

CHRONIC PAIN IN THE EUROPEAN ELDERLY POPULATION

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Abstract

Chronic pain has an important impact on peoples' lives and is a fundamental dimension of wellbeing. At the individual level, it is associated with a series of negative outcomes including depression, job loss, reduced quality of life, and impairment of function. At the societal level, it imposes considerable costs on the health care system and the economy. In this paper, I exploit newly available information collected in the Survey of Health, Ageing and Retirement in Europe (SHARE) to study the prevalence of chronic pain in the elderly population across Europe and investigate the extent to which chronic pain is associated with education and social exclusion.

Keywords: Pain, Elderly, SHARE, Europe.

JEL Codes: I14, J14

Very preliminary. I thank Danilo Cavapozzi and Jonathan Skinner for insightful comments and suggestions.

1. Introduction

Chronic pain has an important impact on peoples' lives and is a fundamental dimension of wellbeing. Pain is the most common reason people seek medical attention and take medications. It also complicates the treatment of other ailments and limits one's ability to work and function in society. At the individual level, it is associated with a series of negative outcomes including depression, job loss, reduced quality of life, impairment of function and limiting daily activities. At the societal level, it imposes considerable costs on the health care system and the economy.

Calculating the costs of pain to society is difficult because they include both the direct costs of the medical treatment of pain, and the indirect costs associated to the loss in productivity in any daily activity, most notably in the workplace. Recently, the Institute of Medicine estimated that chronic pain costs the US society at least \$560 - 635 billion every year (about \$2,000 for everyone living in the country). These figures are greater than the annual costs of heart disease, cancer, or diabetes (IOM, 2011).¹

Our current understanding of people's pain experiences has been largely limited by data availability (Kahneman, and Krueger, 2006; Krueger and Stone, 2008). In particular, little is known about the prevalence or severity of pain in older population on Europe (Breivik, et al., 2006; Kleijnen Systematic Reviews, 2012).

In this paper, I exploit newly available information collected in SHARE wave 5 to study the prevalence of chronic pain in the elderly population across the fourteen European countries surveyed in wave 5 (Austria, Belgium, Switzerland, Czech Republic, Germany, Denmark, Estonia, Spain, France, Italy, Luxembourg, Netherlands, Sweden, and Slovenia) and investigate the extent to which chronic pain is associated with education and social exclusion.

2. Prevalence of pain in Europe

In wave 5, the SHARE project introduced some new questions about pain.² First of all, respondents were asked whether they were troubled by pain (PH084). Across Europe,

¹ Amounts in 2010 USD. These are conservative estimates because they do not take into account costs associated with pain for institutionalized individuals. See IOM (2011) for further details.

² The SHARE data collection has been primarily funded by the European Commission through the 5th Framework Programme (project QLK6-CT-2001-00360 in the thematic programme Quality of Life),

pain is part of life for one in two older adults (45%). The prevalence of pain varies widely across countries (Figure 1). About one out of four over-50 individuals in Switzerland (26%) and in the Netherlands (29%) suffer from pain, compared to more than one out of two in France (57%), Italy (52%), Slovenia (52%) and Spain (51%).

Insert [Figure 1] here

Figure 1. Prevalence of pain by country

The experience of pain is certainly subjective. One may be concerned that these cross-country differences could be affected by differences in reporting behavior, due to the fact that people in different countries may have different thresholds about pain and pain level. In a companion paper, Croda (2017, in progress), I exploit the vignettes collected in the first two waves of the SHARE project to address this concern (see also Salomon, Tandon, and Murray, 2004, and Kapteyn, Smith, and Van Soest, 2007). The differences are so striking however, that, while differences in reporting styles may attenuate them, it is unlikely that they will make them disappear.

In every country, more women than men report being troubled by pain (Figure 2). Overall, 52% of women and 38% of men (not shown), are bothered by pain. In some countries, the gap between the genders is quite wide. For instance, in Italy, 62% of women, compared to 40% of men, are in pain. The correspondent figures for Spain are 61% for women and 38% for men.

