

# Elder Abuse: Systematic Review and Implications for Practice

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This article is based on the lecture for the 2014 American Geriatrics Society Outstanding Scientific Achievement for Clinical Investigation Award. Elder abuse is a global public health and human rights problem. Evidence suggests that elder abuse is prevalent, predictable, costly, and sometimes fatal. This review will highlight the global epidemiology of elder abuse in terms of its prevalence, risk factors, and consequences in community populations. The global literature in PubMed, MEDLINE, PsycINFO, BIOSIS, Science Direct, and Cochrane Central was searched. Search terms included elder abuse, elder mistreatment, elder maltreatment, prevalence, incidence, risk factors, protective factors, outcomes, and consequences. Studies that existed only as abstracts, case series, or case reports or recruited individuals younger than 60; qualitative studies; and non-English publications were excluded. Tables and figures were created to highlight the findings: the most-detailed analyses to date of the prevalence of elder abuse according to continent, risk and protective factors, graphic presentation of odds ratios and confidence intervals for major risk factors, consequences, and practical suggestions for health professionals in addressing elder abuse. Elder abuse is common in community-dwelling older adults, especially minority older adults. This review identifies important knowledge gaps, such as a lack of consistency in definitions of elder abuse; insufficient research with regard to screening; and etiological, intervention, and prevention research. Concerted efforts from researchers, community organizations, healthcare and legal professionals, social service providers, and policy-makers should be promoted to address the global problem of elder abuse. *J Am Geriatr Soc* 63:1214–1238, 2015.

**Key words:** AGS award; elder abuse; systematic review

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This article is based on the lecture for the 2014 American Geriatrics Society Outstanding Scientific Achievement for Clinical Investigation Award. Elder abuse is a global public health and human rights problem that crosses sociodemographic and socioeconomic strata. Elder abuse, sometimes called elder mistreatment or elder maltreatment, includes psychological, physical, and sexual abuse; neglect (caregiver neglect, self-neglect); and financial exploitation.<sup>1</sup> Physical abuse consists of infliction of physical pain or injury to an older adult and may result in bruises, welts, cuts, wounds, and other injuries. Sexual abuse refers to nonconsensual touching or sexual activities with older adults when they are unable to understand, unwilling to consent, threatened, or physically forced into the act. Psychological abuse includes verbal assault, threat of abuse, harassment, or intimidation, which may result in resignation, hopelessness, fearfulness, anxiety, or withdrawn behaviors. Neglect is failure by a caregiver (caregiver neglect) or oneself (self-neglect) to provide the older adult with necessities of life and may result in being underweight or frail, unclean appearance, or dangerous living conditions. Financial exploitation includes the misuse or withholding of an older adult's resources to their disadvantage or the profit or advantage of another person and may consist of overpayment for goods or services; unexplained changes in power of attorney, wills, or legal documents; missing checks or money; or missing belongings.<sup>2</sup>

Although elder abuse is a newer field of violence research than domestic violence and child abuse, research indicates that elder abuse is a common, fatal, and costly yet understudied condition.<sup>3–6</sup> An estimated 10% of U.S. older adults have experienced some form of elder abuse, yet only a fraction is reported to Adult Protective Services (APS).<sup>1</sup>

For decades, professionals and the public have viewed elder abuse and broader violence as predominantly social or family problems. Since the first scientific literature citing in the *British Medical Journal* in 1975,<sup>7</sup> there has been increasing attention from public health, social services, health, legal, and criminal justice professionals. In 2003, the National Research Council brought together national experts to examine the state of science on elder abuse and recommended priority strategies to advance the field.<sup>8</sup> Despite multidisciplinary efforts to screen, treat, and

prevent elder abuse, speed of progress has lagged behind the scope and effect of the issue.

In March 2011, the Senate Special Committee on Aging held a hearing: “Justice for All: Ending Elder Abuse, Neglect and Exploitation.” Based on a Government Accountability Office report,<sup>9</sup> individuals who had been abused and experts highlighted the lack of research, education, training, and prevention strategies. The Government Accountability Office estimated that, in 2009, national spending by federal agencies was \$11.9 million for all activities related to elder abuse (\$1.1 million according to the National Institutes of Health), which is much less than the annual funding for violence against women programs (\$649 million) and for child abuse programs (\$7 billion).<sup>10</sup> On June 14, 2012, the World Elder Abuse Awareness Day commemoration was held at the White House, and President Obama proclaimed the importance of advancing the field of elder abuse.<sup>11</sup> In March 2013, the Centers for Medicare and Medicaid Services held a national symposium to highlight elder abuse as a Physician Quality Reporting System measure (#181) to promote screening of elder abuse in healthcare settings.<sup>12</sup> In April 2013, the Institute of Medicine held a 2-day workshop dedicated to elder abuse prevention, bringing together global experts to advance the field. In October 2013, the U.S. Preventive Services Task Force recommended elder abuse as a research priority area in its report to Congress.<sup>13</sup>

This review highlights the global epidemiology of elder abuse in terms of its prevalence, risk factors, and consequences. It covers major gaps in research and policy issues for the field of elder abuse and discussed implications for researchers, health professionals, and policy-makers.

## METHODS

### Data Source and Study Selection

The global literature in PubMed, MEDLINE, PsycINFO, BIOSIS, Science Direct and Cochrane Central was searched. The search was limited to studies published in English. Search terms included elder abuse, elder mistreatment, elder maltreatment, prevalence, incidence, risk factors, protective factors, outcomes, and consequences. Review studies were identified and their reference lists examined for relevant articles. Studies existing only as abstracts, case series, or case reports or that recruited individuals younger than 60; qualitative studies; and non-English publications were excluded (online Figure S1).

For prevalence studies, it was not the intention to present every published study in community populations. Rather, this study aimed to demonstrate the heterogeneity of elder abuse definitions and prevalence on the major continents: North America, South America, Europe, Asia, and Africa. Because there is limited research in developing countries, studies were included from as many different countries as available. For studies in developed countries (e.g., North America and Europe), studies representative of cultural diversity, definitional variations, and psychometric testing and large-scale epidemiological studies were selected.

For risk and protective factors, only studies in which elder abuse was clearly defined as the primary dependent

variable, potential confounding factors were considered in the analyses, and the risks and confidence intervals were shown were included. A similar approach was used for consequences, and only studies in which elder abuse was the primary independent variable and confounding factors were used were included. Studies in which primary analyses were bivariate in nature were not included, articles identified using the search methods were independently reviewed, and studies were selected according to the criteria.

## Data Synthesis

### Epidemiology of Elder Abuse

Elder abuse is a worldwide health problem. Prevalence of elder abuse varies depending on the population, settings, definitions, and research methods (Table 1 and online Figure S2).<sup>3,4,14–22</sup> In North and South America, the prevalence of elder abuse in this review ranges from 10% in cognitively intact older adults to 47.3% in older adults with dementia.<sup>3,23</sup> In Europe, the prevalence has been found to vary from 2.2% in Ireland to 61.1% in Croatia.<sup>24,25</sup> In Asia, the highest 1-year prevalence in this review has been found in older adults in mainland China (36.2%) and lowest was in India (14.0%).<sup>21,26,27</sup> Only two studies conducted in Africa have been found, and the prevalence ranged from 30% to 43.7%.<sup>20,28</sup> A more-detailed version of Table 1 showing the specific cutoff point methods for prevalence estimates is supplied as online Table S1.

Elder abuse is common in minority older adults. Financial exploitation is three times as high and psychological abuse four times as high in black populations.<sup>4</sup> A study of Hispanics indicated that 40% had experienced elder abuse, yet only 2% was reported to authorities.<sup>14</sup> In a study of 4,627 older adults in the Chicago Health and Aging Project, older black men were three times as likely to experience elder self-neglect as older white men, and older black women were two times as likely to report elder self-neglect as older white women.<sup>16</sup> In a Chinese population, despite cultural expectations of filial piety, 35% of older adults self-reported elder abuse.<sup>29</sup> Understanding culturally specific elements of elder abuse will be critical to designing prevention and intervention strategies used in culturally specific contexts.

Although there is no consensus on a singular measure, the Conflict Tactic Scale (CTS)<sup>30</sup> remains one of the most widely used to measure physical, psychological, and sexual abuse. Despite using the same measurement, the cutoff point for definite elder abuse differs greatly across studies, leading to large variation in prevalence estimates. For instance, one study used the revised CTS and regarded older adults who endorsed any item of the measurement as having experienced verbal abuse and found a 1-year prevalence of 21%.<sup>31</sup> Another study used the modified CTS but included those who endorsed 10 or more items as having experienced psychological abuse and therefore found a 1-year prevalence of only 1.2%.<sup>24</sup> A third likewise used the “10 or more items” criteria and suggested a 1-year prevalence of psychological abuse of 3.2%.<sup>32</sup> Such inconsistency in definitions was also observed in measuring elder

Table 1. Prevalence Estimates of Elder Abuse According to Population, Survey Method, and Definition

