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# Elder abuse and socioeconomic inequalities: A multilevel study in 7 European countries



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#### ARTICLE INFO

Available online 15 January 2014

Keywords: Violence Inequalities Elder abuse Multinational study

#### ABSTRACT

*Objectives*: To compare the prevalence of elder abuse using a multilevel approach that takes into account the characteristics of participants as well as socioeconomic indicators at city and country level.

Methods: In 2009, the project on abuse of elderly in Europe (ABUEL) was conducted in seven cities (Stuttgart, Germany; Ancona, Italy; Kaunas, Lithuania, Stockholm, Sweden; Porto, Portugal; Granada, Spain; Athens, Greece) comprising 4467 individuals aged 60–84 years. We used a 3-level hierarchical structure of data: 1) characteristics of participants; 2) mean of tertiary education of each city; and 3) country inequality indicator (Gini coefficient). Multilevel logistic regression was used and proportional changes in Intraclass Correlation Coefficient (ICC) were inspected to assert explained variance between models.

Results: The prevalence of elder abuse showed large variations across sites. Adding tertiary education to the regression model reduced the country level variance for psychological abuse (ICC = 3.4%), with no significant decrease in the explained variance for the other types of abuse. When the Gini coefficient was considered, the highest drop in ICC was observed for financial abuse (from 9.5% to 4.3%).

Conclusion: There is a societal and community level dimension that adds information to individual variability in explaining country differences in elder abuse, highlighting underlying socioeconomic inequalities leading to such behavior.

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### Introduction

The European Union (EU) countries face a demographic decline characterized by low natural growth and consequent aging of its population (Fésüs et al., 2008). The increasing proportion of people in older age groups is a challenge for health and social services, and contributes to individual and community vulnerability. Such general conditions facilitate the occurrence of different types of abuse, which may add to the burden of diseases characteristic of old age. The deterioration in general health and a greater dependence on others feed a vicious cycle which is difficult to revert. Elder abuse has been recognized as a significant and growing problem in every society (Cooper et al., 2008; Ploeg et al., 2009; World Health Organization, 2002). However, available

data on elder abuse reveal a picture of wide variability across countries (Cooper et al., 2008).

The World Health Organization ecological model is the most frequently used theoretical frame to understand violence (Norris et al., 2013; Reilly and Gravdal, 2012; Schiamberg and Gans, 2000; World Health Organization, 2002). It considers that interpersonal violence, including elder abuse, is a complex and multifaceted phenomenon, with determinants that operate at several levels. Beyond individual features and circumstances, country and societal characteristics can help to understand the problem of elder abuse. Macroeconomic indicators and social-educational conditions, commonly used to represent contextual characteristics in cross-country comparisons, may thus contribute to a better understanding of the recognized geographical variation in the prevalence of elder abuse and provide clues to preventive measures.

Part of the observed variation lays in the methodological choices. Different studies opt for different definitions of abuse, different types

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of instruments to measure abuse, and make particular choices related with data collection, with specific modes of administrating questionnaires, interviewers' gender combinations or settings for the interview (Cooper et al., 2008; Mysyuk et al., 2012). The ABUEL study was designed with the general objective of assessing elder abuse in different European countries, using a standardized methodology (Lindert et al., 2012, 2013; Macassa et al., 2013) and, through that common approach, aimed to overcome some of the previously identified caveats.

The present study used a multilevel approach that takes into account both individual participants characteristics and socioeconomic indicators on the country level to compare the prevalence of elder abuse obtained in samples of the urban general population aged 60 to 84 years old and living in seven European countries.

#### Participants and methods

Study design and procedures

The project on abuse of elderly in Europe (ABUEL) is a cross-sectional community study of individuals from the general population in seven cities in Europe (Stuttgart, Germany; Ancona, Italy; Kaunas, Lithuania, Stockholm, Sweden; Porto, Portugal; Granada; Spain; Athens, Greece). The survey was conducted in January–July 2009, and the methods, sampling strategy and response rates have been described elsewhere (Lindert et al., 2012).

Sampling and administration procedures were performed in accordance with national requirements governing survey/interview studies. Overall, 4467 community dwellers participated in the ABUEL study. Inclusion criteria were: aged 60–84 years; no dementia or other cognitive impairments; naturalization status (citizens and documented migrants eligible); living in own or rented houses; and proficiency of the countries' native languages. Mean response rate was 45.2%.