Insert [Figure 2] here

Figure 2. Prevalence of pain by gender and country

through the 6th Framework Programme (projects SHARE-I3, RII-CT-2006-062193, COMPARE, CIT5- CT-2005-028857, and SHARELIFE, CIT4-CT-2006-028812) and through the 7th Framework Programme (SHARE-PREP, N° 211909, SHARE-LEAP, N° 227822 and SHARE M4, N° 261982). Additional funding from the U.S. National Institute on Aging (U01 AG09740-13S2, P01 AG005842, P01 AG08291, P30 AG12815, R21 AG025169, Y1-AG-4553-01, IAG BSR06-11 and OGHA 04-064) and the German Ministry of Education and Research as well as from various national sources is gratefully acknowledged (see www.share-project.org for a full list of funding institutions).

The gender gap persists as people age (Figure 3). Perhaps not surprisingly the prevalence of pain among older Europeans increases as they age, but there seem to be some kind of plateau once individuals reach their nineties. Classifying people in 10-years age groups, 43% of women and 36 % of men aged 50 to 69 suffer from pain. By the time they reach their eighties, these percentages increase to 64% and 49%, respectively.

Insert [Figure 3] here

Figure 3. Prevalence of pain by age and gender

3. Pain and education

All across Europe, there are strong differences in the prevalence of pain by educational attainments (Figure 4). Individuals with basic or no education are much more likely to be troubled by pain than those that have completed secondary education, and these two categories are more likely to report pain than those who have higher educational attainments.³

Insert [Figure 4] here

Figure 4. Prevalence of pain and education

That markers of socioeconomic status, such as education and income, are associated to health outcomes is by now quite well established (e.g. Cutler and Lleras-Muney, 2008; Atlas and Skinner, 2010). The association between education and pain, however, has only been recently receiving attention among researchers, and there is less consensus over this relationship. To the best of my knowledge, this association has not been documented before for Europe. In the SHARE countries, 34% of older adults who have attained at least a tertiary level of education report pain, compared to 42% of those who have attained a secondary level education, and 54 % of those with basic or no education level. This strong gradient is present in every country, with different fractions of respondents in each category, clearly related to

³ The difference between secondary and tertiary education in Spain is not statistically significant.

the different prevalence of pain within a country. For instance in France the fractions are, respectively: 38%, 49% and 63%, and in Switzerland, 19%, 25% and 34%.

Not only those who have lower educational attainments appear to suffer more from pain, but they also report higher level of pain (Figure 5).

Insert [Figure 5] here

Figure 5. Intensity of pain and education

SHARE respondents who report suffering from pain are then asked how bad the pain is most of the times and are given three options to choose from: mild, moderate, or severe (PH085). More than a quarter of pain sufferers report being in severe pain most of the time, and more than one in two report the pain to be moderate (no shown). Focusing in the relationship between intensity of pain and education, there is a strong gradient in the intensity of pain according to individuals' educational attainments. The fraction of older Europeans who perceive their pain to be severe most of the times is 16% among those with basic or no level of education, 10% among those who have completed secondary education, and only 6% among those who have attained at least a tertiary level of education. The fraction of those who perceive their pain to be moderate most of the times respectively 28%, 22% and 17%. Those who perceive their pain to be mild most of the times are 11%, 8% and 10% of the elderly population. Finally, those free of pain are 45%, 58% and 66%.

4. Pain and social exclusion

People in pain are limited in the daily activities they can perform, are less productive at work, less likely to work or socialize with others, and express the least satisfaction with their health and life in general than the pain-free (e.g. Kleijnen Systematic Reviews, 2012, and Krueger and Stone, 2008).

Is there an association between pain and social exclusion?