Author, Year	Population	Age; Sex; Race and Ethnicity	Survey Method	Participation rate, %	Measure	No. item	Cutoff Points	Prevalence
North/South America Dong, 2014 <sup>33</sup>	3,159 elderly Chinese in Chicago	≥60; 58.9% female	In person	91.9	H-S/EAST, VASS	10	≥1 items	15.0% since age 60
Dong, 2014 <sup>33</sup>	3,159 elderly Chinese in Chicago	≥60; 58.9% female	In person	91.9	CTS; caregiver neglect assessment; financial exploitation assessment	56	<sup>a</sup>	13.9–25.8% since age 60
Deliaema, 2012 <sup>14</sup>	198 Hispanics in Los Angeles	≥66; 56% female	In person	65	University of Southern California Older Adult Conflict Scale	54	≥1 items	1-year, 40.4%; multiple, 21%
Dong, 2012 <sup>58</sup>	4,627 adults in Chicago	≥65; 64.4% female	In person	N/A	Chicago Elder Self-Neglect Scale	21	≥1 items	Black: men, 13.2%; women, 10.9% White: men, 2.4%; women, 2.6% 14.1% since age 60
Lachs, 2011 <sup>54</sup>	4, 156 English- or Spanish-speaking community; cognitively intact older New Yorkers	60–101; 35.5% female; 19.0% black, 75.5% white, 6.0% Hispanic, 0.8% American Indian, 1.2% Asian	Telephone	N/A	CTS	31	<sup>a</sup>	14.1% since age 60
Acierno, 2010 <sup>3</sup>	5,777 cognitively intact U.S. community population	60–97; 60% female; 88% white, 7% black, 4% Hispanic, 2% American Indian, 1% Asian	Random-digit dialing and computer-assisted interview	69	Interpersonal Violence Measure and Acierno EM Measure	22	≥1 items	Any elder abuse (exclude financial): 10%
Wiglesworth, 2010 <sup>23</sup>	129 older adults with dementia and their caregivers	77.1 ± 8.0; 45.7% female; 93.8 white, 8.5% Hispanic	In-person survey of caregivers	N/A	CTS, Elder Abuse Instrument, Self-Neglect Assessment Scale	NA	<sup>a</sup>	1-year 47.3%; multiple, 14.6%
Beach, 2010 <sup>37</sup>	903 U.S. community-dwelling older adults with landline, English-speaking, no severe cognitive impairment	≥60; 73.3% female; 23.3% black, 72.8% white, 3.9% other	Random-digit dialing, in-person, self-administered	37.7	Modified CTS	12	<sup>a</sup>	6-month financial exploitation, 3.5%; 6-month psychological mistreatment, 8.2%
Laumann, 2008 <sup>17</sup>	3,005 older adults in the National, Social Life, Health and Aging project	57–85; 51.2% female; 80.7% white, 10.0% black; 6.8% Hispanic; 2.5% other	In-person and mail survey	75.5	H-S/EAST, VASS	3	≥1 items	1-year: verbal, 9%; financial, 3.5%; physical, 0.2%
Buri, 2006 <sup>81</sup>	498 older adults in the Iowa Medicaid Waiver Program	65–101; 70.9% female; 96% white, 3% black	Mail survey	49	Elder Abuse Screen	5	≥1 items	20.9%: 1 type, 15.8%; 2 types, 4.0%; 3 types, 1.0%
Europe Lindert, 2013 <sup>19</sup>	4,467 older adults from seven countries in Europe	60–84; 57.3% female	In-person and mail survey	45.2	Modified CTS	52	≥1 items	1-year, 12.7–30.8%
Naughton, 2011 <sup>24</sup>	2,021 community-dwelling older people in Ireland	≥65; 55% female	In person	83	CTS, UK and NY prevalence studies	NA	<sup>a</sup>	1-year, 2.2%
Kissal, 2011 <sup>82</sup>	331 older adults in Izmir, Turkey	≥65; 56.8% female	In person	N/A	Investigator-determined	5	<sup>a</sup>	6-month, 13.3%

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Table 1 (Contd.)

Author, Year	Population	Age; Sex; Race and Ethnicity	Survey Method	Participation rate, %	Measure	No. item	Cutoff Points	Prevalence
Biggs, 2009 <sup>83</sup>	2,111 older adults in the community in United Kingdom	≥66	In person	65	Built on literature	34	<sup>a</sup>	2.6% with neglect; 1.6% without neglect
Ajukovic, 2009 <sup>25</sup>	303 older adults in Croatia	65–97; 76.6% female	In person	NA	Elder Abuse in the Family questionnaire	20	NA	1-year, 61.1%
Cooper, 2009 <sup>84</sup>	220 UK caregivers of people with dementia	58–99, 72% female	In person	69	Modified CTS	10	Score ≥2	3-month, 52%
Garre-Olmo, 2009 <sup>85</sup>	676 community-dwelling older adults in Girona, Spain	≥75; 58.2% female.	In person	82	AMA Screen	9	≥1 items	1-year, 29.3%; 2 types, 3.6%; 3 types, 0.1%
Perez Carceles, 2008 <sup>86</sup>	460 older adults in health center in Spain	≥65; 53.3% female	In person	N/A	Canadian Task Force, AMA Screen	19	≥1 items	44.6%
Comijs, 1998 <sup>31,32</sup>	1,797 older people living independently in Amsterdam, the Netherlands	69–89; 62.8% female	Interview	44.4	CTS, Measure of Wife Abuse, Violence Against Man Scale	NA	<sup>a</sup>	1-year, 5.6%; ≥2 types, 0.4%
Asia/Austria Wu, 2012 <sup>21</sup>	2,039 Chinese older adults in rural China	≥60; 59.9% female	In person	90.8	H-S/EAST, VASS	NA	≥1 items	1-year, 36.2%; ≥2 types, 10.5%
Somjinda Chompoonud, 2010 <sup>87</sup>	233 cognitively functioning older adults in Thailand	60–90; 73.4% female	In person	73.3	Interview guideline for screening for elder abuse	6	≥1 items	1-year, 14.6%; 1 time, 9.9%; ≥2 times, 4.7%
Lowenstein, 2009 <sup>27</sup>	1,045 community-living older adults from the first national survey in Israel	≥65; 62.5% female	In person	75	CTS2, short situational descriptions, Respondents' Reactions to Aggression	NA	<sup>a</sup>	1-year, 35.0%
Oh, 2009 <sup>22</sup>	15,230 older adults in Seoul, Korea	≥65; 65.3% female	In person	N/A	Compiled through literature	25	≥2 times	1-month, 6.3%
Lee, 2008 <sup>88</sup>	1,000 primary caregivers of family members with disabilities in Seoul, Korea	65–102; 69.5% female	In person	N/A	N/A	6	<sup>a</sup>	Not answered question, 10.5%; yelled, 10.9%; confined, 18%; hit, 9.7%; neglected, 13.6%
Dong, 2007 <sup>44</sup>	412 cognitively intact community-living persons from medical clinics in China	≥60, 34% female	Self-administered survey	82.4	H-S/EAST, VASS	13	≥1 items	35.2% since age 60; 1 type, 64%; 2 types, 16%; ≥3 types, 20%
Sasaki, 2007 <sup>89</sup>	412 pairs of disabled older adults and family caregivers in Japan	Mean 80.5, 60.1% female	Self-administered survey	70.0	Checklist developed by literature	9	≥1 items	6-month, 34.9%
Chokkanathan, 2006 <sup>26</sup>	400 community-living cognitively intact older adults in India	≥65; 49.5% female	In person	80	CTS	18	<sup>a</sup>	1-year, 14%

(Continued)

Table 1 (Contd.)

Author, Year	Population	Age; Sex; Race and Ethnicity	Survey Method	Participation rate, %	Measure	No. item	Cutoff Points	Prevalence
Yan, 2001 <sup>31</sup>	355 community-living older adults in Hong Kong, China	≥60; 62% female	Self-administered	N/A	Revised CTS	25	≥1 items	1-year, 21.4%; multiple types, 17.1%
Africa Cadmus, 2012 <sup>20</sup>	404 elderly women in Oyo state, southwestern Nigeria	≥60; 100% female; 100% Yoruba	Semistructured questionnaires	N/A	Standardized questionnaire developed by World Health Organization	18	Score ≥1	1-year, 30%
Rahman, 2012 <sup>28</sup>	1,106 older adults living at home in rural area of Mansoura city, Dakahlia Governate, Egypt	≥60; 53.2% female	In-person interview	95.3	Questionnaire to elicit abuse	15	≥1 items	1-year, 43.7%; 1 type, 35.4%; 2 types, 3.8%; 3 types, 3.8%; 4 types, 0.6%

For detailed table on the definitional criteria for specific subtypes of elder abuse and its prevalence, see online Table S1.

<sup>3</sup>Cutoff varies according to subtype of abuse and more detailed information regarding the cut-off point of each type of abuse please see the appendix.

H-S/EAST = Hwalek-Sengstok Elder Abuse Screening Test; VAAS = Vulnerability to Abuse Screening Scale; CTS = Conflict Tactics Scale; AMA = American Medical Association, N/A = not applicable.

neglect, with some studies using the “any item” approach and others using the “10 or more items” approach. In comparison, the operational definitions of physical and sexual abuse remain more consistent across studies, with the majority of studies using the “any item” approach. A recent study used different operational definitions to examine elder abuse and its subtypes in the same population cohort and suggested that the prevalence of elder abuse and its subtypes varied with the strictness of the definition.<sup>33</sup>

Risk factors for elder abuse are highlighted in Table 2 and visually plotted in Figure 1. Associations between sociodemographic and socioeconomic characteristics and elder abuse have been inconsistent.<sup>4,22,24, 26,34-36</sup> Physical function impairment has been linked with elder abuse,<sup>37-43</sup> as has psychological distress and social isolation.<sup>36,40,44-47</sup> Of various risk factors, cognitive impairment seemed to be consistently associated with greater risk of elder abuse. For example, 254 caregivers and 76 older adults with dementia were surveyed, and it was found that older adults with Alzheimer’s disease were 4.8 times as likely to experience elder abuse as those without.<sup>48</sup> Another study assessed 2,005 samples of reported APS cases and found that cognitive impairment was significantly associated with elder self-neglect.<sup>49</sup> The wide variations of odds ratios and confidence intervals in Figure 1 represent the diversity of the studies with respect to population, sample size, settings, definitions, and categorization of independent and dependent variables.

Elder abuse is associated with significant adverse health outcomes (Table 3), including psychosocial distress,<sup>50-52</sup> morbidity, and mortality.<sup>5,53-55</sup> Two longitudinal cohort studies have demonstrated and association between elder abuse and premature mortality,<sup>5,54</sup> especially in black populations.<sup>56</sup> Elder abuse is also associated with greater health service use,<sup>57-59</sup> especially emergency department use<sup>60</sup> and hospitalization and 30-day readmission rates.<sup>58,59,61</sup> See online Appendix for references for Tables 1, 2, and 3.

## DISCUSSION

Elder abuse is prevalent in older adults across five continents, especially minority older adults. Because different research methodologies are used in the literature, a variety of risk factors have been found to be associated with elder abuse. Among the risk factors, cognitive and physical impairment and psychosocial distress seem to be consistently associated with elder abuse. Elder abuse may lead to deleterious health outcomes and increase healthcare use.