Written information about the ABUEL study was sent to the homes of eligible individuals. Trained interviewers telephoned the eligible persons (except in Lithuania) providing information about ABUEL. Written informed consent from participants was obtained before the interviews.

Ethical approval was obtained from national or regional ethics review boards.

Each national study adapted the original English version of the questionnaire (http://www.abuel.org/docs/pub02\_questionnaire.pdf) with an independent translation and back-translation. Two administration modes were used: (i) face-to-face interviews (Spain, Italy, Greece, Lithuania, Portugal); and mixed methods, i.e. face-to-face interviews and mailed questionnaires (Germany, Sweden). A non-response questionnaire could not be administered, but basic socio-demographic information (e.g. age, sex) was available from the registries.

#### Individual-level measures

Information from the questionnaire allowed the classification of socioeconomic status of each participant through education (category corresponding to the highest completed level of formal education) and housing (being a house owner or not). Additionally, elder abuse was measured through 52 questions based on the UK study on elder abuse (Melchiorre et al., 2013) and the Revised Conflict Tactics Scale (CTS2) (Straus et al., 1996). Eleven questions covered psychological violence (e.g. insults), 17 questions addressed physical abuse (e.g. beatings) and physical abuse followed by injuries (e.g. bruises, 7 items), eight questions were on sexual abuse (e.g. performing sexual acts against the will) and nine questions on financial abuse (e.g. forcibly taken money). The frequency of abuse in the past year was recorded as never, once, twice, 3-5, 6-11, 11-20 or >20 times but for analysis only two categories ("never" vs. "ever") were considered. Prevalence of elder abuse was presented as total or as one of three separate forms: a) psychological, b) financial and c) physical, sexual and injury. This allowed us to cover different natures of abuse while assuring an appropriate sample size.

City-level and country-level measures

We considered the proportion of tertiary education (university or similar) as collected at the individual completed level to characterize the education level of this population group in each city. Also, four country-level indicators were tested: Gini coefficient, gross domestic product (GDP) per capita, percentage of social benefits directed to the elderly and unemployment rate. They were obtained from Eurostat databases for the year 2009 (http://epp.eurostat.ec.europa.eu) and their definition was extracted from the meta-information of each indicator available online.

The Gini coefficient is an indicator for economic inequality at the country level and represents the distribution of income in a population, varying between 0, which reflects complete equality, and 1, which indicates complete inequality (i.e. 1 person has all the income, all others have none). The nominal GDP per capita, in Euro, is a measure of the total output GDP divided by the number of people in the country. Social benefits consist of transfers, in cash or in kind, by social protection schemes to households and individuals, to relieve them of the burden of a defined set of risks or needs. The functions (or risks) are: sickness/healthcare, disability, old age, survivors, family/children, unemployment, housing, and social exclusion not elsewhere classified. In this study, we only used the percentage of total social benefits directed to old age. The unemployment rate is the number of people unemployed as a percentage of the labor force. The data used consider unemployed someone aged 15 to 74 who is without work during the reference week, is available to start work within the next two weeks, and has actively sought employment at some point in the last four weeks.

#### Statistical analysis

A correlation matrix was constructed to present the association among and between country-level indicators, as well as the prevalence of different types of elder abuse. Spearman's correlation coefficients were used to estimate the magnitude of these associations.

A multilevel logistic regression was fitted to accommodate the 3-level hierarchical structure of data, with parameters estimated using restricted iterative generalized least square models (Due et al., 2009; Elgar et al., 2009; Holstein et al., 2009). For each type of abuse, sequential models were considered: The first model analyzed the crude between-country variance in elder abuse without considering any individual, study city or country variables; the second model included individual characteristics; the third model added a city-level variable: mean tertiary education; and the fourth model considered the country-level variables. This approach aimed to quantify the size of country and city differences (model 1), and how much of the variation was due to individual characteristics (model 2); models 3 and 4 examined associations between city and country characteristics and the probability of abuse that was independent of individual features.

We measured the association between elder abuse and different exposure variables by means of odds ratios (OR) and their 95% confidence intervals (CI), as obtained from the regression coefficients and its associated standard errors. In models 2, 3 and 4, we studied city and country-individual interactions by letting the regression coefficients of the individual variables be random at the country level (i.e., a random slopes analysis where we relax the assumption of constant effects of individual variables on elder abuse across countries). This analysis allowed us to investigate whether context (city and country) explains the variation in elder abuse prevalence. Such effects were also measured by proportional change in variance from model 1 to model 4; ICCs were also computed to show the percentage of the observed variation in abuse attributable to country-level characteristics.

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