To address these issues, I rely on a measure of social exclusion proposed by Myck, Najsztub, and Oczkowska (2015), who construct a binary indicator classifying as severely deprived those individuals that belong to the most deprived quartile of the population. Their notion of deprivation captures both material and social dimensions of deprivation, taking into account, on the one hand, material difficulties of households, such as the affordability of

various items, being behind with bills, etc. and, on the other hand, the extent of social deprivation of households, such as the quality of the local area, number of rooms per person, lack of activities, and so on.⁴

In every country, the prevalence of pain is much larger for those individuals who are severely deprived according to the Najsztub, and Oczkowska's indicator, and therefore at higher risk of social exclusion (Figure 6).

Insert [Figure 6] here

Figure 6. Prevalence of pain and social exclusion

The disparities are striking. For instance, in Luxembourg, 70% of the most severely deprived are troubled by pain, compared to 40% of the rest of the population. In Switzerland, the prevalence of pain is lower in both groups of the population, but the most socially excluded are twice more likely to be in pain than the rest of the population (the corresponding percentages are 49% and 25%).

Not only the most severely deprived groups of the population are more likely to be in pain. They are also more likely to experience more severe pain levels than the rest of the population (Figure 7). Across Europe, 26% of the most deprived individuals are in severe pain, compared to 10% of the rest of the population, 33% in moderate pain compared to 22%, and only 31% of them do not report suffering by pain, compared to 58% of the rest of the population.

Insert [Figure 7] here

Figure 7. Intensity of pain and social exclusion

5. Does the observed association between pain and education and social exclusion hold also after controlling for health conditions?

⁴ See Myck, Najsztub, and Oczkowska (2015) for details.

The evidence presented so far suggest that women, the oldest, the less educated and the most deprived are most likely to be in pain and to suffer from more severe pain. What can explain the observed strong association between pain and education and between pain and severe deprivation? Are there variables that could partially or even fully explain the observed disparities? Alternatively, do the strong observed disparities hold even after taking into account alternative drivers?

A potential explanation for these strong disparities in the association between pain and education and pain and social exclusion is that people in the most vulnerable groups are more likely to suffer from poor health.

In this section, I exploit the richness of the SHARE dataset to control for several dimensions of health status and study whether the association between pain and education and social exclusion hold also after controlling for health conditions. A companion paper, Croda (2017, forthcoming) analyzes in more details the correlation between pain and other dimensions of socioeconomic status, such as income and previous occupation.

Table 1 presents the results of regression analyses where I control for different dimensions of health status that may be associated with pain at older ages. In particular, I control for obesity, limitations with activities of daily living (based on a question asking about difficulties performing a list of everyday activities such as dressing, walking across a room, bathing or showering, eating, getting in or out of bed, using the toilet), and the the number of chronic diseases (based on a question about whether the doctor ever told respondents they have had a heart attack, including any other heart problem such as congestive heart failure, hypertension, high blood cholesterol, stroke or cerebral vascular disease, diabetes, chronic lung disease, arthritis, including osteoarthritis, or rheumatism, cancer or malignant tumour, including leukaemia or lymphoma, stomach or duodenal ulcer, peptic ulcer, Parkinson disease, cataracts, hip, femoral or other fractures, Alzheimer's disease, dementia, organic brain syndrome, senility or any other serious memory impairment). The table shows estimates for the whole SHARE sample of over-50 individuals, and disaggregated by age group (50-59, 60-69, 70+). In addition, all regressions include country indicators.

While these dimensions of health status do account for some of the correlation between pain and education and between pain and social exclusion, there remain a strong and persistent gradient. In all the samples considered, even after controlling for health status and country dummies, women are more likely than men to experience pain, and the probability of

being troubled by pain is lower the higher the educational attainment and higher for the most severely deprived individuals .

6. Conclusions

This paper is a first step in trying to understand the economic and social implications of pain. The preliminary findings document that, across Europe, a significant fraction of the 50+ population is troubled by pain, with considerable variation in reporting of pain across countries. In every country, women are more likely to report pain than men. Arguably more importantly, I find a strong gradient in the reporting of pain by education and a strong association between pain and social exclusion.⁵

These preliminary findings emphasize the need for public policy intervention promoting pain prevention and management strategies addressing the most vulnerable groups of the population.

