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COMPARING THE EDUCATION GRADIENT IN CHRONIC DISEASE INCIDENCE AMONG THE ELDERLY IN SIX OECD COUNTRIES

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Comparing the education gradient in chronic disease incidence among the elderly in six OECD countries*

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Abstract
Inequalities in health by educational attainment are persistent both over time and across countries. However, their magnitudes, evolution, and main drivers are not necessarily consistent across jurisdictions. We examine the health-education gradient among older adults in the United States, Canada, France, the Netherlands, Spain and Italy, including how it changes over time between 2004 and 2010. Using longitudinal survey data, we assess how rates of incident poor health, incident difficulties with activities of daily living, and incident chronic conditions vary by educational attainment across countries. We also examine how potential confounders, including demographic characteristics, income, health care utilisation and health behaviours, affect the health-education gradient within countries over time. We find systematic differences in disease incidence, as well as in the health-education gradients, across countries. We also demonstrate that while adjusting for confounders generally diminishes the health-education gradient, the impacts of these variables vary somewhat across countries.

JEL: I1, I2, I8

Keywords: disease incidence, older ages, education

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1. Introduction

The presence of a relationship between individual health outcomes and socioeconomic status (SES) has been well documented. Evidence from the United States (US), Canada, and various European countries shows that individuals with higher levels of education or better income can expect to live longer than individuals from lower socioeconomic statuses (Brønnum-Hansen et al. 2004; Mackenbach et al. 2008; Tjepkema and Wilkins 2011; Chetty et al. 2016). Similarly, they are also significantly less likely to suffer from certain diseases and to report being in poor health (Brønnum-Hansen et al. 2004; Dalstra et al. 2005; McGrail et al. 2009).

While some degree of inequality in health by education is present in all countries, there are significant variations across countries and over time in the health-education gradient that could be explained by various factors, such as differences in economic policies, health care systems, or in disease incidence by education level or SES (Andreyeva, Michaud, and van Soest 2007; Banks, Marmot, and Oldfield 2006; Banks, Muriel, and Smith 2010; Mackenbach et al. 2008; Michaud et al. 2011; Avendano, Jürges, and Mackenbach 2009). Other factors such as behaviours are mentioned to affect the health-education gradient. Indeed, Huisman, Kunst, and Mackenbach (2005) and Mackenbach et al. (2008) showed there were important differences in these behaviours across education levels.

In order to better understand these health-education inequalities, we use existing cross-country longitudinal data to examine the relationship between education and incidence of self-reported poor health, chronic diseases and limitations in activities of daily living (ADL) in 6 countries. We focus our analysis on individuals aged 50 and over.

There are few papers that have looked at inequalities in disease incidence across countries. Banks, Muriel and Smith (2010) compared the United States and England and concluded that disease incidence and prevalence were higher in the US. They further showed the presence of a health gradient in income and wealth amongst individuals aged 55 to 64 and 70 to 80 in both countries. This gradient disappeared for older individuals in the UK but remained in the US. Disease incidence was also higher among Americans aged 55 to 64 and 70 to 80, which indicates that Americans suffer from higher past cumulative disease risk and experience higher immediate risk of new disease onset when compared to the English. According to the authors, the standard behavioural risk factors such as work, marriage, obesity, exercise, and smoking almost fully explain the health-income gradient among people aged 55 to 64 in both countries, as well as a significant part of the gradient among 70 to 80 year old Americans.

Avendano, Jürges and Mackenback (2009) compared different groups of European countries and found that individuals with postgraduate education had lower disease incidence rates than those with primary education, and that these differences were more important in western and southern countries than in northern ones. Potential heterogeneity within these country groupings was not assessed in this analysis. Finally, Solé-Auro et al. (2015) compared disease incidence and disease-specific survival in the United States with some European countries in order to explain differences in disease prevalence.

To the best of our knowledge, there are no cross-country comparisons that included Canada. However, there has been a Canadian study by Johnson, McDonald, Corsten and Rourke (2010) that analysed the link between education and cancer incidence in Canada (Ontario). They found that incidence of head and neck cancer in Eastern Ontario was higher in patients with lower median family income and less than a grade 8 education, even when controlling for tobacco intake. Results were similar to what has been observed in the United States.

