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ORIGINAL ARTICLE

The prevalence of lifetime abuse among older adults in seven European countries

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Abstract
Objectives To investigate the lifetime prevalence rate of abuse among older persons and to scrutinize the associated factors (e.g. demographics).
Methods This cross-sectional population-based study had 4467 participants, aged 60–84, from seven European cities. Abuse (psychological, physical, sexual, financial and injuries) was measured based on The Revised Conflict Tactics Scale, and the UK survey of abuse/neglect of older people.
Results Over 34 % of participants reported experiencing lifetime psychological, 11.5 % physical, 18.5 % financial and 5 % sexual abuse and 4.3 % reported injuries. Lifetime psychological abuse was associated with country, younger age, education and alcohol consumption; physical abuse with country, age, not living in partnership; injuries with country, female sex, age, education, not living in partnership; financial abuse with country, age, not living in partnership, education, benefiting social/partner income, drinking alcohol; and sexual abuse with country, female sex and financial strain.
Conclusions High lifetime prevalence rates confirm that elder abuse is a considerable public health problem warranting further longitudinal studies. Country of residence is an independent factor associated with all types of elder abuse which highlights the importance of national interventions alongside international collaborations.

Keywords Determinant · Elder abuse · Financial · Injuries · Psychological · Sexual

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Introduction

The population of older people is increasing, both in developed and developing countries. One million people turn 60 every month. It is predicted that the global population of those aged 60 years and above will increase from 841 million today to 2 billion by the year 2050. Eighty per cent will live in low- and middle-income countries. One-third of the population of the European Region will be 60 years and older by 2050 (Krug et al. 2002; Sethi et al. 2011; WHO 2014). With regard to the EU28, individuals aged 65 years and over are expected to increase from 18.5 % in 2014 to 28.1 % by 2050, thus reaching about 150 million. In the same period, individuals aged 80 years and over are expected to increase from 5.1 % to about 6 %, thus reaching 57.3 million (Eurostat regional yearbook 2014).

The rapidly ageing population and subsequent changes in the socio-demographic structure of societies pose a challenge for health and social services globally. Besides the burden of disease (e.g. dementia), decline in general health and a greater dependence on others, loneliness and reduced financial capacity facilitate the occurrence of different types of abuse towards older people (Boyd et al. 2005; Buber et al. 2010; Krug et al. 2002; Lelkes and Gasier 2012; Sethi et al. 2011; WHO 2002). Additionally, social and economic changes, such as urbanization, social role changes (e.g. participation of women in the paid work force), poverty and inequality throughout the world, offer a fertile ground for elder abuse (WHO 2002).

Elder abuse was first described in 1975 (Burston 1975), but after only two decades it has been recognized as a significant and growing public health problem in nearly every society, across all social strata (WHO 2002). Elder abuse is defined as "a single or repeated act, or lack of appropriate action, occurring within any relationship where there is an expectation of trust, which causes harm or distress to an older person" (Action on Elder Abuse Bulletin 1995). Elder abuse can take the form of physical (e.g. imposition of pain or injury), psychological/emotional (e.g. imposition of mental distress), financial/material (e.g. illegal use of older persons' resources), sexual (e.g. non-consensual sexual contacts), and neglect (e.g. failure to fulfil care-giving duties). (Sethi et al. 2011; Soares et al. 2010).

The prevalence rates of elder abuse vary. Overall elder abuse has been reported to be between 2.2 and 61.1 %, depending on the type, in a systematic review by Dong (2015). The Abuse and Violence against Older Women, a study of a sample of women aged 60 years old and above from five European countries, showed prevalence rates ranging between 0.5 and 32.9 % depending on the abuse type; psychological abuse being the most prevalent (Luoma et al. 2011). The study of elder abuse in seven European countries (ABUEL) revealed that 19.4 % of the elderly aged 60–84 years were exposed to psychological abuse, 3.8 % to financial, 2.7 % to physical, 0.7 % to sexual abuse and injuries in the previous 12 months (Soares et al. 2010). The observed discrepancies in prevalence rates may be explained by methodological differences such as including only one gender in the study (Luoma et al. 2011), using different cutoff points for defining elder abuse (Dong 2015), or not using reliable and valid instruments (Cooper et al. 2008). Most of the present literature on elder abuse has considered specific points in time or a limited period of time (e.g. the past 12 months) and has not taken into account a lifetime perspective. Only including recent abusive experiences may cloud the issue of long-term negative health effects of abuse (Samelius et al. 2010; Scott-Storey 2011). The results of prevalence studies with a life span perspective may help researchers to develop theories to explain the aetiology of abuse and help policy makers develop strategies to alter modifiable factors with respect to preventing elder abuse as much as possible. To the best of our knowledge, there is a paucity of studies on the lifetime prevalence of elder abuse (e.g. Peterson et al. 2014). In addition to prevalence, understanding the factors related to elder abuse is an essential step in the preventing approach of public health. Among victims of elder abuse, suffering from disabilities and cognitive impairments, e.g. Alzheimer's disease, (Dong 2015; Sethi et al. 2011), being woman (O'Keeffe et al. 2007; Soares et al. 2010), older age (Sethi et al. 2011), and low education, unemployment and experiencing financial strain increase the risk of being abused (Lowenstein et al. 2009; Sethi et al. 2011; Soares et al. 2010).