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⁵ Croda (2015) analyzes further the association between pain and social exclusion, distinguishing between material and social deprivation.

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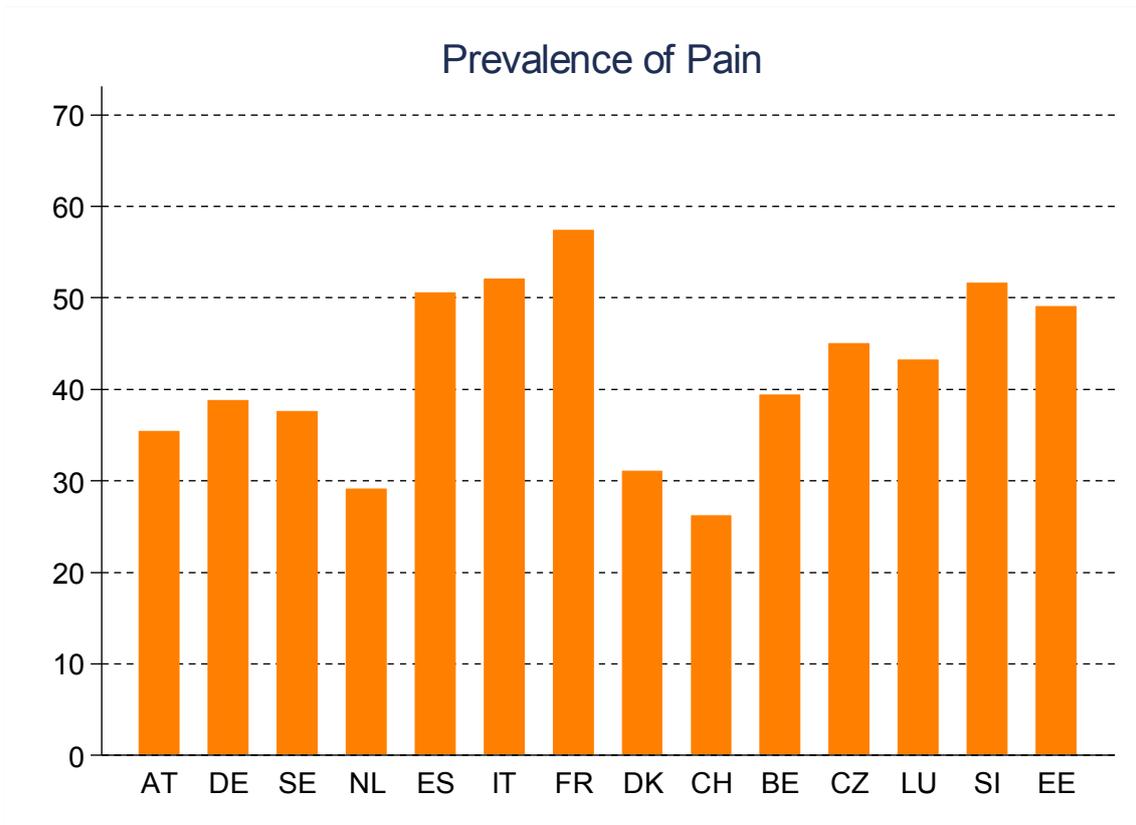
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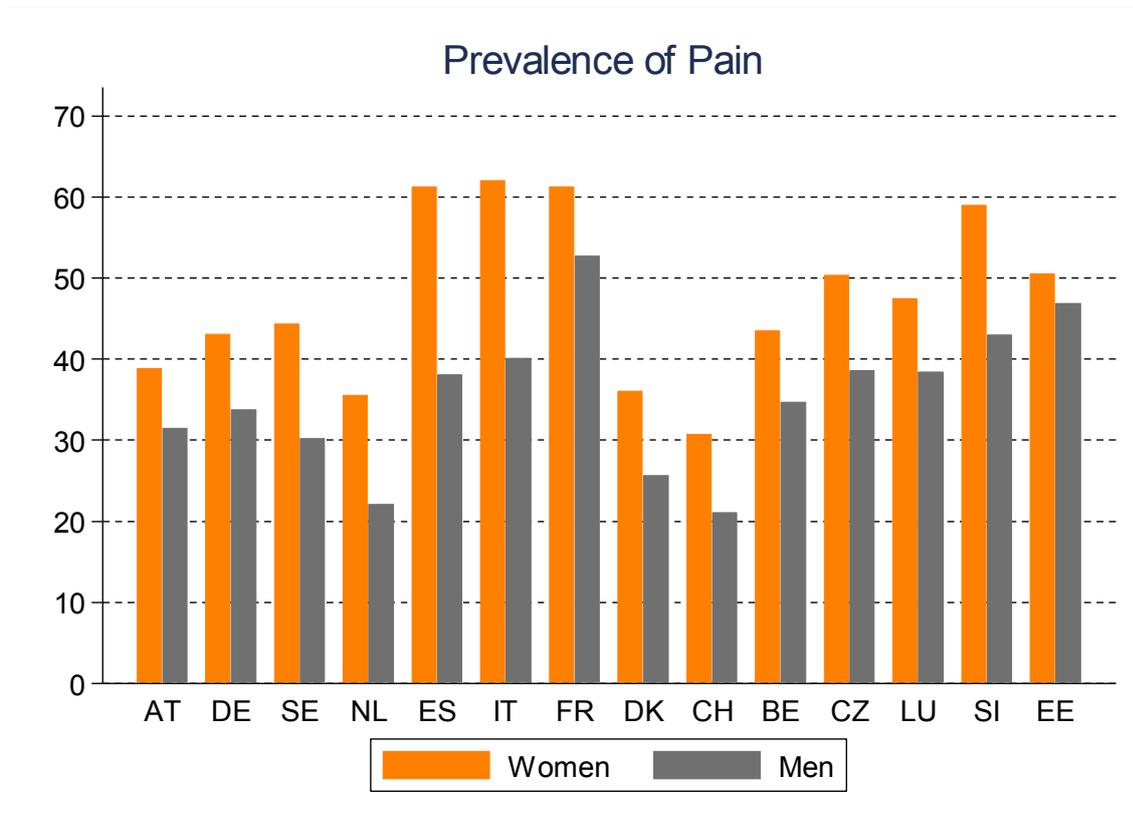
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Figure 1. Prevalence of pain by country