There are various limitations in the field of elder abuse that add to the challenges of synthesizing data in this systematic review. One particular limitation is that no consistent elder abuse instrument has been used to measure elder abuse, making it difficult to compare the prevalence and understand the risk factors between studies. Despite using the same instrument, the cutoff for definite elder abuse varies greatly across studies. Many studies have used an “any positive item” approach, whereas others have more systematically considered the heterogeneity of the definitions and have been stricter in the categorization of elder abuse cases. In addition, some studies have used an



Table 2. Risk Factors Associated with Elder Abuse (EA)

Author, Year	Type	Study Description	Age; Sex; Race	Independent Variables	Outcome	Confounding Factors	Key Findings of Risk for EA
Dong, 2012 <sup>58</sup>	PS	6,159 elderly adults from CHAP	≥65; 61% female	Physical function	EA	Sociodemographic, medical conditions, depressive symptoms, social network and social participation	Physical performance testing (OR = 1.13, 95% CI = 1.06–1.19), lowest tertile of physical performance testing (OR = 4.92, 95% CI = 1.39–17.46)
Dong, 2010 <sup>34</sup>	PS	5,519 elderly adults from CHAP	≥65; 61% female; 64% black	Cognitive function	SN	Sociodemographic, medical condition, physical function, depression, social networks	Executive function (OR = 1.01, 95% CI = 1.00–1.02)
Dong, 2010 <sup>34</sup>	PS	5,570 elderly adults from CHAP	≥65; 66.9% female	Physical function	SN	Sociodemographic, medical condition, depression, cognition, social networks	Decline in physical performance (OR = 1.06, 95% CI = 1.04–1.09), increase in Katz impairment (OR = 1.08, 95% CI = 1.03–1.13), Rosow-Breslau impairment (OR = 1.23, 95% CI = 1.14–1.32), Nagi impairment (OR = 1.07, 95% CI = 1.02–1.13)
Tierney, 2007 <sup>43</sup>	PS	130 community-living participants who scored <131 on DRS	≥65; 70.8% female	Executive function, judgment, attention and concentration, verbal fluency	SN	Age, sex, education, Charlson Comorbidity Index, MMSE	Rey Auditory Verbal Learning Test recognition (OR = 0.94, 95% CI = 0.89–0.98), Trail-Making Test Part B (OR = 1.01, 95% CI = 1.00–1.02), Wechsler Adult Intelligence Scale-Revised similarities (OR = 0.88, 95% CI = 0.81–0.98)
Tierney, 2004 <sup>90</sup>	PS	139 community-living adults who scored <131 on DRS	≥65; 70.8% female	MMSE, medical conditions, medications, OARS	SN	Age, sex, education, international classification of disease, Charlson index, OARS, MMSE	Higher MMSE score (OR = 0.87, 95% CI = 0.78–0.97), chronic obstructive pulmonary disorder (OR = 7.72, 95% CI = 2.44–24.43), higher OARS score (OR = 0.70, 95% CI = 0.66–0.89), stroke (OR = 3.09, 95% CI = 1.20–7.96)
Abrams, 2002 <sup>35</sup>	PS	2,812 elderly adults from New Haven EPESE cohort	≥65; 65.4% female	Depressive symptoms, cognitive impairment	SN	Age, sex, race, education, income, marital status, living situation, medical morbidity	Depressive symptoms (CES-D score ≥16) (OR = 2.38, 95% CI = 1.26–4.48), cognitive impairment (≥4 errors on the Pfeiffer Short Portable Mental Status Questionnaire, OR = 4.63, 95% CI = 2.32–9.23)
Lachs, 1997 <sup>42</sup>	PS	6,222 elderly adults in EPESE cohort	≥65; 64.8% female	ADL impairment, cognitive disability	EA	Age, sexual, race, and income	New ADL impairment (OR = 1.4, 95% CI = 0.4–4.6), new cognitive impairment (OR = 5.1, 95% CI = 2.0–12.7)

(Continued)

Table 2 (Contd.)

Author, Year	Type	Study Description	Age; Sex; Race	Independent Variables	Outcome	Confounding Factors	Key Findings of Risk for EA
Dong, 2014 <sup>33</sup>	CS	78 older Chinese in United States	≥60; 52% female	Depressive symptomatology	EA	Sociodemographic, marital status, health status, quality of life, physical function, loneliness and social support	Depressive symptomatology (OR = 2.01, 95% CI = 1.23-3.48)
Chokkanathan, 2014 <sup>26</sup>	CS	902 older adults in Nadu, India	≥61; 54.3% female	Older adults: physically abuse family members Family members: age, education, alcohol consumption, mistreatment of other family members Environment: family cohesion, stress	EA	Older adults (age, sex, employment, dependency, physically abused) Family member (age, education, alcohol use, mistreat others) Environment (family cohesion, family stress, wealth index)	Older adults: physically abusing family members (OR = 9.06, 95% CI = 2.82-29.04) Family members: middle age (OR = 2.06, 95% CI = 1.01-4.23), tertiary education (OR = 0.32, 95% CI = 0.11-0.97), alcohol (OR = 3.08, 95% CI = 1.68-5.70), mistreatment of other family (OR = 6.24, 95% CI = 2.11-18.41), reported more conflicts with their family members (OR = 14.14, 95% CI = 6.63-30.14), low family cohesion (OR = 1.75, 95% CI = 1.43-2.15)
Dong, 2013 <sup>61</sup>	CS	10,333 older adults in Chicago	≥65; 39% female	Elder self-neglect	EA	Sociodemographic, medical comorbidities, cognitive and physical function and psychosocial well-being	Elder abuse (OR = 1.75, 95% CI = 1.18, 2.59), financial exploitation (OR = 1.73, 95% CI = 1.01, 2.95), caregiver neglect (OR = 2.09, 95% CI = 1.24, 3.52), multiple forms of elder abuse (OR = 2.06, 95% CI = 1.22, 3.48)
Lichtenberg, 2013 <sup>91</sup>	CS	4,440 older adults from Health and Retirement Study	Mean 65.8; 61.9% female; 85.4% white	Education, depressive symptoms, financial satisfaction, social needs	Financial abuse	Sociodemographic, marital status, CES-D, physical function, self-rated health, financial status, psychological factors	More education (OR = 1.09, 95% CI = 1.03-1.16), more depressive symptoms (OR = 1.09, 95% CI = 1.01-1.18), less financial satisfaction (OR = 0.76, 95% CI = 0.63-0.90), greater ADL needs (OR = 1.01, 95% CI = 0.78-1.30), greater disease burden (OR = 1.03, 95% CI = 0.88-1.21)
Strasser, 2013 <sup>47</sup>	CS	112 older adults who participated in legal program	≥60; 68.2% female	Sex, ethnicity, depression	EA	Sex, ethnicity, cohabitation, depression, visits to a mental health provider	Male (OR = 5.54, 95% CI = 1.85-16.57), Hispanic (OR = 11.73, 95% CI = 1.06-130.06), depression (OR = 6.07, 95% CI = 1.54-23.09)

(Continued)

Table 2 (Contd.)

Author, Year	Type	Study Description	Age; Sex; Race	Independent Variables	Outcome	Confounding Factors	Key Findings of Risk for EA
Vandeweerd, 2013 <sup>48</sup>	CS	254 caregivers and 76 older adults with dementia	≥60; 59% female, 85% white, 10.3% Hispanic, 4.5% black	Sex, functional impairment, dementia symptoms, violence by older adult, self-esteem, caregiver alcoholism	Phy A	Sex, number of dementia symptoms, level of functional impairment, violence by older adult, caregiver self-esteem, caregiver alcoholism	Sex (OR = 0.82, 95% CI = 0.42–0.95), functional impairment (OR = 2.05, 95% CI = 1.09–4.91), dementia symptoms (OR = 4.82, 95% CI = 3.51–12.52), older adults used violence OR = 4.167 (2.18–8.40), depression (OR = 0.53, 95% CI = 0.23–1.22), caregiver with high self-esteem (OR = 0.66, 95% CI = 0.59–8.40)
Dong, 2012 <sup>60</sup>	CS	8,932 elderly adults from CHAP	≥65; 76% female	Physical function	EA	Sociodemographic, hypertension, heart disease, diabetes mellitus, stroke, cancer, hip fracture, depression symptoms	Lowest level of physical performance testing: EA (OR = 2.71, 95% CI = 1.58–4.64) psychological abuse (OR = 2.69, 95% CI = 1.27–5.71), caregiver neglect (OR = 2.66, 95% CI = 1.22–5.79), financial abuse (OR = 2.35, 95% CI = 1.21–4.55)
Naughton, 2012 <sup>24</sup>	CS	2,021 older people in Ireland	≥65; 55% female	Mental health, social support	EA	Age, sex, income, physical health, mental health, social support	Mental health below average (OR = 4.51, 95% CI = 2.22–9.14), lower social support (OR = 3.11, 95% CI = 1.29–7.46)
Wu, 2012 <sup>21</sup>	CS	2,039 adults in three rural communities in Hubei, China	≥60; 59.9% female	Marital status, physical disability, living arrangement, depression	EA	Education, living status, living source, chronic disease, physical disability, labor intensity, depression	Not being married (OR = 1.80, 95% CI = 1.40–2.40), physical disability (OR = 1.50, 95% CI = 1.10–2.20), living with spouse and children (OR = 0.70, 95% CI = 0.50–0.90), depression (OR = 5.50, 95% CI = 4.10–7.30)
Yan, 2012 <sup>31</sup>	CS	937 married or cohabiting older adults in Hong Kong	≥60; 42.4% female	Age, sex, education, income, living arrangement, chronic illness, social support	Intimate partner violence	Sociodemographic, living arrangement, immigrants or not, employment, receiving social security, indebtedness, chronic illness, social support	Age (OR = 0.97, 95% CI = 0.95–0.99), female (OR = 0.80, 95% CI = 0.59–1.08), education levels ≤3 years (OR = 1.83, 95% CI = 0.96–3.47), no income (OR = 0.73, 95% CI = 0.40–1.35), living with children (OR = 0.88, 95% CI = 0.64–1.19), chronic illness (OR = 1.09, 95% CI = 0.81–1.47), lower social support (OR = 1.17, 95% CI = 0.77–1.77)

(Continued)



Table 2 (Contd.)