The present study aimed to describe the prevalence of lifetime injuries, psychological, physical, financial and sexual abuse among an urban general population aged 60–84 years living in seven European countries. Additionally, the study scrutinizes socio-demographic and lifestyle factors associated with experiencing lifetime violence. This work may be useful for researchers, policy makers and practitioners working to help older persons experiencing abuse.

Methods

Study design, settings and participants

This study is a part of a larger cross-sectional community-based survey, ABUEL, conducted in seven European cities (i.e. Ancona in Italy, Athens in Greece, Granada in Spain, Kaunas in Lithuania, Porto in Portugal, Stockholm in Sweden, and Stuttgart in Germany).

Women and men aged 60–84 years old, not suffering from dementia or other cognitive impairments, citizens or documented migrants in the abovementioned countries, living in their own (owned/rented) or elderly community housing, and proficient in their native language were included in this study. The data were collected via questionnaires through two administration modes, face-to-face interviews (i.e. Spain, Italy, Greece, Lithuania, and Portugal) and mixed methods (i.e. face-to-face interviews and mailed questionnaires in Germany and Sweden). All countries followed a united protocol concerning among other things how the data to be collected, and results from the instruments/questions should be interpreted. With a response rate of 45.2 %, the final sample consisted of 4467 participants. Further details on methodology (e.g. sampling) are described in Lindert et al. (2012).

Measures

Abuse was assessed with 52 items based on The Revised Conflict Tactics Scale (Straus et al. 1996) and the UK survey of abuse/neglect of older people (O'Keeffe et al. 2007). The items were arranged in five abuse sub-scales, i.e. 11 items on psychological abuse (e.g. has someone insulted you or sworn at you); 17 items on physical abuse (e.g. has someone pushed or shoved you); seven items on physical abuse with injury (e.g. you passed out from being hit on the head); eight items on sexual abuse (e.g. has someone touched you in a sexual way against your will); and nine items on financial abuse (e.g. has someone made you give him/them your money). The items on financial abuse were all derived from the UK survey of abuse/neglect of older people (O'Keeffe et al. 2007). The present study focused on lifetime abuse, i.e. exposure to any of the abovementioned abuse from the age of 18 years, excluding childhood abuse. Cronbach α for psychological abuse across countries was 0.82; for physical abuse 0.80; for physical abuse with injury 0.70; for sexual abuse 0.90; and for financial abuse 0.81.

Socio-demographics consisted of age (categorized into 60–64, 65–69, 70–74, 75–79 and 80–84 years old), sex, migrant history (considered positive if any of the following three conditions were met: the place of birth of either interviewee or their parents, the nationality, or the language spoken at home were other than the country where the person was currently living), living in partnership (yes/no), educational level (i.e. low, middle, high), employment (i.e. still having paid work, yes/no), profession (i.e. blue-collar, white-collar, home), source of income (i.e. pension, work, social/other, partner), house tenure (i.e. living in own property, in a rental place, other such as child's) and financial strain (yes/no). These items were tailored to each country, but similar in content.

Lifestyle variables consisted of regular alcohol use and regular cigarette smoking assessed in a yes/no format. Body mass index (BMI) based on self-reported height and weight was calculated for each participant with the formula Kg/m^2.

Statistical analyses

The data analyses were conducted with the PASW statistic package 22.0 (IBM/SPSS Inc., Chicago, IL, USA). Continuous variables were presented by mean, standard deviation and median. Categorical variables were summarized by absolute frequencies and percentages and Chi-square tests were performed to address the association between the different types of lifetime abuse and socio/demographic and lifestyle variables.

Multivariate logistic regression analyses were performed to explore "determinant" factors of lifetime violence among older people. Dependent variables were psychological (yes = 1, no = 0), physical (yes = 1, no = 0), financial (yes = 1, no = 0) and sexual abuse (yes = 1, no = 0), and injuries (yes = 1, no = 0). Independent variables were the country of residence, socio-demographics (e.g. gender) and general lifestyle variables (e.g. alcohol use).

The data were expressed in the form of odds ratio (OR), 95 % confidence intervals, and p values. The significance level for all bivariate and multivariate analyses was set at $p < 0.05$.