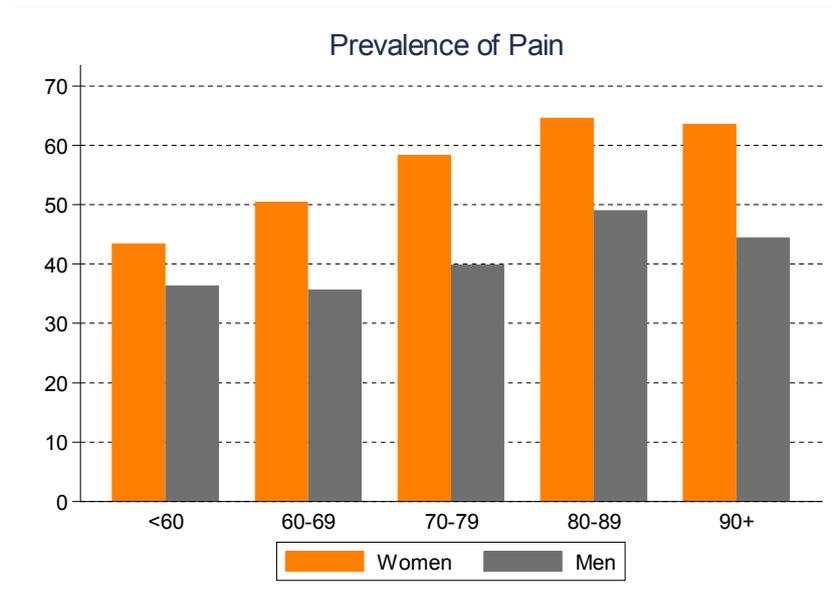
Source: SHARE wave 5. Weighted.