In contrast to previous literature, we do not pool countries together but rather examine the health-education gradient country by country. More particularly, we look at healthcare use and the way it can have an effect on the relationship between education and disease or health condition incidence, since differences in welfare states across countries could affect health inequalities. We also consider how differences in behaviours, such as smoking and drinking, or differences in body weight may modify existing gradients.

Our results show that lower education is associated with higher rates of health deterioration. Particularly, the higher incidence of self-reported poor health for individuals with lower education levels persists in the US, in Canada, in Spain and in France even after taking into account differences in health utilisation and behaviours. However, when we look at the health-education gradient for incidence of any difficulties with activities of daily living, we find that differences in incidence by education level disappear for all countries except for the US and France once we control for differences in health care use and behaviours. Finally, the health-education gradient for the incidence of any chronic condition remains only in Spain once we consider these same differences in health care use and behaviours.

Our paper is structured as follows. We present the data used in this paper in section 2 and descriptive statistics in section 3. The methodology and the results of our analysis are shown in sections 4 and 5. Section 6 details robustness tests and section 7 concludes.

2. Data Description and Methods

2.1 Data Description

To better understand health inequalities by education level, we analyse the relationship between disease incidence and educational attainment in different countries over a period that

encompasses the Great Recession of 2008. This is done using three longitudinal datasets: The Health and Retirement Study (HRS) for the US, the Survey of Ageing, Health and Retirement in Europe (SHARE) for France, the Netherlands, Spain and Italy and the National Population Health Survey (NPHS) for Canada.

Both HRS and SHARE provide detailed information on health and socioeconomic status of individuals aged over 50. NPHS provides similar information for individuals of all ages, but we restrict the sample to those aged 50 and over to ensure that all surveys cover the same population. Since SHARE was only available starting in 2004 and NPHS was only available until 2010, we use the waves that cover the 2004 to 2010 time period (2004, 2006, 2008 and 2010 for HRS and NPHS and 2004, 2006 and 2010 for SHARE).

SHARE follows an ex-ante harmonised study design to ensure strict comparability of the resulting cross-country data. There is information on 15 European countries for the first three waves, while the last wave expands to include other countries. As previously mentioned, we keep two countries from Central Europe (France and the Netherlands) and two countries from Southern Europe (Spain and Italy). We decided to keep these specific countries because they are in the three relevant waves of SHARE (2004, 2006 and 2010). SHARE does not provide the required information for 2008. Furthermore, according to Solé-Auro et al. (2015), life table estimates are close to estimates from SHARE between ages 50 and 80 only for these four countries and Denmark.

As shown in Table 1, all three surveys provide comparable information on health, family history, socio demographic characteristics and behaviours such as smoking and drinking.

They include various subjective and objective measures of health. Subjective measures include overall self-rated health status and self-reported limitations with activities of daily living. HRS and SHARE include the same 5 ADL limitations (bathing, dressing, eating, walking across a

room, and getting in and out of bed) whereas NPHS includes the first four only. We considered that individuals had limitations in ADL (LADL) if they reported limitations with one or more of these activities. Self-reported health status was measured by asking respondents to rate their health on a five-point scale: excellent, very good, good, fair and poor. We created a binary variable for "poor health", which takes the value of 1 if self-rated health is "fair" or "poor" and 0 otherwise. Objective measures included in all surveys were the same set of doctor-diagnosed diseases: cancer, diabetes, hypertension, heart diseases, stroke, lung diseases, arthritis, and psychiatric illness. We created a binary variable for "any chronic condition" that takes a value of 1 when individuals report having at least one of these conditions. We used all these variables to create measures of disease (or health condition) prevalence and incidence. Although we analysed them all individually, to simplify the results, we present only three that summarise overall health: any LADL, self-reported poor health (SRPH) and any chronic condition.