Results

Four thousand and four hundred and sixty-seven older persons with a mean age 70.24 ± 6.8 years (range 60–84, median 70) participated in this study from seven European countries. Sample distribution was equal between countries (about 14 %) and 5 % of the participants had a foreign background. Of this sample, 57 % were women, and 65 % of total sample were living in partnership. Most of the participants (76 %) owned their housing, and the majority had secondary school education (41 %) and white-collar profession (56 %). About 17 % were still working, but 64 % reported financial strain (Table 1).

As shown in Table 2, over 34 % of participants reported experiencing lifetime psychological, 11.5 % physical, 18.5 % financial and 5 % sexual abuse and 4.3 % reported injuries.

Abuse and socio-demographic/lifestyle variables

As shown in Table 2, Portugal had the highest prevalence in lifetime psychological (51.8 %), physical (23.6 %),

Table 1 Socio-demographic and lifestyle characteristics of 4467 participants aged 60–84 years from seven European countries at 2009

Variables	Number (%)	Variables	Number (%)
Country		Education	
Germany	648 (14.5)	Low	1617 (37.4)
Greece	643 (14.4)	Middle	1782 (41.2)
Italy	628 (14.1)	High	928 (21.4)
Lithuania	630 (14.1)	Still working[b]	
Portugal	656 (14.7)	Yes	743 (17.4)
Spain	636 (14.2)	No	3530 (82.6)
Sweden	626 (14.0)	Profession	
Sex		Blue-collar[c]	1277 (29.0)
Women	2559 (57.3)	White-collar[d]	2476 (56.2)
Men	1908 (42.7)	Home	656 (14.9)
Age (group years)		Financial support	
60–64	1124 (25.2)	Work	542 (12.2)
65–69	1088 (24.4)	Work pensions	2939 (65.9)
70–74	961 (21.5)	Social/sick-leave/other pension benefits	353 (07.9)
75–79	749 (16.8)	Partner/spouse income	626 (14.0)
80–84	545 (12.2)	Financial strain	
Foreign background		Yes	2857 (64.0)
Yes	238 (05.3)	No	1605 (36.0)
No	4216 (94.7)	Smoking	
Living in partnership		Yes	536 (12.0)
Yes	2903 (65.0)	No	3927 (88.0)
No	1563 (35.0)	Drinking	
Housing		Yes	2866 (64.2)
Own	3392 (76.0)	No	1598 (35.8)
Rental	930 (20.8)	BMI (mean ± SD)	26.68 ± 4.19
Other[a]	143 (03.2)		

SD standard deviation

[a] E.g. child's house

[b] Paid work

[c] E.g. worker

[d] E.g. nurse

financial (45.7 %) and sexual abuse (9.8 %), and injuries (9.3 %). Italy had the lowest prevalence of lifetime psychological (16.7 %) and physical abuse (2.2 %), while Lithuania had the lowest prevalence of lifetime financial (4.6 %) and sexual abuse (0.8 %). In Sweden, the lifetime financial abuse was as low as in Lithuania (4.8 %). The data for the lifetime injuries were missing from Italy.

Compared to men, women reported more injuries (5.4 vs. 2.8 %), financial (20.3 vs. 16.0 %) and sexual (6.6 vs. 2.7 %) abuse. The analyses showed also that older persons aged 60–64 years experienced psychological abuse more often than other age groups, while older adults aged 80–84 years experienced greater financial exploitation. Age was not associated with injuries, physical and sexual abuse.

Elders with a foreign background compared with natives, more often experienced psychological abuse (43 vs. 34 %) and less often financial maltreatment (13 vs. 19 %).

Participants living in partnership reported a lower level of injuries, physical, financial and sexual abuse compared to those not living in partnership (i.e. singles, divorced, widowed). Older persons living in rental accommodation more often experienced all types of abuse, except for financial abuse.

Persons with higher education compared with those with low levels of education more often experienced psychological abuse and the contrary was observed regarding financial abuse and injuries. Having paid work was connected with higher psychological abuse and lower financial abuse. Additionally, older persons who had white-collar professions experienced more psychological abuse compared to those with blue-collar jobs or those not working at all. However, being at home and not having profession were connected with a greater level of sexual abuse.

Participants on social benefits experienced higher levels of injuries and psychological, physical, financial and sexual abuse. Participants reporting financial strain experienced higher levels of financial and sexual abuse compared to those not reporting financial strain. Interestingly, older adults who had no financial strain reported higher levels of psychological abuse.

