good	1		
Hernandez-Tejada et al. (2013) <sup>27</sup>	Health x Ethnicity			Emotional abuse
	Poor	1.67	0.003	
	Good	1		
Jang e Park (2012) <sup>28</sup>	History of suicide attempts			Psychological abuse
	Yes	2.46	0.048	
	No	1		
Wu et al. (2012) <sup>24</sup>	Chronic disease			Psychological mistreatment
	Yes	1.3	1.0- 1.6	
	No	1		
Jang e Park (2012) <sup>28</sup>	N ° of chronic diseases			Emotional abuse
	≥3 diseases	0.14	0.009	
	None	1		
Garre-Olmo et al. (2009) <sup>23</sup>	Incontinence of the bladder, n (%)			Emotional abuse
	Occasional	1.49	0.78- 2.83	
	Frequent	2.44	1.23-4.86	
	Normal	1		
Oh et al. (2006) <sup>14</sup>	Physical health			Emotional abuse
	More sick days			
	Yes	1.05	< 0.01	
	No	1		
Wu et al. (2012) <sup>24</sup>	Physical disability			Psychological mistreatment
	Yes	1.5	1.1- 2.2	
	No	1		
Garre-Olmo et al. (2009) <sup>23</sup>	Age			Financial abuse
	85 years or +	3.84	1.70- 8.68	
	75 - 84	1		
Oh et al. (2006) <sup>14</sup>	Sex			Economic abuse
	Male	1.39	< 0.01	
	Female	1		
Oh et al. (2006) <sup>14</sup>	Education			Economic abuse
	Never studied	1.98	< 0.01	
	10 years or more of study	1		

it continues



**Chart 4.** Factors associated with specific violence.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P ou CI	Type of Abuse
Garre-Olmo et al. (2009) <sup>23</sup>	Marital status			Financial abuse
	Spouse or partner	0.4	0.12- 1.31	
	Widowed	0.15	0.04-0.59	
	Not married	1		
Oh et al. (2006) <sup>14</sup>	Economic capacity			Economic abuse
	Partially dependent	0.73	< 0.05	
	Totally dependent	1		
Oh et al. (2006) <sup>14</sup>	Economic level			Economic abuse
	Very low	9.8	< 0.01	
	Low	5.41	< 0.01	
	Moderate	2.22	< 0.05	
	Higher	1		
Oh et al. (2006) <sup>14</sup>	Living Arrangements			Economic abuse
	Living with the family of a married child	2.74	< 0.01	
	Living with a single child	2.57	< 0.05	
	Other arrangements	1		
Oh et al. (2006) <sup>14</sup>	Family relationship			Economic abuse
	Very good	0.03	< 0.01	
	Good	0.06	< 0.01	
	Average	0.2	< 0.01	
	Bad	1		
Garre-Olmo et al. (2009) <sup>23</sup>	Mini mental state examination (Cognitive impairment)			Financial abuse
	No	0.85	0.78- 0.94	
	Yes	1		
Beach et al. (2010) <sup>25</sup>	Risk of Depression			Financial exploitation
	Yes	2.56	0.001	
	No	1		
Wu et al. (2012) <sup>24</sup>	Physical Disability			Financial exploitation
	Yes	2.8	1.2-6.6	
	No	1		
Beach et al. (2010) <sup>25</sup>	Any difficulty in IADL			Financial exploitation
	Yes	1.97	0.027	
	No	1		
Wu et al. (2012) <sup>24</sup>	Intensity of work			Financial exploitation
	High	2.6	1.4- 5.0	
	Low	1		
Beach et al. (2010) <sup>25</sup>	African American	3.91	< 0.001	Financial exploitation
	Not African American	1		
Comijs et al. (1999) <sup>40</sup>	Self control			Financial mistreatment
	Yes	1.18	< 0.05	
	No	1		
Cannell et al. (2014) <sup>26</sup>	Marital status			Sexual violence
	Not married	2.39	< 0.05	
	Maried	1		
Cannell et al. (2014) <sup>26</sup>	Race/ethnicity			Sexual violence
	Other, non-Hispanic	2.03	< 0.05	
	white, non-Hispanic	1		