Author, Year	Type	Study Description	Age; Sex; Race	Independent Variables	Outcome	Confounding Factors	Key Findings of Risk for EA
Amstadter, 2011 <sup>92</sup>	CS	902 community-dwelling older adults	60–97; 59.9% female; 77% white, 17.3% black, 1.9% Native American, 0.1% Asian	Functional status, race, social support, and health status	Psychological, financial abuse	Age, income, having experienced prior traumatic event	Emotional mistreatment: low social support (OR = 3.51, 95% CI = 1.63–7.53), needing assistance with ADLs (OR = 2.28, 95% CI = 1.06–4.93) Neglect: nonwhite (OR = 3.49, 95% CI = 1.37–8.89), low social support (OR = 6.74, 95% CI = 1.54–29.62), poor health (OR = 3.79, 95% CI = 1.46–9.81) Financial exploitation: needing assistance with ADLs (OR = 2.75, 95% CI = 1.17–6.48)
Dong, 2011 <sup>16</sup>	CS	8,932 elderly adults from CHAP	≥65; 76% female	Cognitive function	EA	Sociodemographic, medical conditions, depressive symptoms, social network, social participation	Lowest turtles of cognition (OR = 4.18, 95% CI = 2.44–7.15), lowest levels of global cognitive function and physical abuse (OR = 3.56, 95% CI = 1.08–11.67), emotional abuse (OR = 3.02, 95% CI = 1.41–6.44), caregiver neglect (OR = 6.24, 95% CI = 2.68–14.54), financial exploitation (OR = 3.71, 95% CI = 1.88–7.32)
Friedman, 2011 <sup>41</sup>	CS	41 elderly adults from trauma unit in Chicago and 123 controls from trauma registry	≥60; 58.5% female	Having a neurological or mental disorder	Physical abuse	Age, injury severity, hospital, length of stay	Eurological or mental disorder (OR = 9.10, 95% CI = 2.50–33.60)
Beach, 2010 <sup>4</sup>	CS	Population-based survey of 903 adults in Allegheny County, Pennsylvania	≥60, 73% female, 23% black, 73% white, 4% other	Race	Psychological abuse	Sociodemographic, marital status, household composition, cognitive function, physical disability, and depression symptoms	Black race (OR = 2.30, 95% CI = 0.55–9.62)
Choi, 2009 <sup>49</sup>	CS	Assessment of 2,005 samples reported to APS for self-neglect	>60; 64.4% female; 44.2% white, 15.9% black, 27.5% Hispanic	Economic resources, healthcare and social service programs	SN	Age, sex, race, marital status, language, living arrangement	Economic resource deficit (OR = 4.60, 95% CI = 2.33–9.08), any ADL impairment (OR = 13.53, 95% CI = 5.52–33.14), cognitive impairment (OR = 11.39, 95% CI = 4.20–30.90)
Dong, 2009 <sup>5</sup>	CS	9,056 elderly adults from CHAP cohort	≥65; 62.2% female	Social networks, social engagement	SN	Age, sex, race, education, medical morbidity, physical function, depression, body mass index	Lower social network (OR = 1.02, 95% CI = 1.01–1.04), lower social participation (OR = 1.15, 95% CI = 1.09–1.22)

(Continued)

Table 2 (Contd.)

Author, Year	Type	Study Description	Age; Sex; Race	Independent Variables	Outcome	Confounding Factors	Key Findings of Risk for EA
Oh, 2009 <sup>22</sup>	CS	15,230 older adults in Seoul, Korea	≥65; 65.3% female	Sex, age, support, physical function, health, living arrangement, economic level, family relationships	EA	Elderly: sex, age, education, economic capacity, ADLs, IADLs, sick days Family: household type, economic level, family relations	Older men (OR = 1.34, 95% CI = 1.21- 1.61), aged 65-69 (OR = 1.33, 95% CI = 1.05-1.68), partially supported (OR = 0.74, 95% CI = 0.57-0.96), ADLs (OR = 0.96, 95% CI = 0.91-0.99), IADLs (OR = 1.03, 95% CI = 1.00-1.06), living with family of married children (OR = 1.96, 95% CI = 1.16-3.32), lowest economic level (OR = 4.84, 95% CI = 3.03-7.75), good family relations (OR = 0.02, 95% CI = 0.01-0.04)
Cooper, 2008 <sup>83</sup>	CS	86 community-living adults with Alzheimer's disease and their caregivers	Mean 82.4; 69.8% female	Caregiver: sex, burden Care recipient: behavioral, cognitive, physical function	EA	Caregiver: burden, anxiety Care recipient: receiving 24-hour care, ADLs, irritability	Caregiver: male (OR = 6.80, 95% CI = 1.70-27.80), reporting greater burden (OR = 1.10, 95% CI = 1.00-1.10) Care recipient: clinically significant irritability (OR = 38.30, 95% CI = 4.60-326.00), less functional impairment (OR = 1.10, 95% CI = 1.00-1.20), greater cognitive impairment (OR = 1.20, 95% CI = 1.00-1.40)
Dong, 2008 <sup>84</sup>	CS	412 individuals in n urban medical center in Nanjing, China	≥60; 34% female	Depression	EA	Age, income, number of children, level of education	Dissatisfaction with life (OR = 2.92, 95% CI = 1.51-5.68), being bored (OR = 2.91, 95% CI = 1.53-5.55), feeling helpless (OR = 2.79, 95% CI = 1.35-5.76), feeling worthless OR = 2.16, (1.10-4.22), depression (OR = 3.26, 95% CI = 1.49-7.10)
Dong, 2007 <sup>44</sup>	CS	412 adults in a medical clinic in Nanjing, China	≥60; 34% female	Loneliness	EA	Age, sex, education, income, marital status, depressive symptoms	Loneliness (OR = 2.74, 95% CI = 1.19-6.26), lacking companionship (OR = 4.06, 95% CI = 1.49-11.10), left out of life (OR = 1.69, 95% CI = 1.01-2.84)

(Continued)

Table 2 (Contd.)

Author, Year	Type	Study Description	Age; Sex; Race	Independent Variables	Outcome	Confounding Factors	Key Findings of Risk for EA
Dong, 2007 <sup>44</sup>	CS	412 adults in a medical clinic in Nanjing, China	≥60; 34% female	Age, sex, education, income, marital status	EA	Age, sex	Aged 65–69 (OR = 0.79, 95% CI = 0.45–1.37), female (OR = 1.55, 95% CI = 1.01–2.38), illiterate (OR = 3.03, 95% CI = 1.43–6.45), no income (OR = 2.86, 95% CI = 1.33–6.16), widowed (OR = 1.56, 95% CI = 0.92–2.66) Behavioral symptoms (OR = 1.56, 95% CI = 1.21–2.00)
Ogioni, 2007 <sup>95</sup>	CS	4,630 adults receiving home care in Italy	≥65; 59.6% female	Behavioral symptoms	EA	Age, sex, marital status, ADLs, cognition, delirium, depression, medical condition, loneliness, distress, social support, pain	Greater behavioral disturbance (OR = 3.61, 95% CI = 1.65–7.90), adult child as caregiver (OR = 2.69, 95% CI = 1.23–5.89) Age (OR = 0.43, 95% CI = 0.31–0.64), sex (OR = 0.48, 95% CI = 0.04–5.34), number of dementia symptoms (OR = 0.34, 95% CI = 0.15–0.88), level of functional impairment (OR = 1.54, 95% CI = 0.61–3.85), depression (OR = 0.57, 95% CI = 0.24–0.73)
Sasaki, 2007 <sup>89</sup>	CS	412 pairs of disabled older adults and caregivers in Japan	Mean 80.5; 60.1% female	Behavioral disturbance, adult child as caregiver	Potentially harmful behaviors	Severity of physical impairment, hearing problems, caregiver burden	Greater care recipient ADL and IADL needs (OR = 1.12, 95% CI = 1.03–1.22), spouse caregiver vs other (OR = 8.00, 95% CI = 1.71–37.47), greater caregiver cognitive impairment (OR = 1.20, 95% CI = 1.04–1.38), more caregiver physical symptoms (OR = 1.07, 95% CI = 1.01–1.13), caregiver at risk for clinical depression (OR = 3.47, 95% CI = 1.58–7.62)
Vanderveerd, 2006 <sup>48</sup>	CS	254 caregivers and 76 elderly adults	Mean 78.6, 59% female	Age, sex, cognitive impairment, physical function, depression	Psychological abuse	Age, sex, race, dementia symptoms, functional impairment, depression, medication, verbal aggression, violence	Female (OR = 2.55, 95% CI = 1.03–6.28), less social support (OR = 1.07, 95% CI = 1.04–1.09), poorer subjective health status (OR = 3.26, 95% CI = 1.43–7.42)
Beach, 2005 <sup>37</sup>	CS	265 caregiver–care recipient dyads for impaired, community-dwelling family members	≥60; 58% female	ADL and IADL needs, caregiver cognitive impairment, caregiver physical symptoms, caregiver depression	Potentially harmful behaviors	Care recipient age, sex, education, cognitive status self-rated health Caregiver age, sex, education, self-rated health	Female (OR = 2.55, 95% CI = 1.03–6.28), less social support (OR = 1.07, 95% CI = 1.04–1.09), poorer subjective health status (OR = 3.26, 95% CI = 1.43–7.42)
Chokkanathan, 2005 <sup>26</sup>	CS	400 community-living cognitively intact older adults in Chennai, India	60–90; 73.4% female	Sex, social support, subjective physical health	EA	Sex, marital status, education, living status, subjective health, income, social support	Female (OR = 2.55, 95% CI = 1.03–6.28), less social support (OR = 1.07, 95% CI = 1.04–1.09), poorer subjective health status (OR = 3.26, 95% CI = 1.43–7.42)

(Continued)

Table 2 (Contd.)