Table 2 Socio-demographic and lifestyle variables associated with the prevalence of lifetime abuse (psychological, physical, financial, sexual and physical injuries) among older persons aged 60–84 years in seven European countries at 2009

Variables	Psychological *n* (%)	Physical *n* (%)	Injuries *n* (%)	Financial *n* (%)	Sexual *n* (%)
Total	1543 (34.5)	514 (11.5)	193 (4.3)	825 (18.5)	222 (5.0)
Country					
Germany	316 (48.8)	113 (17.4)	37 (5.7)	79 (12.2)	53 (8.2)
Greece	148 (23.0)	50 (7.8)	16 (2.5)	46 (7.2)	26 (4.0)
Italy	105 (16.7)	14 (2.2)	–	144 (22.9)	18 (2.9)
Lithuania	177 (28.1)	37 (5.9)	14 (2.2)	29 (4.6)	5 (0.8)
Portugal	340 (51.8)	155 (23.6)	61 (9.3)	300 (45.7)	64 (9.8)
Spain	174 (47.4)	71 (11.2)	38 (6.0)	197 (31.0)	32 (5.0)
Sweden	283 (45.2)	74 (11.8)	27 (4.3)	30 (4.8)	24 (3.8)
p value	0.000	0.000	0.000	0.000	0.000
Sex					
Female	889 (34.7)	301 (11.8)	139 (5.4)	519 (20.3)	170 (6.6)
Male	654 (34.4)	213 (11.2)	54 (2.8)	306 (16.0)	52 (2.7)
p value	NS	NS	0.000	0.000	0.000
Age (group years)					
60–64	434 (38.6)	143 (12.7)	61 (5.4)	168 (14.9)	60 (5.3)
65–69	371 (34.1)	110 (10.1)	39 (3.6)	193 (17.7)	55 (5.1)
70–74	358 (37.3)	118 (12.3)	43 (4.5)	204 (21.2)	56 (5.8)
75–79	221 (29.5)	78 (10.4)	31 (4.1)	140 (18.7)	29 (3.9)
80–84	159 (29.2)	65 (11.9)	19 (3.5)	120 (22.0)	22 (4.0)
p value	0.000	NS	NS	0.001	NS
Migrant background					
Yes	102 (42.9)	30 (12.6)	16 (6.7)	30 (12.6)	18 (7.6)
No	1440 (34.2)	484 (11.5)	177 (4.2)	795 (18.9)	203 (4.8)
p value	0.006	NS	NS	0.016	NS
Living in partnership					
Yes	975 (33.6)	296 (10.2)	98 (3.4)	501 (17.3)	125 (4.3)
No	568 (36.3)	218 (13.9)	95 (6.1)	324 (20.7)	97 (6.2)
p value	NS	0.000	0.000	0.004	0.005
Housing					
Own	1085 (32.0)	346 (10.2)	125 (3.7)	596 (17.6)	143 (4.2)
Rental	411 (44.2)	147 (15.8)	61 (6.6)	186 (20.0)	73 (7.8)
Other[a]	46 (32.2)	20 (14.0)	6 (4.2)	43 (30.1)	6 (4.2)
p value	0.000	0.000	0.001	0.000	0.000
Education					
Low	497 (30.7)	197 (12.2)	86 (5.3)	355 (22.0)	85 (5.3)
Middle	627 (35.2)	188 (10.5)	64 (3.6)	277 (15.5)	82 (4.6)
High	373 (40.2)	108 (11.6)	28 (3.0)	162 (17.5)	51 (5.5)
p value	0.000	NS	0.007	0.000	NS
Still (paid) working					
Yes	313 (42.1)	98 (13.2)	33 (4.4)	127 (17.1)	49 (6.6)
No	1175 (33.3)	395 (11.2)	149 (4.2)	636 (18.0)	164 (4.6)
p value	0.000	NS	NS	0.000	NS
Profession					
Blue-collar[b]	424 (33.2)	153 (12.0)	62 (4.9)	236 (18.5)	47 (3.7)
White-collar[c]	919 (37.1)	285 (11.0)	95 (3.8)	443 (17.9)	133 (5.4)
Home	175 (26.7)	70 (10.7)	32 (4.9)	144 (22.0)	39 (5.9)
p value	0.000	NS	NS	NS	0.036

Table 2 continued

Variables	Psychological *n* (%)	Physical *n* (%)	Injuries *n* (%)	Financial *n* (%)	Sexual *n* (%)
Financial support					
Work	231 (33.5)	69 (10.7)	21 (3.8)	77 (16.0)	34 (4.1)
Work pensions	986 (42.6)	315 (12.7)	113 (3.9)	471 (14.2)	120 (6.3)
Social/sick-leave/other pension benefit	154 (43.6)	70 (19.8)	29 (8.2)	107 (30.3)	30 (8.5)
Partner/spouse income	169 (27.0)	60 (9.6)	30 (4.8)	167 (26.7)	38 (6.1)
p value	0.000	0.000	0.002	0.000	0.001
Financial strain					
Yes	953 (33.4)	327 (11.4)	135 (3.6)	559 (19.6)	161 (5.6)
No	588 (36.6)	187 (11.7)	58 (4.7)	266 (16.6)	61 (3.8)
p value	0.027	NS	NS	0.013	0.007
Smoking					
Yes	164 (30.6)	52 (9.70)	23 (4.3)	75 (14.0)	17 (3.2)
No	1378 (35.1)	462 (11.8)	170 (4.3)	749 (19.1)	205 (5.2)
p value	0.004	NS	NS	0.004	0.041
Drinking					
Yes	1093 (38.1)	367 (12.8)	122 (4.3)	547 (19.1)	156 (5.4)
No	448 (28.0)	147 (9.2)	71 (4.4)	278 (17.4)	66 (4.1)
p value	0.000	0.000	NS	NS	NS