TABLE 1: SUMMARY OF DATA AVAILABILITY IN HRS, SHARE, AND NPHS

	HRS	**SHARE**	**NPHS**
Health	Physical/psychological self-report, disabilities		
Socio-demographic	Education, age, marital and employment status, household size.		
Income	Large set of income variables		Total Income: limited information
Wealth	Yes (social security earnings/benefit history, housing, investments, etc.)		Not available
Family history	Mother and father alive		
Health services	Utilisation, insurance, out-of-pocket spending, total medical expenditures		Utilisation
Health behaviours	Smoking, obesity, drinking		

Sources: Health and Retirement Study (2004; 2006; 2008; 2010), Survey of Health, Ageing and Retirement in Europe (Börsch-Supan 2013a; Börsch-Supan 2013b; Börsch-Supan 2013c) and National Population Health Survey and National Population Health Survey (Statistics Canada 2012).

We also use common demographic variables in all surveys: sex, age, household size, education and marital and working status. Education is grouped in three categories: primary (less than a high school diploma), secondary (equivalent of a high school diploma) and tertiary (university degree). Marital status is a variable that takes a value of one if the respondent is married or in a relationship and zero otherwise. Similarly, we create a variable that is equal to one if the respondent works and zero if he does not.

We use total gross household income and total gross household wealth (which includes social security benefits, housing, investments, etc.). As seen in Table 1, wealth is only available in SHARE and HRS, NPHS having limited information on income variables. We further create family background variables, which are reported to have an important role on health outcomes and disparities. In all surveys, respondents were asked if their parents (mother and father separately) were still alive. This gives us a proxy on how genetics can be a factor in the incidence of some chronic illnesses. All surveys also include measures of health services used. The ones that are of interest to us are number of doctor visits and number of nights spent in hospital in the past 12 months.

Finally, we create health behaviour variables that are common to all surveys: smoking, obesity and drinking. Smoking is a variable that takes a value of one if the respondent ever smoked or smokes regularly. The obesity variable is equal to one if the respondent is obese (his or her body mass index is greater or equal to 30) and zero otherwise. Drinking is a variable that takes a value of one if the respondent drinks almost every day or 5 or 6 times a week and a value of zero otherwise. Tables A.1 and A.2 in appendix A present the number of observations, mean and standard deviation for each variable used in our analysis.

2.2 Measuring disease prevalence and incidence

We first look at the evolution of disease and health condition prevalence (proportion of individuals affected by the disease or condition in a certain population) per country and education level over time. We also assess the extent of these inequalities by analyzing the absolute differences in disease or health condition prevalence by education category. In particular, we focus on the percentage point difference between individuals with secondary and tertiary education and the percentage point difference between those with less than secondary and secondary education. Therefore, a positive value implies that individuals with lower levels of education have higher rates of disease (or health condition) prevalence than those with more education. These measures enable us to make pair wise comparisons of health between two subgroups.

It is important to highlight the difference between disease prevalence and incidence. Indeed, disease (or health condition) incidence is defined as the rate of occurrence of a new disease (or health condition) within a specific period. Using within-country longitudinal dimensions, we examine the two-year disease incidence rates among those who did not have a disease in the previous wave.

2.3. Empirical Strategy

We estimate the probability of disease incidence using probit models with different control variables. Our main independent variable is education: the age 50+ group is well suited for the analysis since at that age, education level is likely to be a permanent characteristic. Therefore, our first model specification is simply the regression of health status incidence on education. We then introduce different sets of covariates one by one, thus allowing us to describe how they affect the disease incidence-education gradient country by country. As mentioned earlier, for expositional

simplicity, we report three summary measures of health outcomes: any LADL, SRPH and any chronic condition. We report the marginal effects of the probit models. All models are clustered at the individual level.

Our "demographic" specification includes year dummies and four demographic variables (gender, age group, marital status, and household size), which are likely be correlated with disease incidence.

For our "income" specification, we introduce employment status, the logarithm of household income and wealth, and the variable that indicates if the respondent's mother is still alive (a proxy for genetic factors). As mentioned earlier, wealth is only available in SHARE and HRS, NPHS having limited information on income variables. Although it is possible that reverse causality exists between disease incidence and employment status, income and wealth, we focus on understanding their correlation with the health-education gradient. It is important to note that demographic and family history variables are less likely to be endogenous than income or employment.

In our last three specifications, we consider other variables that could affect the relationship between health and education across countries, such as the structure and functioning of healthcare systems and health behaviours. We consider the number of doctor visits in the last 12 months as a proxy for the functioning of health care systems and include two health behaviours: smoking and whether the individual suffers from obesity. Due to the multicollinearity between the number of doctor visits and hospital stays in the last 12 months, we only include number of doctor visits in our analyses.