Author, Year	Type	Study Description	Age; Sex; Race	Independent Variables	Outcome	Confounding Factors	Key Findings of Risk for EA
Shugarman, 2003 <sup>46</sup>	CS	701 adults seeking home- and community-based services in Michigan	≥60; 71.3% female	Memory problems, disease, abuses alcohol, not at ease interacting with others, expresses conflict with family or friends, indicates feels lonely, brittle support system	EA	Sex, cognitive symptoms, disease diagnoses, physical functioning, behavioral problems, social functioning, support	Memory problems (OR = 2.66, 95% CI = 1.28–5.34), psychiatric disease (OR = 2.48, 95% CI = 1.18–5.23), alcohol (OR = 10.26, 95% V=2.73–38.5), not at ease interacting with others (OR = 2.75, 95% CI = 1.21–6.21), conflict with family or friends (OR = 2.13, 95% CI = 1.08–4.23), lonely (OR = 3.49, 95% CI = 1.70–7.18), brittle support (OR = 3.76, 95% CI = 1.58–8.93)
Comijs, 1999 <sup>32</sup>	CS	147 elderly adults reporting chronic verbal aggression, physical aggression, and financial abuse in Amsterdam	≥65	Hostility and coping capacity	EA	Age, sex, other matching variables (Buss-Durkee Hostility Inventory, Utrechtse Copinglijst)	Verbal aggression: direct aggression (OR = 1.31, 95% CI = 1.05–1.62), locus of control (OR = 1.19, 95% CI = 1.01–1.41) Physical aggression: coping (OR = 1.24, 95% CI = 1.01–1.51), avoidance (OR = 1.26, 95% CI = 1.08–1.47) Financial mistreatment: indirect aggression (OR = 1.23, 95% CI = 1.07–1.42), perceived self-efficacy (OR = 1.11, 95% CI = 1.02–1.20)

PS = prospective; CS = cross-sectional; CHAP = Chicago Health Aging Project; OR = odds ratio; CI = confidence interval; SN = self-neglect; DRS = Dementia Rating Scale; MMSE = Mini-Mental State Examination; OARS = Older American Resources and Services; EPESE = Established Populations for Epidemiologic Studies of the Elderly; CES-D = Center for Epidemiologic Studies Depression Scale; ADL = activity of daily living; IADL = instrumental activity of daily living; GDS = Geriatric Depression Scale.

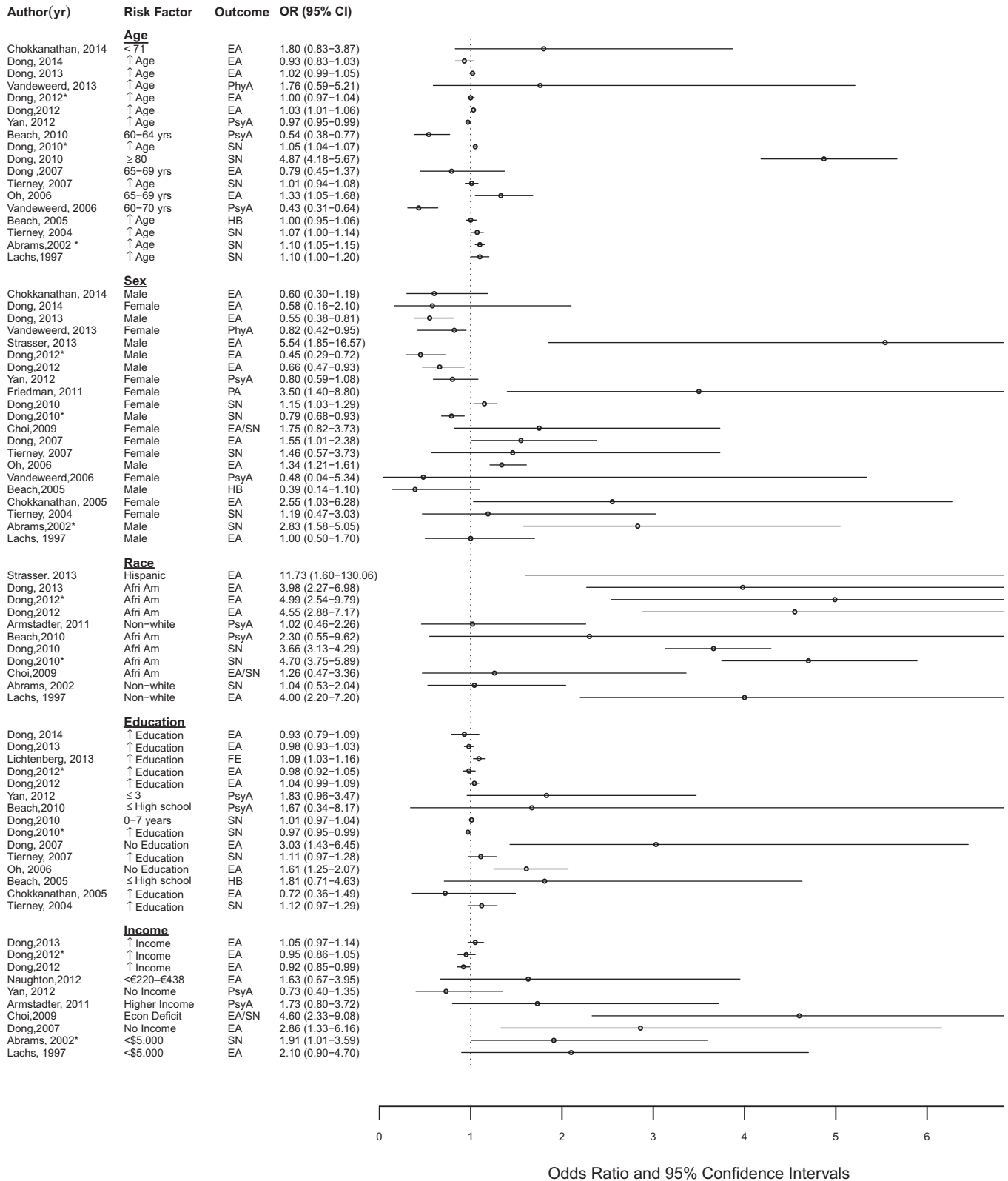


Figure 1. Risk Factors for Elder Abuse.

extensive version of the screening instrument, whereas others chose a shorter version that may contain only one question. Recently, to address the question of inconsistencies in elder abuse instruments, operational definitions of different strictness have been used to examine elder abuse

in the same population cohort, and the prevalence of elder abuse and its subtypes varied greatly in the same population through using different measurements.<sup>33</sup> The present study provided important empirical evidence of the effect of different instruments on the prevalence, but future



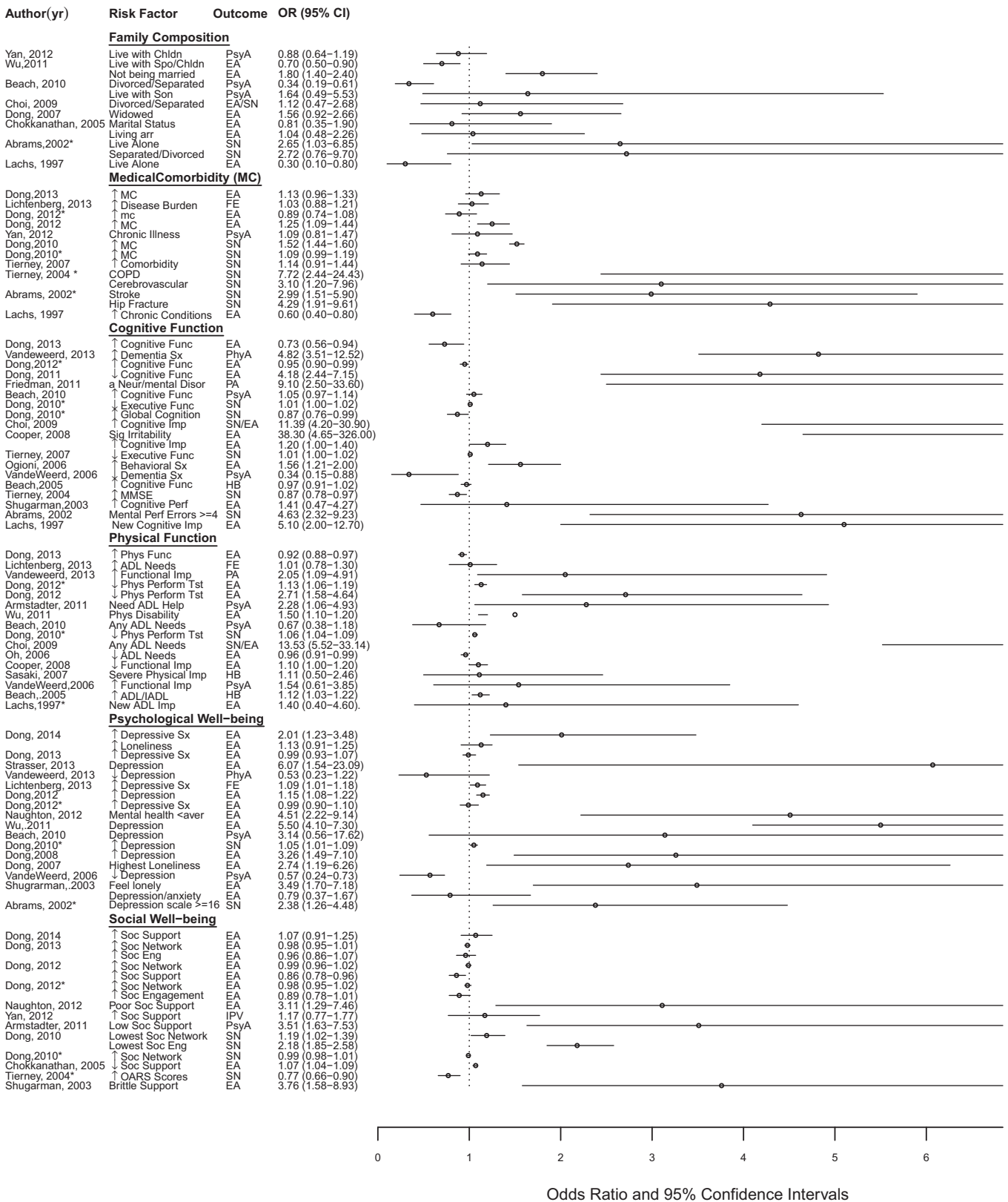


Figure 1. (Contd.)

studies should expand efforts to develop a more-consistent instrument and cutoff score. Another limitation is that most of the existing studies do not provide reliability and validity information for the instrument. Lack of consistency and precision in the assessment of elder abuse may

prevent clear understanding of the accurate prevalence and risk and protective factors and impede the development of prevention and intervention programs.