it continues

**Chart 4.** Factors associated with specific violence.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P ou CI	Type of Abuse
Cannell et al. (2014) <sup>26</sup>	Education			Sexual violence
	high school graduate	0.41	< 0.05	
	high school graduate	1		
Cannell et al. (2014) <sup>26</sup>	Annual income			Sexual violence
	< \$15,000	2.81	< 0.05	
	None	3.78	< 0.05	
	> \$ 75,000	1		
Cannell et al. (2014) <sup>26</sup>	Employment			Sexual violence
	Employed	1.84	< 0.05	
	Unemployed	2	< 0.05	
	Retired	1		
Hernandez-Tejada et al. (2013) <sup>27</sup>	Social support x Ethnicity			Sexual abuse
	Low	4.32	0.005	
	High	1		
Hernandez-Tejada et al. (2013) <sup>27</sup>	Social support x Race			Sexual abuse
	Low	4.43	0.004	
	High	1		
Cannell et al. (2014) <sup>26</sup>	Emotional support			Sexual violence
	Sometimes, rarely, or never	2.23	< 0.05	
	Always or generally	1		
Cannell et al. (2014) <sup>26</sup>	Life Satisfaction			Sexual violence
	Not satisfied	2.19	< 0.05	
	Very satisfied	1		
Cannell et al. (2014) <sup>26</sup>	Bad mental health days			Sexual violence
	At least one	2.18	< 0.05	
	None	1		
Burnes et al.(2015) <sup>11</sup>	Age			Physical Abuse
	70-84	0.4	0.001	
	greater than or equal to 85	0.5	≤0.05	
	60-69	1		
Burnes et al.(2015) <sup>11</sup>	Marital Status			Physical Abuse
	Separated or divorced	2.0	≤0.05	
	Married	1		
Burnes et al.(2015) <sup>11</sup>	Education			Physical Abuse
	< college	0.2	0.01	
	high school	0.3	0.001	
	college	0.3	0.001	
	postgraduate studies	1		
Oh et al. (2006) <sup>14</sup>	Education			Physical Abuse
	Never studied	1.55	< 0.05	
	10 years or more of study	1		
Burnes et al. (2015) <sup>11</sup>	Household income			Physical Abuse
	< \$30,000	2.2	0.01	
	> \$30,000	1		
Oh et al. (2006) <sup>14</sup>	Economic capacity			Physical Abuse
	Partially dependent	0.48	< 0.01	
	Totally dependent	1		

it continues

**Chart 4.** Factors associated with specific violence.

Author/Year	Associated Factor	Association Measure (OR/AR/RP)	P ou CI	Type of Abuse
Oh et al. (2006) <sup>14</sup>	Economic level			Physical Abuse
	Very low	4.42	< 0.01	
	Low	3.19	< 0.01	
	Higher	1		
Oh et al. (2006) <sup>14</sup>	Family relationship			Physical Abuse
	Very good	0.11	< 0.05	
	Bad	1		
Jang e Park (2012) <sup>28</sup>	Family support			Physical Abuse
	High level of family support	0.24	0.02	
	Less support from family	1		
Hernandez-Tejada et al. (2013) <sup>27</sup>	Social support x Ethnicity			Physical mistreatment
	Low	2.24	0.007	
	High	1		
Hernandez-Tejada et al. (2013) <sup>27</sup>	Social support x Race			Physical mistreatment
	Low	1.94	0.039	
	High	1		
Jang e Park (2012) <sup>28</sup>	Feeling desperate			Physical abuse
	Yes	4.03	0.017	
	No	1		
WU et al. (2012) <sup>24</sup>	Depression			Physical mistreatment
	Yes	6.3	4.8- 8.3	
	No	1		
Hernandez-Tejada et al. (2013) <sup>27</sup>	Poor health x Ethnicity			Physical mistreatment
	Poor	1.92	0.032	
	Good	1		
Comijs et al. (1999) <sup>40</sup>	Passive reaction pattern (coping)			Physical violence
	Yes	1.26	< 0.05	
	No	1		

In the present systematic review, the studies were conducted in countries in the Americas, Europe and Asia. No study came from Africa or Oceania. It has been shown that studies of violence in the elderly population are concentrated in countries with a higher level of human development (UNDP, 2015) and this may mask the reality of even higher rates of global violence than those already known. In another systematic review<sup>30</sup> concerning elder abuse, most of the primary studies had been conducted in developed countries, corroborating this finding.

Few scientific studies of elder abuse are based on strong evidence and most of the studies in-

cluded were of cross-sectional design. This indicates the importance of the issue of abuse in academic and social circles. However, there is a need for studies with a higher level of evidence, since cross-sectional studies provide weaker evidence than those using other methodologies.

The studies used a variety of instruments to measure abuse and this hindered comparison of their findings. Most of the studies included reported flaws and the need for instruments adequate for each context. In this systematic review, the most common instrument was the Review Conflicts Tactics Scale (CTS)/(CTS2). This finding corroborates that of Espíndola & Blay<sup>29</sup>.

The CTS was not created specifically for the elderly population but is the oldest instrument, dating back to 1979, and also the most widely used. This can be explained by the fact that it meets the criteria of validity and reliability. CTS2 is a more up-to-date version that aims to correct some of the flaws in the original version<sup>31</sup>.

Of the factors associated with elder abuse, having a “lower income” was considered a highly significant risk factor for all types of abuse, general or specific. This indicates that the fewer financial resources the elderly have access to, the more vulnerable they are abuse.

Clusters of low-income or unemployed people tend to generate higher rates of housing instability, resulting in a deficit regarding the creation of common values and norms among individuals and the development of strong social bonds and support networks. Oversight is also compromised and this propagates conditions in which abuse can flourish, such as increased social marginalization and poor physical and mental health<sup>6</sup>.