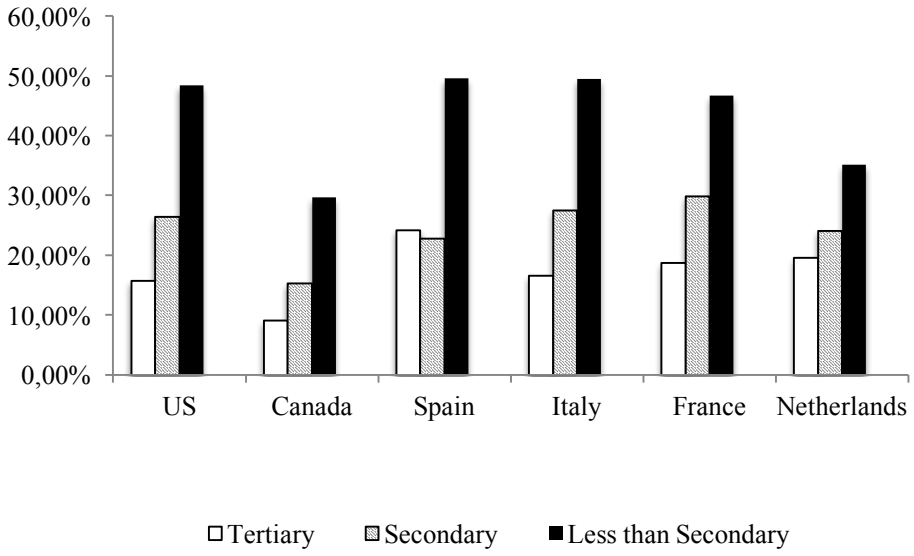
3. Descriptive statistics

We start by looking at disease and health sate prevalence and incidence by education levels for all 6 countries considered in our analysis.

3.1. Disease prevalence and education levels

Figure 1, Figure 2 and Figure 3 present the pooled prevalence, over the 2004-2010 period, of any SRPH, any limitation in ADL and any chronic condition per country and education level.

FIGURE 1 : PREVALENCE OF SELF-REPORTED POOR HEALTH, POOLED OVER THE 2004-2010 PERIOD



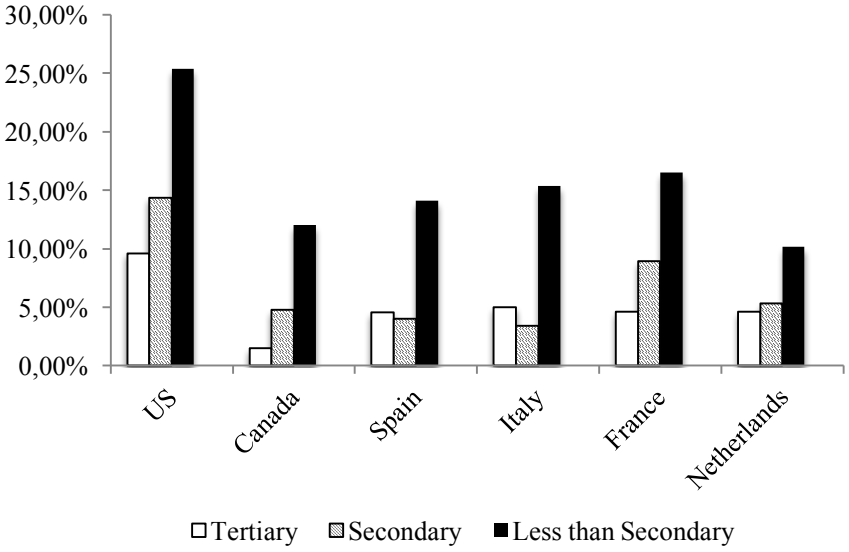
Source: Authors' calculations from HRS, NPHS and SHARE

We find important differences across education levels and countries for the prevalence of SRPH (Figure 1). Large gradients by education are seen in all six countries. Similar levels are observed in the US, Italy, and France. Canada has the overall lower prevalence of SRPH.