In addition, the number and quality of studies varied greatly according to region and cultural group. The

Table 3. Consequences of Elder Abuse (EA)

Author, Year	Type	Study Description	Age; Sex; Race	Predictor	Outcomes	Confounding Factors	Critical Findings
Schofield, 2013 <sup>96</sup>	PS	1,266 older women in Australia	70-75; 100% female	EA	Disability mortality	Demographic factors, social support, health behaviors, health condition	Mortality: coercion (HR = 1.21, 95% CI = 1.06-1.40), dejection (HR = 1.12, 95% CI = 1.03-1.23) Disability: vulnerability (HR = 1.25, 95% CI = 1.06-1.49), dejection (HR = 1.55, 95% CI = 1.38-1.73)
Dong, 2012 <sup>60</sup>	PS	6,864 community-living older adults participating in CHAP	≥65; 61% female	SN	Emergency department use	Sociodemographic, medical conditions, cognitive and physical function	SN (RR = 1.42, 95% CI = 1.29-1.58), greater SN severity (mild: PE = 0.27, SE = 0.04, P < .001; moderate: PE = 0.41, SE = 0.03, P < .001; severe: PE = 0.55, SE = 0.09, P < .001)
Dong, 2010 <sup>97</sup>	PS	7,841 community-living older adults participating in CHAP	≥65, 52.6% female	EA	All-cause mortality across levels of depression, social network, social participation	Sociodemographic, medical conditions, weight loss, marital status, cognitive and physical function, smoking, alcohol intake	CES-D tertile: highest (HR = 2.17, 95% CI = 1.36-4.36), middle (HR = 2.18, 95% CI = 1.19-3.99), lowest (HR = 1.61, 95% CI = 0.79-3.27) Social network tertile: lowest: (HR = 2.42, 95% CI = 1.52-3.85), middle (HR = 2.65, 95% CI = 1.52-4.60), highest (HR = 0.97, 95% CI = 0.36-2.61) Social engagement tertile: lowest: (HR = 2.32, 95% CI = 1.47-3.68), middle (HR = 2.59, 95% CI = 1.41-4.77), highest (HR = 1.19, 95% CI = 0.52-2.72)
Mouton, 2010 <sup>51</sup>	PS	93,676 from the Women's Health Initiative (WHI) Observational Study	50-79; 100% female	Physical, verbal abuse	Depressive symptoms, MCS score	Sociodemographic, marital status, smoking, alcohol, religion comfort, living alone, baseline psychosocial characteristics	Physical abuse: 3-year change in depressive symptoms (PE = 0.20, 95% CI = -0.21-0.60), change in MCS score (PE = -1.12, 95% CI = -2.45 to -0.21) Verbal abuse: 3-year change in depressive symptoms (PE = 0.18, 95% CI = 0.11-0.24), change in MCS score (PE = 0.55, 95% CI = -0.75 to -0.34) Physical and verbal abuse: 3-year change in depressive symptoms (PE = 0.15, 95% CI = -0.05 to 0.36), change in MCS score (PE = -0.44, 95% CI = -1.11 to -0.22)

(Continued)

Table 3 (Contd.)

Author, Year	Type	Study Description	Age; Sex; Race	Predictor	Outcomes	Confounding Factors	Critical Findings
Baker, 2009 <sup>53</sup>	PS	160,676 community women from WHI	50-79; 100% female	Physical, verbal abuse	All-cause, cause-specific mortality	Sociodemographic, BMI, smoking, alcohol, health status, medical conditions, frailty, and psychosocial factors	Physical abuse (HR = 1.40, 95% CI = 0.93-2.11), verbal abuse (HR = 1.02, 95% CI = 0.94-1.10), physical and verbal abuse (HR = 1.07, 95% CI = 0.86-1.33)
Dong, 2009 <sup>5</sup>	PS	9,318 community-older adults participating in CHAP	≥65; 61% female	EA, SN	All-cause mortality, cause-specific mortality, mortality stratified according to cognitive and physical function	Sociodemographic, medical conditions, weight loss, marital status, cognitive and physical function, BMI, CES-D, cigarette smoking, alcohol use, social well-being	SN: 1-year mortality (HR = 5.76, 95% CI = 5.11-6.49), >1-year mortality (HR = 1.87, 95% CI = 1.64-2.14) SN severity: mild (HR = 4.71, 95% CI = 3.59-6.17), moderate (HR = 5.87, 95% CI = 5.12-6.73), severe (HR = 15.47, 95% CI = 11.18-21.41) EA: all-cause mortality (HR = 2.06, 95% CI = 1.48-2.88), cardiovascular mortality (HR = 3.86, 95% CI = 2.04-7.29)
Schofield, 2004 <sup>55</sup>	PS	10,421 older women in Australia	73-78; 100% female	EA	Physical function, bodily pain, general health, social function, role emotional difference, mental health difference, PCS T2-1, MCS T2-1 difference	Baseline Medical Outcomes Study 36-item Short Form Survey scores, four EA scores, age, sum of acute illnesses, chronic conditions, life events, stress score, violent relationship, BMI, smoking, marital status, education, country of birth	Dejection predicted physical function ( $\beta = -2.81$ , SE = 0.81), bodily pain ( $\beta = -1.99$ , SE = 0.97), general health ( $\beta = -1.61$ , SE = 0.70), vitality ( $\beta = -3.54$ , SE = 0.71), social function ( $\beta = -5.27$ , SE = 1.00), role emotional difference ( $\beta = -7.88$ , SE = 1.60), mental health difference ( $\beta = -4.63$ , SE = 0.60), PCS T2-1 difference ( $\beta = -0.75$ , SE = 0.36), MCS T2-1 difference ( $\beta = -0.41$ , SE = 0.74),
Lachs, 2002 <sup>57</sup>	PS	2,812 community-living older adults from New Haven EPESE cohort	≥65; 58.4% female	EA, SN	Long-term nursing home placement	Sociodemographic, BMI, medications, physical and cognitive function, social ties, incontinence, CES-D, emotional support, chronic conditions	SN (HR = 5.23, 95% CI = 4.07-6.72), EA (HR = 4.02, 95% CI = 2.50-6.47)

(Continued)

Table 3 (Contd.)

Author, Year	Type	Study Description	Age; Sex; Race	Predictor	Outcomes	Confounding Factors	Critical Findings
Lachs, 1998 <sup>18</sup>	PS	2,812 community-living older adults from New Haven EPESE	≥65; 58.4% female	EA, SN	All-cause mortality	Sociodemographic, chronic conditions, BMI, cognition, psychosocial well-being	SN (OR = 1.70, 95% CI = 1.20–2.50), EA (OR = 3.10, 95% CI = 1.40–6.70)
Dong, 2013 <sup>61</sup>	CS	6,674 community-living older adults participating in CHAP	≥65; 58.4% female; 56.3% black	EA; psychological, financial abuse; neglect	Hospitalization	Sociodemographic, medical comorbidities, cognitive and physical function, psychological well-being	Elder abuse (RR = 2.72, 95% CI = 1.84–4.03), psychological abuse (RR = 2.22, 95% CI = 1.44–3.43), financial exploitation (RR = 1.75, 95% CI = 1.06–2.90), caregiver neglect (RR = 2.43, 95% CI = 1.60–3.69), ≥2 types of elder abuse (RR = 2.59, 95% CI = 1.82–3.66)
Dong, 2013 <sup>61</sup>	CS	10,333 community-older adults participating in CHAP	≥65; 39% female	SN	EA	Sociodemographic, medical comorbidities, cognitive and physical function, psychosocial	EA (OR = 1.75, 95% CI = 1.19–2.59), financial exploitation (OR = 1.73, 95% CI = 1.01–2.95), caregiver neglect (OR = 2.09, 95% CI = 1.24–3.52), multiple forms of EA (OR = 2.06, 95% CI = 1.22–3.48)
Dong, 2013 <sup>61</sup>	CS	6,674 community-older adults participating in CHAP	≥65; 58.4% female	EA	Rate of emergency department use	Sociodemographic, comorbidities, cognitive and physical function, psychosocial	EA (RR = 2.33, 95% CI = 1.60–3.38), psychological abuse (RR=1.98, 95% CI = 1.29–3.00), financial exploitation (RR = 1.59, 95% CI = 1.01–2.52), caregiver neglect (RR = 2.04, 95% CI = 1.38–2.99)
Dong, 2013 <sup>61</sup>	CS	6,674 community-older adults participating in CHAP	≥65; 58.4% female	EA	Rates of admission to skilled nursing facilities	Sociodemographic, medical comorbidities, cognitive and physical function, psychosocial	EA (RR = 4.60, 95% CI = 2.85–7.42), psychological (RR = 2.31, 95% CI = 1.17–4.56), physical (RR = 2.36, 95% CI = 1.19–4.66), financial (RR = 2.81, 95% CI = 1.53–5.17), neglect (RR = 4.73, 95% CI = 3.03–7.40)

(Continued)

Table 3 (Contd.)

Author, Year	Type	Study Description	Age; Sex; Race	Predictor	Outcomes	Confounding Factors	Critical Findings
Olofsson, 2012 <sup>52</sup>	CS	9,360 older adults from nationwide public health survey in Sweden	65-84; 53.1% female	Psychological and physical abuse	Physical and mental health, use of healthcare	Age, civil status, work history, smoking	Psychological abuse (women): poor general health (OR = 3.80, 95% CI = 2.70-5.30), anxiety (OR = 6.30, 95% CI = 3.70-11.00), stress (OR = 6.30, 95% CI = 4.20-9.30), GHQ-12 (OR = 5.90, 95% CI = 4.40-7.90), suicidal thought (OR = 3.50, 95% CI = 2.30-5.20), use of healthcare (OR = 2.60, 95% CI = 1.90-3.50) Physical abuse (women): anxiety (OR = 7.40, 95% CI = 3.60-15.0), sleeping problem (OR = 2.30, 95% CI = 1.40-4.50), stress (OR = 3.80, 95% CI = 1.90-7.60), GHQ-12 (OR = 4.00, 95% CI = 2.40-6.70), pharmaceutical (OR = 2.10, 95% CI = 1.20-3.40), use of healthcare (OR = 1.80, 95% CI = 1.00-3.10). Psychological abuse (men): poor general health (OR = 2.20, 95% CI = 1.40-3.40), anxiety (OR = 10.00, 95% CI = 5.30-19.00), sleeping problem (OR = 3.50, 95% CI = 2.10-5.90), stress (OR = 5.70, 95% CI = 3.50-9.50), GHQ-12 (OR = 3.90, 95% CI = 2.70-5.70), suicidal thought (OR = 7.30, 95% CI = 4.60-11.00), suicide attempt (OR = 5.30, 95% CI = 2.30-12.00) Physical abuse (men): poor general health (OR = 2.20, 95% CI = 1.20-4.10), anxiety (OR = 7.1, 95% CI = 3.0-16.0), stress (OR = 5.90, 95% CI = 3.10-11.00), GHQ-12 (OR = 3.20, 95% CI = 1.90-5.50), suicidal thought (OR = 4.70, 95% CI = 2.40-9.00), suicide attempt (OR = 5.40, 95% CI = 1.80-16.00)

(Continued)



Table 3 (Contd.)