n number, *NS* non-significant

[a] E.g. child's house

[b] E.g. worker

[c] E.g. nurse

Finally, cigarette smokers experienced lower levels of psychological, financial and sexual abuse compared to non-smokers, while regular alcohol consumption was connected with higher levels of psychological and physical abuse.

Factors associated with abuse

Psychological abuse

As shown in Table 3, the odds of lifetime exposure to psychological abuse were lower among older persons from Greece, Italy, Lithuania and Spain compared to those from Germany. Persons older than 74 years had lower odds of lifetime psychological violence compared to persons in the younger age group (60–64 years). In contrast, participants with a higher educational level and those drinking alcohol regularly had higher odds of lifetime psychological abuse. Overall, the model accounted for 8.6–11.9 % of the variance in lifetime psychological abuse.

Physical abuse

Participants from Greece, Italy, Lithuanian, Spain and Sweden were less exposed to lifetime physical abuse than those from Germany. Additionally, participants in age groups of 65–69 and 75–79 had lower odds of exposure to physical abuse compared to those in the age group 60–64 years. Results show that living in partnership was also a protective factor towards experiencing physical violence. However, higher BMI increased the odds of this type violence. This model accounted for 5.7–11.2 % of the variance in physical abuse.

Injuries

Older persons from Greece and Lithuania had lower odds of lifetime injuries compared to Germany. Those aged 65–74 and 80–84 years also had lower odds compared to persons aged 60–64 years. Additionally, being female increased the odds for lifetime injuries by about 1.5 times, while living in partnership had a protective influence. Having a higher BMI was also associated with higher odds of lifetime physical injuries. This model accounted for 2.7–8.6 % of the variance in injuries.

Financial abuse

Compared to older persons in Germany, those from Italy, Portugal and Spain had 2.37, 6.55 and 4.17 times higher odds of experiencing lifetime financial abuse, respectively.

Table 3 Multivariate logistic regression analysis of the association between country, socio-demographic and lifestyle variables and lifetime abuse (psychosocial, physical, financial, sexual, physical injuries) among older persons aged 60–84 years in seven European countries at 2009