The prevalence of any ADL limitation is much higher in the US than in all other countries (Figure 2). Once more, Canada is the country with the lowest prevalence, although this could be partly explained by the number of ADLs considered in NPHS compared to HRS and SHARE

(four instead of five). Similar patterns of prevalence by education level are observed in Spain and Italy, where individuals with a secondary education are less likely to report a limitation in ADL than those with a tertiary education.

FIGURE 2 : PREVALENCE OF LIMITATIONS IN ANY LADL, POOLED OVER THE 2004-2010 PERIOD



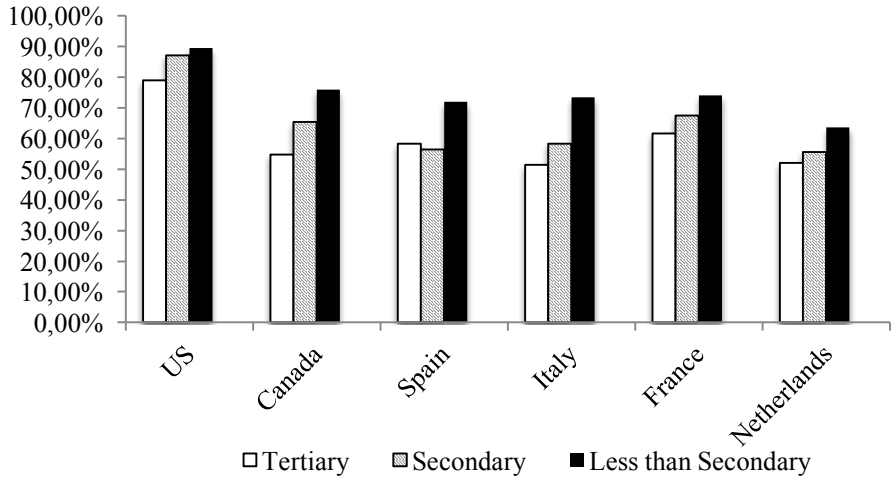
Source: Authors' calculations from HRS, NPHS and SHARE

The prevalence of any chronic condition is similar in Canada, Italy and France (Figure 3). The Netherlands present the lowest level of prevalence.

Overall, in accordance with the literature, we find that prevalence of health conditions by education varies across countries and that more educated individuals are less likely to report being in a poor health condition or having at least one LADL or chronic condition. However, contrary to claims in the literature that there are health similarities between geographically close countries, we do not seem to find a pattern aiming in that direction. For example, Spain and Italy are very different from one another in certain dimensions (self-reported poor health) and similar in others (any limitation in ADL). While we see similar gradients in SRPH and ADL limitations

in the US and Canada, the gradient is more pronounced in Canada than the US for any chronic condition.

FIGURE 3 : PREVALENCE OF ANY CHRONIC CONDITION, POOLED OVER THE 2004-2010 PERIOD



Source: Authors' calculations from HRS, NPHS and SHARE

The previous conclusions remain relatively unchanged if we look at prevalence rates per year, country and education level for each of the three health conditions considered. Again, we find that prevalence rates are higher for individuals with less education. We present the prevalence rates over time in Tables A.3, A.4 and A.5 of appendix A.

We have shown that there are inequalities in disease prevalence by education. We now assess the extent of these inequalities in Table 2.

TABLE 2: PREVALENCE PERCENTAGE POINT DIFFERENCE BETWEEN SECONDARY AND TERTIARY EDUCATION (TOP) AND BETWEEN LESS THAN SECONDARY AND SECONDARY EDUCATION (BOTTOM)

Percentage point difference between secondary and tertiary education			
	SRPH	**Any LADL**	**Any chronic**
U.S.	10.77%	4.78%	8.00%
Canada	6.22%	3.29%	10.67%
Spain	-1.39%	-0.52%	-1.84%
Italy	10.86%	-1.59%	6.89%
France	11.13%	4.34%	5.80%
The Netherlands	4.47%	0.73%	3.50%
Percentage point difference between less than secondary and secondary education			
	SRPH	**Any LADL**	**Any chronic**
U.S.	22.01%	11.03%	2.48%
Canada	14.44%	7.28%	10.67%
Spain	26.86%	10.09%	15.40%
Italy	22.03%	11.95%	15.15%
France	16.81%	7.60%	6.62%
The Netherlands	11.12%	4.83%	8.02%

Source: Authors' calculations from HRS, NPHS and SHARE

We find that in most countries, inequalities are more important between individuals who do not have a high school diploma and those who do than between those who have a college degree and those who have a high school degree. Spain and Italy are the only two countries where disease prevalence is sometimes higher amongst individuals with a college degree than with a high school degree.