Author, Year	Type	Study Description	Age; Sex; Race	Predictor	Outcomes	Confounding Factors	Critical Findings
Begle, 2011 <sup>50</sup>	CS	902 adults aged $\geq 60$ using stratified random digit dialing, computer-assisted telephone interview	$\geq 60$ ; 59.9% female	Emotional, sexual, physical abuse	Negative emotional symptoms (anxious, depressed, irritable)	Sociodemographic, health status, social support, social services, physical function	Emotional abuse (OR = 2.13, 95% CI = 1.04–4.36), physical abuse (OR = 0.67, 95% CI = 0.22–2.03)
Cisler, 2010 <sup>98</sup>	CS	902 adults aged $\geq 60$ in South Carolina	$\geq 60$ ; 60% female	EA	Self-rated physical health	Income, needing help with ADLs, emotional symptoms	Prior exposure to potentially traumatic events (OR = 1.89, 95% CI = 1.18–3.03)
Fisher, 2006 <sup>99</sup>	CS	842 community-living women who completed telephone survey	$\geq 60$ ; 100% female	EA	Health status, medical conditions, psychological distress, digestive problems	Age, sex, race, education, marital status, income, Appalachian heritage	Greater depression or anxiety (OR = 2.24, 95% CI = 1.70–2.96), greater digestive problems (OR = 1.60, 95% CI = 1.22–2.09), greater chronic pain (OR = 1.65, 95% CI = 1.28–2.15)
Smith, 2006 <sup>100</sup>	CS	80 APS referrals along with matched control subjects from clinical population	Mean 76; 62.5% female	SN	Complete blood count and chemistry, oxidative damage and antioxidants, fat-soluble vitamins, vitamin B-12 and folate, calcium and bone metabolism	N/A	Serum concentration of total homocysteine $13.6 \pm 4.5$ $\mu\text{mol/L}$ , $P < .05$ ; red blood cell folate concentration $1,380 \pm 514$ $\text{nmol/L}$ , $P < .05$ ; plasma b-carotene $0.28 \pm 0.2$ $\mu\text{mol/L}$ , $P < .05$ ; X-tocopherol $23.2 \pm 9.3$ $\mu\text{mol/L}$ , $P < .05$ ; 25-hydroxyvitamin-D serum concentration $33.7 \pm 16.4$ $\text{nmol/L}$ , $P < .05$
Franzini, 2008 <sup>101</sup>	CC	131 APS clients and 131 matched controls to an interdisciplinary geriatric medicine clinic	$\geq 65$ ; 69.5% female	SN	Health utilization, clinic visits, house calls, hospital stays, length of stay, healthcare costs	Age, sex, race, mental disorders	Total cost: \$12,466 for SN vs \$19,510 for control ( $P = .36$ ); Physician costs, PE $-0.29$ (0.40); outpatient payments, PE $-0.24$ (0.45); inpatient costs, PE $-0.20$ (0.28); total Medicare costs, PE $-0.36$ (0.33); clinic visits, PE $-0.24$ (0.10); hospital stays, PE $-0.51$ (0.05)
Mouton, 1999 <sup>102</sup>	CS	257 women aged 50–79 in WHI	50–79; 100% female	Psych Abuse	Mental health	Age, race, marital status, family income, and education	Being threatened (PE = $-3.32$ , $P = .01$ )

Parameter estimate (PE) is a coefficient of change in the outcome for every unit increase in the predictor variable of interest.

PS = prospective; HR = hazard ratio; CI = confidence interval; CHAP = Chicago Health Aging Project; SN = self-neglect; CES-D = Center for Epidemiologic Study Depression Scale; RR = risk ratio; SE = standard error; WHI = Women's Health Initiative; BMI = body mass index; MCS = Mental Component Summary; EPESE = Established Populations for Epidemiologic Studies of the Elderly; GHQ-12 = General Health Questionnaire; APS = Adult Protective Services.

majority of studies of elder abuse were conducted in North America, Europe, and Asia, with only two studies identified in Africa. Almost all studies in North America were conducted in the United States. A lack of representative studies in certain regions, including Africa, Canada, Australia, and South America, has impeded the comparison and understanding of prevalence of elder abuse across continents, and the number of studies in U.S. minority populations such as Asian American and Hispanic older adults is not enough to perform a rigorous analysis of the differences in elder abuse between cultural groups.

In terms of the analysis of risk factors of elder abuse, existing studies have primarily focused on victim characteristics, but perpetrator characteristics such as caregiver burden, mental health, substance abuse, and premorbid relationship may also affect the occurrence of elder abuse. Moreover, the majority of studies of risk factors of elder abuse have used a cross-sectional design, which further hampers the ability to determine the causal relationship between vulnerability risk factors and elder abuse.

## FUTURE RESEARCH DIRECTIONS

### Longitudinal Studies on Elder Abuse

Longitudinal studies are needed to examine the incidence of elder abuse subtypes in diverse settings and the associated risk and protective factors. Longitudinal research may also help to understand potential perpetrators' characteristics, relationships, settings, and contexts with respect to elder abuse victims. The fields of child abuse and domestic violence have demonstrated the feasibility of conducting research on potential perpetrators. Innovative approaches for understanding perpetrators' perspectives are necessary for the design and implementation of future interventions. Moreover, research is needed to understand pathway by which elder abuse leads to adverse outcomes, especially the risk, rate, and intensity of health services use with respect to elder abuse. Given the complexity of elder abuse research in older adults with lower cognitive function, more-rigorous studies are needed to improve understanding of the issue. Cost-benefit and cost-effectiveness analyses are also needed to examine the costs associated with elder abuse and utilities of existing intervention programs. Because many cost-benefit analyses are biased against older adults, innovative strategies are needed to capture the range of personal, community, financial, and societal costs of elder abuse.

### Elder Abuse in Minority Populations

The prevalence of elder abuse in ethnic minority groups was found to be higher than in whites.<sup>14–16</sup> With the increasingly diverse aging population, national priorities to better understand the cultural factors related to elder abuse in racial and ethnic populations should be set.<sup>62</sup> The last decade has seen a population growth rate of 5.7% for whites, 43.0% for Hispanics, 43.3% for Asians, 18.3% for Native Americans, and 12.3% for African Americans.<sup>63</sup> Quantitative and qualitative studies are needed to better define the conceptual and cultural variations in the constructions and definitions of elder abuse subtypes. Significant challenges exist in conducting aging research in minority communities,

especially regarding culturally sensitive matters.<sup>64</sup> Community-based participatory research (CBPR) approaches could be frameworks for addressing elder abuse.<sup>65</sup> CBPR necessitates equal partnership between academic and community organizations and stakeholders to examine relevant issues. This partnership requires reciprocal transfer of expertise and sustainable infrastructure building. Recent elder abuse research (Population Study of Chinese Elderly) in the Chicago Chinese community has demonstrated enhanced infrastructure and networks for community-engaged research and community-academic partnerships.<sup>66</sup>

### Prevention and Intervention Studies on Elder Abuse

Although elder abuse is common and universal, few evidence-based prevention and intervention strategies have been developed to assist victims of elder abuse.<sup>67</sup> Common forms of intervention programs may include advocacy service intervention, support groups, care coordination, and public education. Interventions on elder abuse could employ CBPR and multidisciplinary team (M-Team) approaches.

Through implementing the CBPR approach, elder abuse intervention programs could build on strengths and resources in the community. Using the CBPR approach, the Family Care Conference (FCC) was developed in a northwestern Native American community. The pilot study demonstrated that the FCC approach helped to bring family members' attention to the problem of elder abuse and to incorporate their efforts into intervention.<sup>68</sup> In a qualitative study of the perception of effectiveness, challenges, and cultural adaptations of elder abuse interventions, older adults participating in the study appraised the community-based intervention module and have positive attitudes toward interventions that community-based social services organizations delivered.<sup>69</sup> Future research efforts should promote and sustain the collaboration between community organizations and research institutions to better address the needs and concerns of older adults. At the same time, more evidence-based studies should be conducted to examine the efficacy and sustainability of intervention programs in diverse settings.

M-Teams exist in the field of elder abuse, despite a dearth of data regarding the efficacy, sustainability, and cost effectiveness of the M-team approach. An M-Team usually comprises a healthcare provider, a social worker, social services, a legal professional, an ethicist, a mental health specialist, community leaders, and residents. Although many state aging departments such as the Illinois Department on Aging recommended M-teams, systematic studies are needed, as well as rigorously designed intervention studies with relevant outcome measures. Given the different types of elder abuse and variation in risk and protective factors and perpetrator characteristics, intervention and prevention studies should begin to focus on specific high-risk dyads. Prevention and intervention studies must also consider cost effectiveness and scalability at the broad levels.

### IMPLICATIONS FOR HEALTH PROFESSIONALS

Health professionals are well situated to screen for elder abuse and detect vulnerabilities.<sup>70,71</sup> How older adults manage their daily lives can suggest predisposing factors

that may impair their ability to live independently and protect themselves. Assessing functional, cognitive, and psychosocial well-being is important for understanding the predisposing and precipitating risk factors associated with elder abuse. A recent validation study of the elder abuse vulnerability index suggests that older adults with three or four vulnerability factors have almost 4 times the risk of elder abuse, whereas those with five or more factors have more than 26 times the risk.<sup>72</sup>

Because elder abuse victims often interact with health systems, increased screening and treatment should be instituted in healthcare settings. Primary care outpatient practices, inpatient hospitalization episodes, and discharge planning and home health could play pivotal roles in identifying potentially unsafe situations that could jeopardize the safety and well-being of older adults.<sup>73</sup> Early detection and interventions, such as incorporating effective treatment of underlying problems, providing community-based services, and appropriately involving family, may help delay or prevent elder abuse (Figure 2).