Figure 2. Prevalence of pain by gender and country



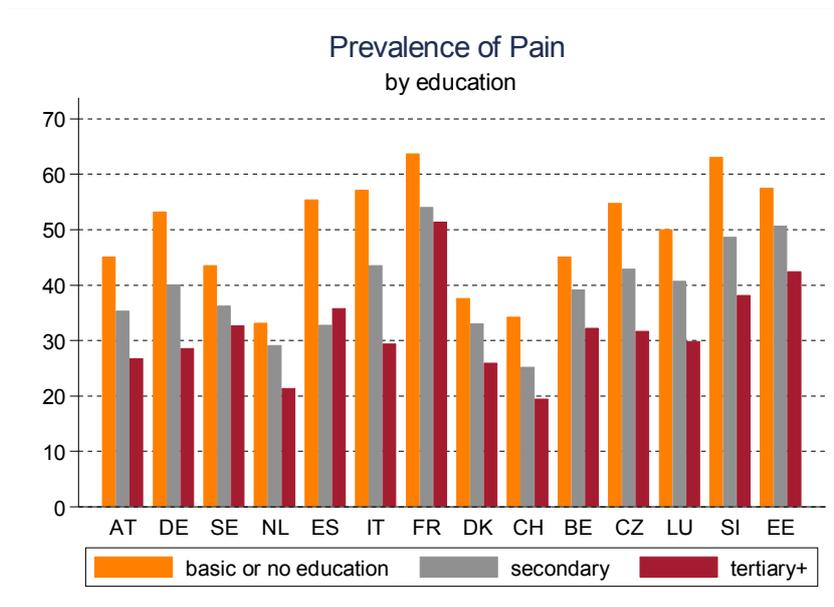
Source: SHARE wave 5. Weighted.

Figure 3. Prevalence of pain by age and gender



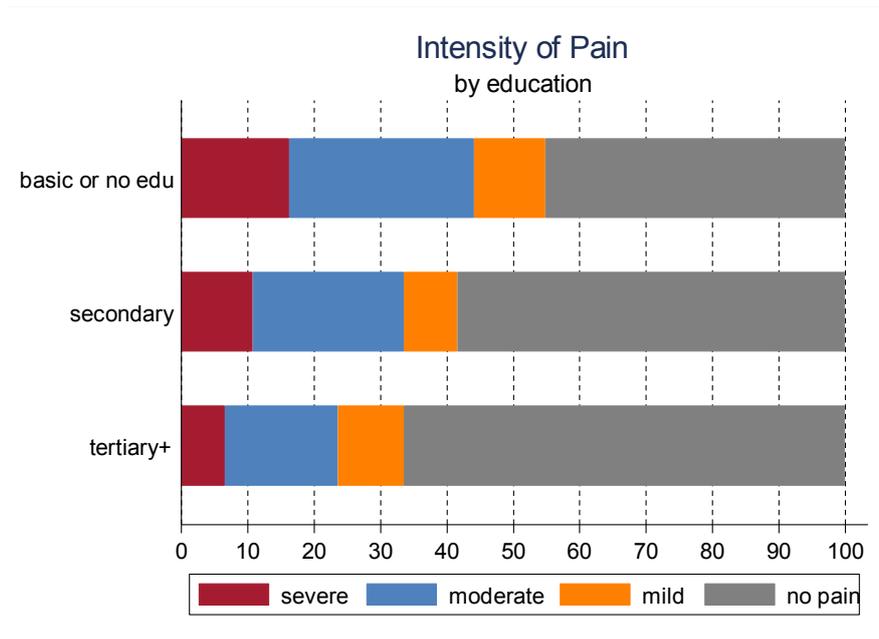
Source: SHARE wave 5. Weighted.