In the top part of the table, we see that France has the highest level of inequality between individuals with secondary and tertiary education for SRPH and Canada had the highest inequality level for any chronic condition. In the bottom part of the table, we find that Spain has the highest level of inequality between individuals with less than secondary and secondary education for SRPH and any chronic condition. The Netherlands presents the smallest levels of inequality across educational levels for any LADL and SRPH among the countries where the

percentage point difference is positive. For any chronic condition, the differences between secondary and tertiary education levels are lowest in Netherlands (though France is close second) and the differences between less than secondary and secondary education levels are lowest in the US.

Finally, there does not seem to be a clear temporal trend in the evolution of inequalities. We show the percentage point differences over time in more details in Tables A.6, A.7 and A.8 of appendix A.

3.2. Disease incidence by education levels

Disease prevalence rates over time and by education confirm the existence of a health-education gradient, both in North America and in Europe. However, they do not allow us to determine whether the higher prevalence rates are due to differences, by education, in the risk of developing certain diseases or health problems at older ages or to pre-existing health conditions inherited from younger ages. To shed more light on the health-education gradient in different countries, we need to look at disease incidence by education level.

Table 3,

Table 4 and Table 5 show there are important differences across countries and over time in health incidence by education level. Disease incidence is systematically higher for individuals with lower levels of education. Limitations in ADL incidence is lower in Canada than in all other countries, and particularly so for individuals with a college degree (less than 1%). For the European countries, incidence of any chronic condition is particularly high for those with less than a high school diploma.

Incidence of self-reported poor health is lower in the US and Canada among individuals with tertiary or secondary education levels than in other countries. However, for individuals with less than secondary education, incidence is lowest in Canada and the Netherlands.

As for the incidence of any chronic condition, it is generally higher in southern Europe than in the other countries studied for individuals with less than secondary education. For the 2006-2010 period, chronic condition incidence was equal to 51,68% in Spain, 46,82% in Italy, 48,75% in France, 36,51% in the Netherlands, 31,79% in the US (for 2008-2010) and 33,00% in Canada.

TABLE 3 : INCIDENCE OF SELF-REPORTED POOR HEALTH, ANY LADL AND ANY CHRONIC CONDITION PER YEAR (US AND CANADA)

	US			Canada		
	Tertiary	Secondary	Less than Secondary	Tertiary	Secondary	Less than Secondary
	Self-reported health			**Self-reported health**		
2004-2006	6.95%	13.15%	24.89%	6.34%	8.92%	18.69%
2006-2008	8.59%	14.33%	25.79%	4.49%	7.20%	19.71%
2008-2010	8.06%	11.93%	20.95%	4.76%	7.31%	14.99%
	LADL			**LADL**		
2004-2006	5.65%	8.07%	15.83%	0.79%	2.86%	6.86%
2006-2008	5.21%	8.53%	13.04%	0.98%	2.09%	7.28%
2008-2010	6.38%	8.92%	16.57%	0.95%	3.00%	5.71%
	Any chronic condition			**Any chronic condition**		
2004-2006	18.95%	22.08%	26.50%	20.07%	24.28%	31.84%
2006-2008	19.18%	22.93%	27.27%	17.78%	25.47%	30.45%
2008-2010	21.76%	29.93%	31.79%	19.25%	23.14%	33.00%

Source: Authors' calculations from HRS and NPHS.

The US shows a much higher incidence of LADL, across all educational levels, than the other countries studied. In 2004-2006, for instance, the incidence of LADL for individuals with less than secondary education was 15,83% in the US, compared to 6,86% in Canada, 9,83% for Spain, 8,51% for Italy and 8,84% in France.