Having a diagnosis of depression was also found to be a risk factor for almost all types of abuse. However, most studies were cross-sectional and thus did shed light on the direction of causality. There is, therefore, no way of inferring whether the elderly are more subject to violence because they are depressed or whether they are depressed as a consequence of the abuse.

Most studies have shown that elderly individuals who are women are more likely to experience general abuse. Illnesses prevalent in women, however, could be explained by a life-expectancy bias in cross-sectional studies, which do not take into account the higher life-expectancy of women and thereby overestimate the prevalence of abuse.

However, global estimates indicate that 30% of older women who have had a partner have been victims of physical and/or sexual violence at some point in their lives, with variations according to regions around the world. In Africa, the Eastern Mediterranean and Southeast Asia, approximately 37% of women have been abused by an intimate partner, followed by the Americas, where approximately 30% of women report some kind of life-threatening violence<sup>6</sup>.

Longevity in the elderly presented a heightened risk for self-neglect but constituted a protection against neglect, verbal, psychological, financial and physical abuse. This may be due to the difficulty reporting violence among such individuals, since the perpetrators are usually caregivers or people close to them. When considering the “age” factor, it should therefore also be

borne in mind how much harder it is for an elderly person to report abuse, given all the natural limitations of age, not to mention dementia or associated physical and psychological incapacities. Self-neglect may therefore mask negligence.

Neglect, defined as a refusal or failure on the part of the caregiver to provide the necessary care, may be domestic or institutional and may generate physical, emotional, and social harm and trauma. People neglect the elderly because they feel they do not need care because, unlike children and adolescents, they are not developing psychologically and physiologically. However, this population has limitations inherent to the aging process, such poor hygiene and impaired functional and sensorial capacities<sup>32</sup>.

With regard to family relationships, “living with the family of a married child,” “living alone or with children,” “households with six or more residents,” “having less family support,” and “expressing frequent incidents of conflict with family or friends” were all risk factors for general abuse. “Living with other family members” was a risk factor for negligence. “Living with the family of a married child” and “living with a single child” were risk factors for financial abuse, while a “very bad family relationship” was a risk factor for neglect, and general, verbal, psychological and economic abuse.

According to the World Report on Violence and Health<sup>3</sup>, the elderly may be at greater risk of abuse when living with the people who care for them, as a result of lack of privacy for both or overcrowding in the home. This may generate conflicts within the family and older people with dementia can behave violently towards caregivers, thereby provoking violence in return.

The work overload that old age can entail, especially when the individual is dependent on others for activities of daily living (ADL) and instrumental activities of daily living (IADL) can also generate a higher rate of violence. This was seen in the present study, in which greater dependence on others for ADL and IADL were risk factors for general abuse and having difficulty with IADL was also a risk factor for financial abuse.

There is an interdependence between abuser and abused and the elderly are at greater risk of abuse when they are more dependent on others for daily activities, while aggressors, most of them young people, are generally more dependent on the elderly for housing and financial assistance, thereby creating a greater risk of abuse. Elderly people may be isolated due to physical or mental illnesses, as well as the loss of friends

and family. This decreases the chances of social interaction<sup>3</sup>.

Social isolation may be a risk factor for abuse, as was seen in the present study in several variables that were found to increase the likelihood of general abuse. Social isolation can however also be construed as a consequence of abuse, as the elderly may be overwhelmed by the violence practiced against them and isolate themselves.

In the present systematic review, social factors were significant as well as those relating to health. This makes it clear that existing individual risks need solutions at the macro level, such as investment in improved living conditions, more social equality, better health and education for all, better quality of life and reduced prevalence of all types of elder abuse worldwide.

Elder abuse is a multifactorial phenomenon, with high complexity. It is complex, because distinct (economic, political, sociological, psychological, affective, mythological) components are inseparable constituents of the whole, and there is interdependence between abuse and the con-

text in which it occurs, between the whole and the parts, and among the parts themselves<sup>34</sup>.

One limitation of this review was the paucity of studies dealing exclusively with abuse in the elderly. It nevertheless represents an important contribution to the study of violence against this population.

## Conclusion

Elder abuse is a multifactorial phenomenon. In the present review, the following risk factors were identified: age, sex, marital status, educational level, income, family arrangement, family relationship, social support, solitude, mental disorder, depression, dependence on others for ADL and IADL, and others.

For this reason, abuse should not be seen in a partial, one-dimensional way. Its various dimensions should all be taken into account and the interdependence of all the associated factors should be recognized.

## Collaborations

MAB Santos is a principal researcher, participated in the preparation of the research, selection and analysis of data, writing of the article, submission and procedures of the article. RS Moreira participated in the guidance, preparation and correction of the writing of the article and approval of the final version. PF Faccio participated in the selection and analysis of the data. GC Gomes participated in the preparation and correction of the writing of the article. VL Silva participated in the orientation, preparation of the research, data analysis, preparation and correction of the writing of the article and approval of the final version.

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