Figure 4. Prevalence of pain and education



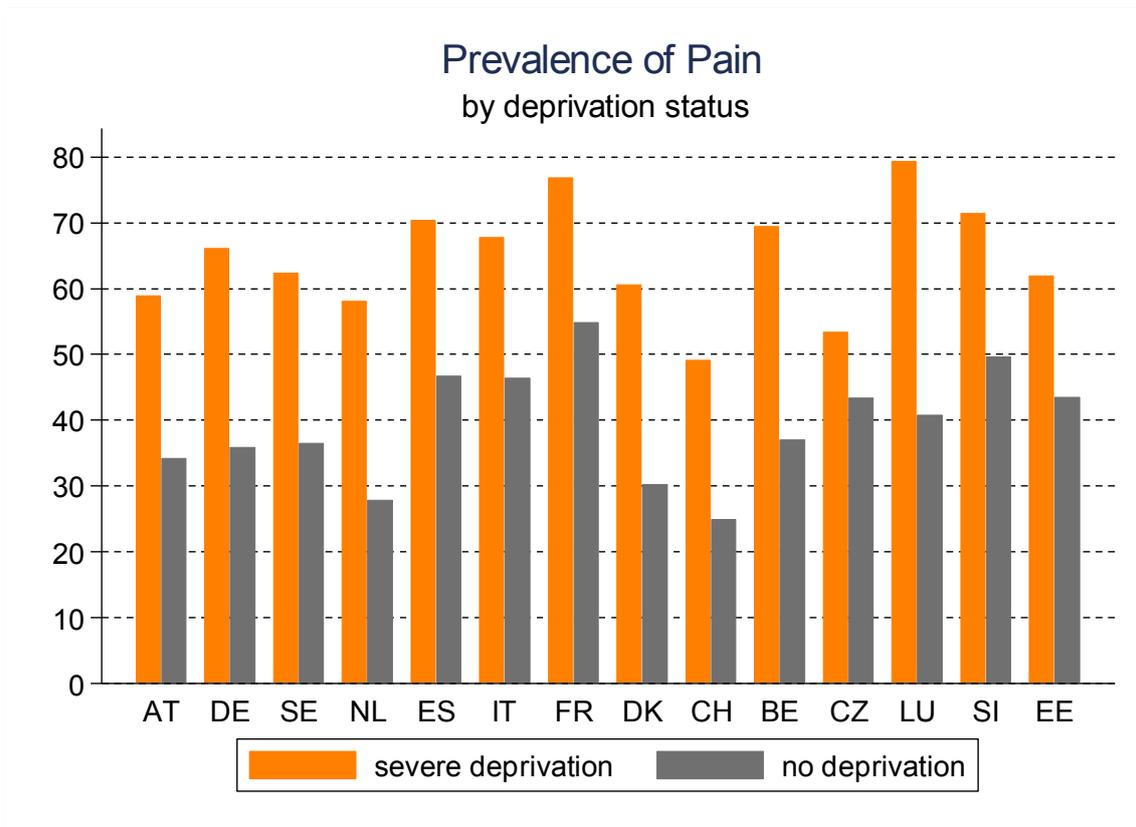
Source: SHARE wave 5. Weighted.