When health professionals suspect elder abuse, detailed histories should be gathered, especially psychosocial and cultural aspects. In addition, specific findings from physical examinations that may further indicate elder abuse should be documented. Moreover, health professionals should document observations of patient behavior, reactions to questions, and family dynamics and conflicts. Whenever indicated, health professionals should order laboratory tests and imaging tests. These types of documentation are critical for supporting the interdisciplinary team and APS to ameliorate elder abuse and protect vulnerable older adults. Furthermore, health professionals should devise patient-centered plans to provide support, education, and follow-up and should monitor ongoing abuse and institute safety plans.

Almost all states have mandatory reporting legislation requiring health professionals to report reasonable suspicions of elder abuse. Elder abuse reports can come from variety of sources and could be anonymous if within the authorization of the statute, but in most states, reporting of elder abuse by health professionals is not anonymous, because follow-up may be needed with the reporter to provide further evidence and assessment. When health professionals suspect elder abuse, they should contact the state office on aging, the ElderCare Locator (800-677-1116), or the National Center on Elder Abuse.

Health professionals may be reluctant to report elder abuse because of subtlety of signs, victim denial, and lack of knowledge about reporting procedures.<sup>71</sup> Other reasons for reluctance include concern about losing physician-patient rapport, concern over potential retaliation by perpetrators, time limitation, doubt regarding the effect of APS, and perceived contradictions between mandatory reporting and a provider's ability to act in the patient's best interests.<sup>74</sup> A common misconception for reporting elder abuse is that convincing evidence is needed to report. In addition, given the fear of liability, the physician may ask for proof rather than suspicion of abuse to report elder abuse.<sup>74</sup> On the contrary, elder abuse should be reported to APS whenever a reasonable suspicion arises.

Health professionals promote a patient's rights to autonomy and self-determination, maintain a family unit whenever possible, and provide recommendations for the least-restrictive services and safety plan. It must be presumed that an older adult has decision-making capacity (DMC) and accept the person's choices until a healthcare provider or the legal system determines that the person lacks capacity. One of the most difficult dilemmas is under what types of situations the medical community and soci-

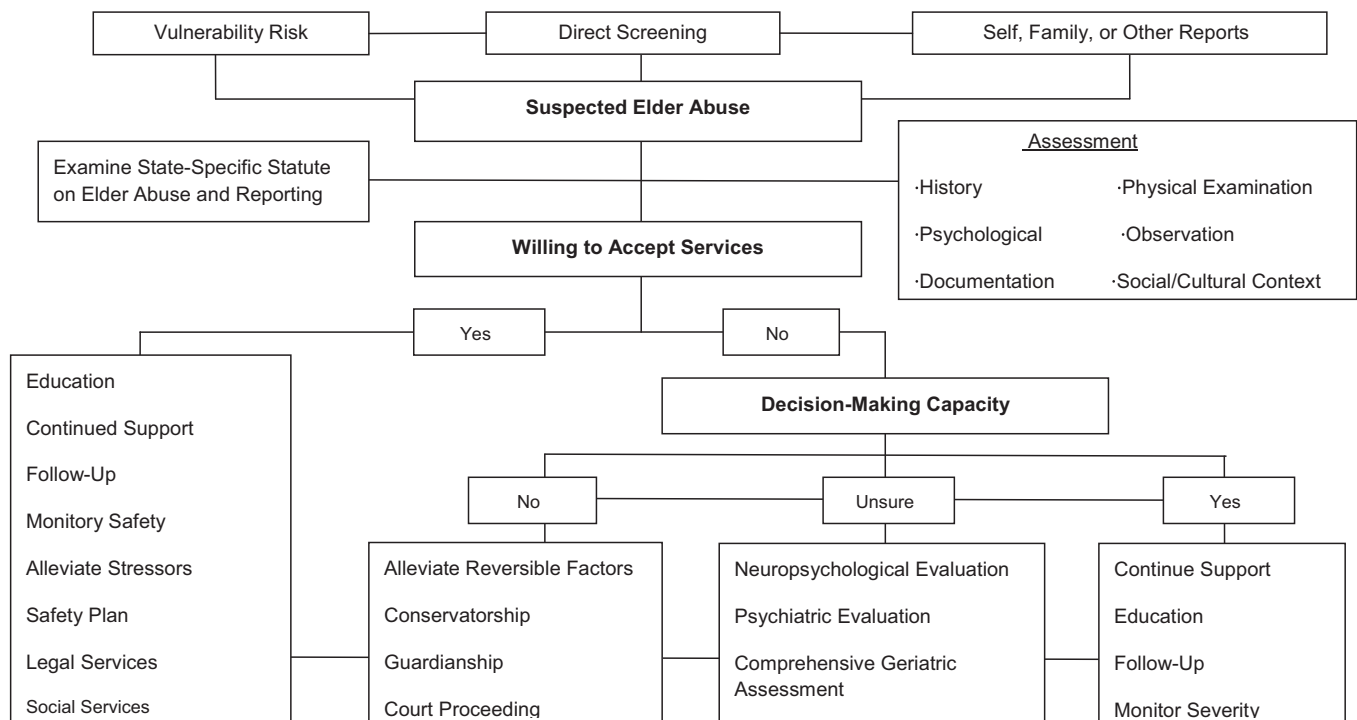


Figure 2. Healthcare professional management strategies for elder abuse. APS = Adult Protective Services.

ety at large have a responsibility to override personal wishes. The presence or absence of capacity is often a determining factor in what health professionals, the community and society need to do next,<sup>75</sup> but capacity is not present or absent; rather it is a gradient relationship between the problems in question and an older adult's ability to make these decisions. Complex health problems require higher levels of DMC. For simpler problems, even a cognitively impaired adult could have DMC, but health providers are often forced to make gray areas black and white for purposes of guiding next steps such as guardianship or conservatorship. Commonly used brief screening tests such as the Mini-Mental State Examination are inadequate for determining capacity except at the extremes of the score. A more-useful test for assessing DMC is the Hopkins Competency Assessment Test.<sup>76</sup>

## IMPLICATIONS FOR SOCIAL SERVICE PROVIDERS

### Community Organizations

Community organizations play a critical role in reducing the risk of elder abuse in community-dwelling older adults. Education should be provided to increase awareness of elder abuse in the community. In particular, given the cultural and linguistic barriers facing minority older adults, community organizations should improve minority older adults' access to culturally sensitive services related to elder abuse. Meanwhile, community organizations should sustain and promote collaboration with academic organizations to explore and tackle elder abuse.

### Adult Protective Services

APS programs, typically run by local or state health departments, provide protection for adults against abuse and investigate and substantiate reports. After a report of elder abuse, an assigned APS worker would make an in-person home visit to investigate the nature and severity of the abuse. From a comprehensive list of indicators and input from older adults, family members, and other involved parties, elder abuse is substantiated, partially substantiated, or not substantiated, but even if it is not substantiated, it does not necessarily mean there was no elder abuse because there are often barriers to assessing older adults and obtaining the information needed to substantiate a case.

As the aging population continues to grow, investigations by APS have become increasingly complex.<sup>77</sup> A recent systematic review of elder abuse and dementia suggested that insufficient financial resources, insufficient access to information needed to resolve elder abuse cases, inadequate administrative systems, and lack of cross-training with other disciplines in the aging field serving clients with mental health disabilities may hinder the role of APS workers in ameliorating abusive situations.<sup>77</sup> The M-Team could help confirm abuse, document impaired capacity, review medications and medical conditions, facilitate the conservatorship process, persuade the client or family to take action, and support the need for law enforcement involvement.<sup>78</sup>

## HEALTH POLICY IMPLICATIONS

Two important federal laws address elder abuse: the Older Americans Act (OAA) and the Elder Justice Act (EJA). The OAA authorizes funding for National Ombudsman Resource Center, National Center on Elder Abuse, Office of State Long Term Care Ombudsman, legal and justice services for victims, funding of demonstration projects, outreach activities, and State Legal Assistance Developer to enhance coordinated care. The EJA was passed in the 110th Congress to unify federal systems and respond to elder abuse. It required the Secretary of Health and Human Services to promulgate guidelines for human subject protections to assist researchers and establish elder abuse forensic centers across the United States. The EJA authorized funding and incentives for long-term care staffing; builds electronic medical records technology; collects and disseminates annual APS data; and sponsors and supports training, services, reporting, and the evaluation program for elder justice, although the majority of programs and activities under the EJA have not received funding, and the EJA is in danger of being dissolved. The authorization of appropriations for EJA provisions expired on September 30, 2014, and the likelihood of continuing Congressional resolution and reauthorization is uncertain.<sup>79</sup> The EJA plays an important role in elder abuse research and prevention. The Government Accountability Office described the EJA as providing "a vehicle for setting national priorities and establishing a comprehensive multidisciplinary elder justice system in this country."<sup>9</sup> Comprehensive, systematic, coordinated, multilevel advocacy and policy efforts are needed to address elder abuse in legislation at the national level.<sup>80</sup>

## CONCLUSION

This review highlights the epidemiology of elder abuse and the complexities of research and practice. National longitudinal research is needed to better define the incidence, risk and protective factors, and consequences of elder abuse in diverse racial and ethnic populations. Health professionals should consider integrating routine screening of elder abuse in clinical practice, especially in high-risk populations. Patient-centered and culturally appropriate treatment and prevention strategies should be instituted to protect vulnerable populations. Although vast gaps remain in the field of elder abuse, unified and coordinated efforts at the national level must continue to preserve and protect the human rights of vulnerable aging populations.

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## SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

**Figure S1.** Flowchart Describing Review Process for Identification of Eligible Studies.

**Figure S2.** Range of Prevalence Across Five Continents.

**Table S1.** Prevalence Estimates of Elder Abuse by Population, Survey Methods and Definitions.

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