Variable	Psychological OR (95 % CI)	Physical OR (95 % CI)	Injuries OR (95 % CI)	Financial OR (95 % CI)	Sexual OR (95 % CI)
Country[a]					
Germany[b]	1	1	1	1	1
Greece	0.33 (0.24–0.44)***	0.30 (0.20–0.47)***	0.21 (0.09–0.45)***	0.54 (0.34–0.85)**	0.47 (0.25–0.88)*
Italy[d]	0.24 (0.18–0.32)***	0.09 (0.05–0.17)***	–	2.37 (1.68–3.34)***	0.42 (0.23–0.78)**
Lithuania	0.44 (0.34–0.58)***	0.25 (0.16–0.38)***	0.25 (0.12–0.50)***	0.35 (0.22–0.57)***	0.10 (0.04–0.27)***
Portugal	1.11 (0.87–1.42)	1.16 (0.84–1.59)	1.15 (0.68–1.93)	6.55 (4.75–9.03)***	1.15 (0.73–1.82)
Spain	0.43 (0.31–0.59)***	0.48 (0.31–0.75)**	0.70 (0.36–1.38)	4.17 (2.84–6.12)***	1.03 (0.55–1.92)
Sweden	0.88 (0.69–1.12)	0.58 (0.41–0.83)**	0.69 (0.38–1.23)	0.40 (0.25–0.63)***	0.46 (0.27–0.80)**
Sex[a]					
Male[b]	1	1	1	1	1
Female	1.06 (0.91–1.25)	0.87 (0.69–1.10)	1.55 (1.05–2.30)*	1.18 (0.95–1.45)	2.47 (1.71–3.58)***
Age[a]					
60–64[b]	1	1	1	1	1
65–69	0.87 (0.71–1.07)	0.70 (0.51–0.95)*	0.53 (0.32–0.86)*	1.54 (1.16–2.05)**	1.12 (0.72–1.74)
70–74	1.00 (0.80–1.25)	0.79 (0.57–1.09)	0.49 (0.29–0.82)**	2.03 (1.51–2.73)***	1.27 (0.79–2.05)
75–79	0.74 (0.58–0.95)*	0.69 (0.48–0.99)*	0.60 (0.35–1.02)	1.67 (1.21–2.31)**	0.89 (0.52–1.56)
80–84	0.73 (0.55–0.96)*	0.86 (0.58–1.26)	0.49 (0.26–0.93)*	2.15 (1.52–3.03)***	0.98 (0.54–1.80)
Migrant background[a]					
No[b]	1	1	1	1	1
Yes	1.05 (0.78–1.40)	0.94 (0.61–1.43)	1.35 (0.74–2.47)	1.11 (0.71–1.74)	1.34 (0.76–2.37)
Living in partnership[a]					
No[b]	1	1	1	1	1
Yes	0.92 (0.79–1.08)	0.68 (0.54–0.85)**	0.63 (0.44–0.89)*	0.70 (0.57–0.86)**	0.82 (0.59–1.13)
Housing[a]					
Own[b]	1	1	1	1	1
Rental	1.02 (0.67–1.55)	1.10 (0.63–1.95)	0.83 (0.32–2.17)	0.98 (0.63–1.50)	0.78 (0.33–1.86)
Other	1.16 (0.97–1.39)	0.96 (0.75–1.23)	1.01 (0.68–1.48)	0.82 (0.65–1.05)	1.37 (0.97–1.92)
Employed[a]					
No[b]	1	1	1	1	1
Yes	1.00 (0.76–1.33)	0.95 (0.63–1.43)	0.90 (0.47–1.73)	1.28 (0.89–1.83)	1.41 (0.81–2.45)
Education[a]					
Low[b]	1	1	1	1	1
Middle	1.16 (0.97–1.40)	0.87 (0.66–1.14)	0.63 (0.41–0.98)*	1.10 (0.86–1.40)	0.89 (0.59–1.34)
High	1.27 (1.01–1.59)*	0.94 (0.67–1.32)	0.58 (0.34–1.01)	1.53 (1.13–2.08)**	1.08 (0.66–1.76)
Profession[a]					
Home[b]	1	1	1	1	1
White-collar	1.02 (0.74–1.40)	0.67 (0.42–1.05)	0.70 (0.36–1.36)	1.18 (0.79–1.76)	0.92 (0.50–1.67)
Blue-collar	2.00 (0.87–1.66)	0.77 (0.49–1.22)	0.64 (0.33–1.26)	1.10 (0.74–1.63)	0.69 (0.37–1.27)
Financial support[a]					
Work[b]	1	1	1	1	1
Work pensions	1.15 (0.83–1.60)	1.02 (0.63–1.66)	0.60 (0.27–1.34)	1.12 (0.71–1.76)	1.15 (0.59–2.24)
Social/sick-leave/other pension benefit	1.27 (0.97–1.66)	1.27 (0.89–1.80)	0.97 (0.57–1.65)	1.42 (1.03–1.95)*	1.32 (0.80–2.19)
Partner/spouse income	1.01 (0.74–1.38)	0.93 (0.60–1.44)	0.89 (0.47–1.67)	1.79 (1.26–2.54)**	1.15 (0.66–1.99)
Financial strain[a]					
No[b]	1	1	1	1	1
Yes	1.04 (0.89–1.21)	1.03 (0.82–1.29)	1.17 (0.80–1.71)	1.21 (0.99–1.48)	1.44 (1.02–2.04)*

Table 3 continued

Variable	Psychological OR (95 % CI)	Physical OR (95 % CI)	Injuries OR (95 % CI)	Financial OR (95 % CI)	Sexual OR (95 % CI)
Smoking[a]					
No[b]	1	1	1	1	1
Yes	0.87 (0.69–1.09)	0.97 (0.69–1.36)	1.48 (0.88–2.49)	0.87 (0.64–1.19)	0.75 (0.43–1.29)
Drinking[a]					
No[b]	1	1	1	1	1
Yes	1.19 (1.01–1.41)*	1.26 (0.97–1.63)	0.89 (0.60–1.32)	1.28 (1.03–1.59)*	1.36 (0.94–1.97)
BMI[c]	1.00 (0.99–1.02)	1.03 (1.00–1.05)*	1.06 (1.02–1.09)**	1.01 (0.99–1.03)	1.01 (0.98–1.05)
R^2	0.086–0.119	0.057–0.112	0.027–0.086	0.153–0.251	0.036–0.111

OR odds ratio, *CI* confidence interval, *BMI* body mass index

*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$

[a] Categorical variables

[b] Comparison category

[c] Continuous variable

[d] Data in physical injury were not available from Italy

Older females and males from Greece, Lithuania, and Sweden had lower odds of financial maltreatment. All age groups had higher odds of financial abuse compared to those in the age range 60–64 years, with higher odds among those in age range 80–84 years. Although being in partnership reduced the odds of financial abuse, having the partner/spouse as the source of finance approximately doubled the odds of financial maltreatment. Having higher education and drinking alcohol regularly were also associated with higher odds of financial abuse. Overall, the model accounted for 15.3–25.1 % of the variance in financial maltreatment.