Figure 5. Intensity of pain and education



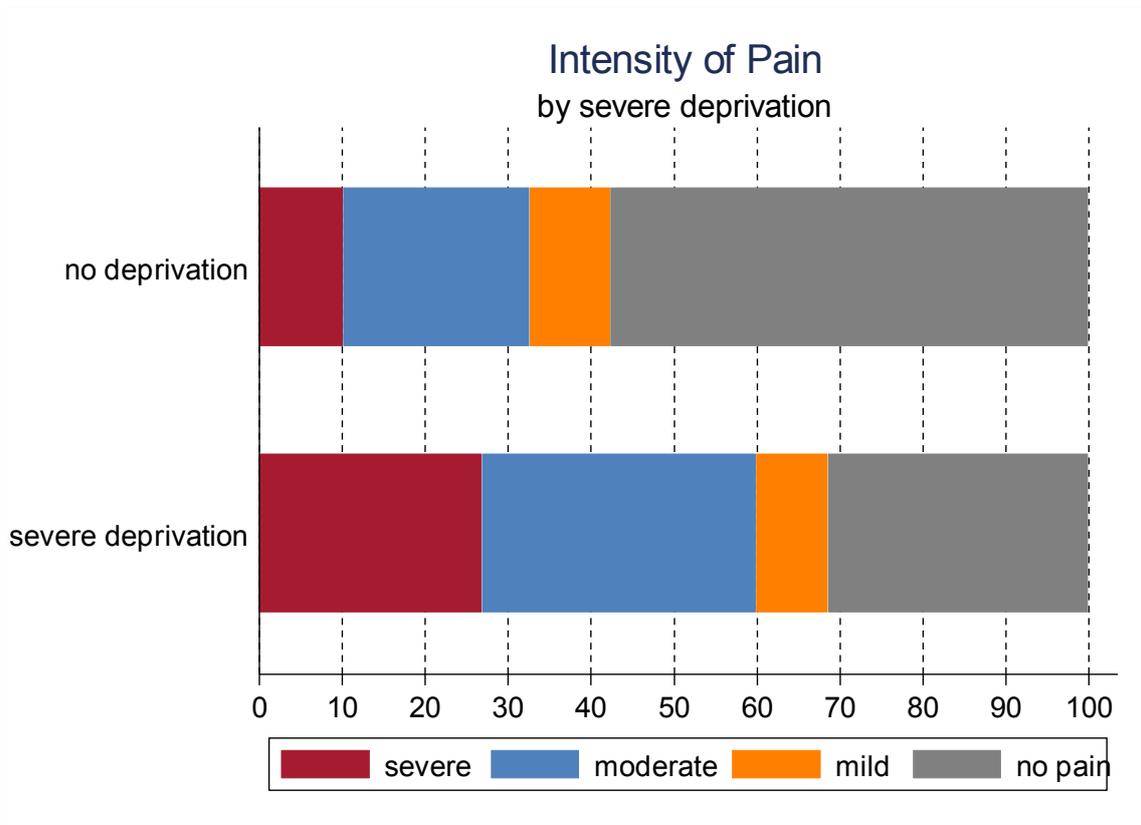
Source: SHARE wave 5. Weighted.

Figure 6. Prevalence of pain and social exclusion



Source: SHARE wave 5. Weighted.

Figure 7. Intensity of pain and social exclusion



Source: SHARE wave 5. Weighted.

Table 1: Probability of Being Troubled by Pain

Variable	Age 50-59	Age 60-69	Age 70+	whole SHARE sample
Female	0.082 (0.009)	0.111 *** (0.008)	0.145 *** (0.010)	0.111 *** (0.005)
Education Secondary	-0.020 (0.011)	-0.030 *** (0.010)	-0.023 * (0.012)	-0.025 *** (0.006)
Tertiary	-0.071 (0.012)	-0.068 *** (0.010)	-0.049 *** (0.013)	-0.065 *** (0.006)
Severe Deprivation	0.098 (0.016)	0.120 *** (0.015)	0.135 *** (0.016)	0.120 *** (0.008)
N	14,065	18,523	13,133	51,741

Probit Estimates - Marginal Effects. Regression controls for Age (5 years age groups, marital status, country dummies, health status indicators: underweight, overweight, obese, severe obesity, at least one ADL, at least 2 chronic. Robust standard errors in parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$