There is no clear temporal trend in incidence across countries or health conditions. For example, in Spain and the Netherlands, incidence of any LADL increases over time for

individuals with tertiary or primary education and decreases for those with secondary education in Spain only. However, when we look at trends in the incidence of SRPH, we find that it decreases over time for individuals with tertiary education in Spain, but increases in Italy. In France and in the Netherlands, SRPH incidence increases over time for individuals with primary and tertiary education over time.

TABLE 4: INCIDENCE OF SELF-REPORTED POOR HEALTH, ANY ADL AND ANY CHRONIC CONDITION PER YEAR (SPAIN AND ITALY)

	Spain			Italy		
	Tertiary	Secondary	Less than Secondary	Tertiary	Secondary	Less than Secondary
	Self-reported health			**Self-reported health**		
2004-2006	15.75%	17.35%	34.49%	15.37%	14.81%	33.03%
2006-2010	6.39%	26.85%	35.70%	17.59%	21.45%	32.36%
	LADL			**LADL**		
2004-2006	1.67%	4.24%	9.83%	0.94%	2.29%	8.51%
2006-2010	3.67%	3.06%	13.93%	2.14%	3.64%	13.08%
	Any chronic condition			**Any chronic condition**		
2004-2006	34.21%	36.93%	47.03%	17.94%	28.62%	41.93%
2006-2010	27.03%	46.01%	51.68%	33.79%	44.28%	46.82%

Source: Authors' calculations from SHARE.

To assess the extent of the inequalities, we look at the percentage point difference in disease incidence between individuals with primary and secondary education and between those with secondary and tertiary education.

TABLE 5: INCIDENCE OF SELF-REPORTED POOR HEALTH, ANY ADL AND ANY CHRONIC CONDITION PER YEAR (FRANCE AND NETHERLANDS)

	France			Netherlands		
	Tertiary	Secondary	Less than Secondary	Tertiary	Secondary	Less than Secondary
	Self-reported health			**Self-reported health**		
2004-2006	11.53%	18.21%	29.02%	12.09%	21.46%	19.56%
2006-2010	13.53%	18.30%	33.34%	13.86%	13.67%	23.72%
	LADLs			**LADLs**		
2004-2006	2.01%	4.26%	8.84%	2.14%	3.55%	6.93%
2006-2010	3.83%	7.94%	13.45%	4.17%	4.31%	7.05%
	Any chronic condition			**Any chronic condition**		
2004-2006	25.01%	28.39%	30.81%	19.70%	28.22%	31.88%
2006-2010	30.70%	43.32%	48.75%	27.52%	29.18%	36.51%

Source: Authors' calculations from SHARE.

If we consider the data pooled over all years, we find that inequalities are generally larger between individuals with a high school diploma and those who don't than between those who have a high school diploma and those who have a college degree. A notable exception is any chronic condition incidence in the US and Italy. We find that disease incidence inequalities are lowest in the Netherlands (any LADL and chronic condition) and Italy (SRPH) between individuals with tertiary and secondary education and are lowest in the Netherlands (SRPH and any LADL) and France (any chronic condition) between individuals with secondary and primary education levels. Italy presents the highest level of inequality between individuals with tertiary and secondary education when we look at any chronic condition incidence. For the other two health conditions considered, inequalities are highest in France.

If we consider ratios of incidences between individuals with different levels of education, we find very different results. The US would now have the highest level of inequality between individuals with tertiary and secondary education levels for SRPH, Canada would have the highest level of inequality for any LADL and Italy would remain the one with the highest inequality level for any chronic condition.

Since the assessment of inequalities changes depending on the method used to measure it, it appears necessary to consider more complex methods of analysis that can take into account variables that are correlated with both disease incidence and education levels. The following section presents the methodology used to further assess the scale of inequalities in disease incidence.

4. Evaluation of Disease incidence and Education

The previous section has shown the presence of important differences in disease incidence by education across countries. We now look at whether these differences persist once we control for various explanatory factors. To do so, we estimate the probability of disease incidence using probit models with different control variables.

4.1. Socio-demographic, income, wealth and genetic covariates

Our first estimation of the relationship between disease incidence and education is simply a regression of incidence of health conditions on education (less than secondary and secondary, relative to tertiary education). We then add year dummies, sex, age groups, household size and marital status for the demo specification. Our third specification adds employment status, income, wealth (except for Canada) and a dummy variable that indicates whether the respondent's mother is still alive (income specification). We present the results for SRPH in Table 6.