Sexual abuse

Older persons from Greece, Italy, Lithuania, and Sweden had lower odds of experiencing sexual abuse compared to those from Germany. Being female and experiencing financial strain increased the odds of sexual abuse, the former 2.47 times and the latter 1.44 times. This model accounted for 3.6–11.1 % of the variance in sexual abuse.

Discussion

This large-scale study from seven European countries shed light on lifetime abuse among older persons. The results showed that psychological abuse was the most prevalent type of lifetime abuse, followed by financial exploitation, physical and sexual abuse, and injuries. This study has also shown that the country of residence was closely associated with lifetime abuse and the age of older adults was a significant factor for experiencing all types of abuse, except for sexual.

Our results have shown a 34 % lifetime prevalence rate of psychological abuse, which is higher than in a study from US reporting a prevalence rate of 21.7 % (Acierno et al. 2010). This could be related to the methodological and sampling differences. As shown elsewhere (Ziminski Pickering and Rempusheski 2014), the perception of abuse by older adults is influenced by the nature of the abusive act. Older persons may identify an act as abusive when it has negative consequences (Nandlal and Wood 1997). Thus, using instruments with good psychometric characteristics (e.g. The Revised Conflict Tactics Scale) or having a face-to-face interview can help interviewees to better identify the abusive acts (i.e. psychological), which may have less obvious negative consequences. Furthermore, the participants in an American study had a larger age range than European counterparts (60–97 vs. 60–84), which could also explain their lower prevalence rate. Similar to our results, previous studies (Acierno et al. 2010, Soares et al. 2010; Yan and Chan 2012) have shown the association of lower age with increased likelihood of self-reported psychological abuse. In a study by Yan and Chan (2012), conducted among Chinese older couples, the lifetime prevalence rate of psychological abuse was even higher than in our sample (53.6 %). However, these researchers focused mainly on intimate partner violence among older persons.

In the current study, the regression analyses revealed that older adults with higher education had higher odds of being a victim of lifetime psychological abuse. One could argue that higher education may have led to higher

awareness about abusive behaviour or greater intention to report it. However, this association might be mediated by the age of respondents as there was a significant negative correlation between education and age in our sample due to that older people had a lower level of education. As mentioned earlier, younger elderly report psychological abuse more frequently than older (Acierno et al. 2010; Soares et al. 2010; Yan and Chan 2012). Similar to our findings, Dong et al. (2014) also found an association between higher education and elder abuse.

The lifetime physical assault and sexual abuse reported by 11.5 and 5 % of the respondents, respectively, was in accord with a US study (Acierno et al. 2010). In a literature review (Basile and Smith 2011), various studies highlight that lifetime prevalence of rape perpetrated by a spouse/intimate partner ranges from 10 to 14 % depending on the study itself. The lifetime dimension is indeed often found with regard to domestic violence. American researchers (Acierno et al. 2010) have reported that being under 70 years of age increases the risk of falling victim to physical abuse (about four times), while in our study the age range 65–69 years and 75–79 years were associated with lower likelihood of being a victim of physical violence. This might be due to methodological differences as we have examined lifetime abuse, whereas Acierno et al. (2010) only assessed risk factors over the past year.

Being a woman and experiencing financial strain were associated with higher odds of lifetime sexual abuse. These findings were consistent with those of other researchers (Lowenstein et al. 2009; Soares et al. 2010; Sethi et al. 2011). In contrast, Yan and Chan (2012) have shown that sexual abuse was associated with having an income among older couples. It is noteworthy that lifetime prevalence rate of physical and sexual abuse among women has been reported at 52 and 18 %, respectively (Tjaden and Thoennes 2000).

The lifetime prevalence rate of financial maltreatment was 18.5 % in our sample, which was about four times higher than in a sample of American older adults (Peterson et al. 2014). Additionally, Lichtenberg et al. (2013) have reported an incidence rate of 4.5 % of financial fraud in another American sample. One could argue that older people tend to collect many financial assets over their lifetime (e.g. savings, property), thus making themselves particularly vulnerable and possible victims of exploitation. The lifetime dimension is crucial with regard to financial exploitation of the elderly (Jackson and Hafemeister 2011). Our findings showed that the country of residence was associated with experiencing lifetime financial exploitation. Older adults from Sweden and Lithuania had prevalence rates of financial abuse as high as US counterparts (about 4 %), whereas older persons from Italy, Portugal and Spain had 2, 6.5 and 4 times higher odds of financial maltreatment, respectively. Fraga et al. (2014) have reported that a higher Gini coefficient is associated with higher prevalence of financial abuse among older persons. Apart from the financial maltreatment, country of residence was a protective factor towards different types of abuse compared to Germany. Lindert et al. (2013) have argued that the association between the country of residence and experiencing abuse among older persons can be related to cultural awareness or previous collective life events. Furthermore, Costa et al. (2015) have shown that specific type of intimate partner violence could be related to specific site in their multi-country study. This might be related to different cultural attitude towards different types of violence. In one culture, for instance financial abuse might be a normative behaviour while physical abuse might be considered as an abusive behaviour. Future studies should address cultural specificities in exploring elder abuse.

Older age, not living in partnership, having higher education, having the spouse or social welfare as financial resources and alcohol consumption were associated with higher likelihood of lifetime financial abuse. This is in line with previous studies showing that living with spouse is a protective factor with regard to financial exploitation, while older age, higher education and lower financial satisfaction are predictors of financial fraud among older persons (Dong et al. 2014; Lichtenberg et al. 2013; MetLife Mature Market Institute 2011; Peterson et al. 2014). Dong et al. (2014) have argued that older persons with higher education may have higher financial assets which increases the risk of victimization. In this study, alcohol consumption was independently associated with lifetime psychological and financial abuse. Previous research (Wadd and Papadopoulos 2014) has shown that older persons are more susceptible to the negative effects of the alcohol (e.g. judgment and memory impairment) which could make them prone to abuse (WHO 2006). However, some other researchers (Choi and Mayer 2000; WHO 2006) have shown that older persons may drink alcohol to cope with abuse or they are encouraged to drink by their perpetrator (e.g. caregiver) so as to be more easily exploited financially.

The lifetime prevalence rate of injuries (severe physical violence) was 4.3 % in our sample, risk of victimization being independently associated with female sex, having younger age, not living in partnership, and not having low or high educational level. Although Soares et al. (2010) have also reported a higher prevalence of injuries among older women than men during the past year, gender was not independently associated with injuries in their study. The association between higher social support and living in partnership (Melchiorre et al. 2013) may also explain our findings.

Strengths and limitations

The current study has a large sample size from seven countries, from the north to the south of Europe, which provides a considerable cultural diversity. The applied instruments are well established, widely used and culturally adapted.

However, this study has several limitations that need to be considered in evaluating the findings. The cross-sectional character of the data does not allow establishing firm causal links, which would require another type of design, such as a longitudinal study with repeated-measures. The sample was selected from only urban areas in seven European cities while older adults with cognitive impairments were excluded, implying that this population may not necessarily represent the entire population of older people aged 60–84 years living in European region. Additionally, the data were solely dependent on the participants' subjective assessments and no objective measures were incorporated to corroborate their responses. A general and/or differential misclassification may thus have occurred. Furthermore, the participants were asked about experiencing different types of abuse after the age of 18, and this may result in recall bias. This study had a relatively low response rate (45.2 %), which may have resulted in an under-reporting bias, but is what one could expect in a large-scale community-based study on abuse.

Conclusions

Psychological abuse was the most common type of lifetime abuse across these seven European countries, followed by financial, physical, sexual abuse and injuries. Country of residence was independently associated with all types of lifetime elder abuse, which highlights the importance of national and culture-based interventions alongside international collaborations to prevent elder abuse. Older adults in different age groups had different odds of victimization, except for sexual abuse. Professionals working in this area should consider that during prevention, detection and management of elder abuse, each age group has own needs. Living in partnership was a protective factor against physical and financial abuse and injuries, which emphasizes the importance of social support in this area. The association between the educational level and lifetime victimization was inconsistent in this study. Future studies with longitudinal designs are warranted to estimate psychological, physical, financial and sexual abuse and injuries at different points of time to better clarify the picture of lifetime violence in older age. Additionally, longitudinal studies may help in establishing causal links between predisposition for, and protection against, elder abuse.

Compliance with ethical standards

Ethical standards Prior to, and in conjunction with, the data gathering the participants were thoroughly informed in writing and verbally about the research and informed consent was requested. Issues concerning confidentiality, anonymity and the respondent's rights were emphasized. Participants were informed before and at the start of the interview that they could at any moment terminate the interview. Self-responders were also informed that if they changed their mind they did not need to return the questionnaire. Ethical permission (the ethical application was similar, but customized for each country) was applied and received in each country (for more details see Lindert et al. 2012; Melchiorre et al. 2013).

Conflict of interest The authors declare that they have no conflict of interest.

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