TABLE 6: MARGINAL EFFECTS FOR THE ESTIMATION OF SELF-REPORTED POOR HEALTH INCIDENCE

	Secondary	Less than secondary	Secondary	Less than secondary
	US		**Canada**	
Education specification	0.044***	0.121***	0.031**	0.090***
Demo specification	0.041***	0.104***	0.027*	0.071***
Income specification	0.021***	0.061***	0.012	0.046***
	Spain		**Italy**	
Education specification	0.103	0.254***	0.092	0.156**
Demo specification	0.113	0.206**	0.095	0.125*
Income specification	0.102	0.184**	0.073	0.073
	France		**Netherlands**	
Education specification	0.035	0.143***	0.048	0.096***
Demo specification	0.034	0.106***	0.036	0.081***
Income specification	0.018	0.072**	0.025	0.057*

Source: authors' calculations from HRS, NPHS and SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category). The education specification is simply the regression of the incidence of any LADL on education levels. The demo specification adds socio-demographic variables (time dummies, sex, age groups, household size and marital status). The income specification adds employment status, income and wealth (except for Canada) and a dummy variable that captures the fact the respondent's mother is still alive.
Legend: * p<0.05; ** p<0.01; *** p< 0.001

Canada and the US are the only two countries where having secondary education is associated with an increase in the probability of SRPH incidence (compared to individuals with tertiary education) when we do not include any other covariates than education. We find that having less than secondary education has a similar impact on SRPH incidence in Canada and in the Netherlands: it increases the probability of SRPH incidence by close to 10%. The results in Italy and France are also similar, since we find that having less than secondary education is associated to an approximate 15 % increase in the probability of SRPH incidence. Adding socio-demographic variables reduces the magnitude of the associations, but they generally remain statistically significant. In France, adding the demographic controls variables reduces the

magnitude of the association by 35 %, making it similar to the US for individuals with less than secondary education.

In the income specification, the association between having secondary education and SRPH incidence remains statistically significant in the US only. If we look at the results for individuals with less than secondary education, we find that once more the magnitude of the associations is attenuated, except in Spain, where it remains relatively high. However, less than secondary education remains significantly associated with transitions from good to poor self-reported health in most countries, Italy being the exception. Adding all the income controls reduces by almost half the impact of education on the probability of SRPH incidence, for all countries except Spain (when comparing to the education specification). However, in Italy, there are no statistically significant differences between the impacts of tertiary and secondary education on SRPH incidence.

Table 7 and Table 8 show the results of the first three specifications for incidence of any LADL and any chronic condition. In every country, LADL and any chronic condition incidences are higher among individuals with less than secondary education than among those with secondary education, except for France (any ADL in the demo and income specifications) and Canada (any chronic condition in the demo and income specifications).

In the US, for example, the marginal effect for any LADL incidence is 0.065 compared to 0.022 for the education specification, and 0.045 compared to 0.016 for the demo one. Once more, Canada and the Netherlands are relatively similar: the probability of having at least one limitation in ADL for individuals with less than a high school degree are slightly higher than 1% in the education specification and fall to less than 1% once we control for employment, income, wealth and genetics. In both Spain and Italy, incidence of limitations in any LADL is 10% for individuals with less than secondary education in the education specification. Adding

demographic controls as well as income, wealth, employment and genetics reduces the relationship by 50% in Italy and 30% in Spain

TABLE 7: MARGINAL EFFECTS FOR THE ESTIMATION OF ANY LADL INCIDENCE

	Secondary	Less than secondary	Secondary	Less than secondary
	US		**Canada**	
Education specification	0.022***	0.065***	0.012*	0.025***
Demo specification	0.016***	0.045***	0.013*	0.018**
Income specification	0.002	0.017***	0.008	0.009
	Spain		**Italy**	
Education specification	0.019	0.104*	0.030	0.104*
Demo specification	0.022	0.078*	0.020	0.063
Income specification	0.019	0.072	0.015	0.051
	France		**Netherlands**	
Education specification	0.050**	0.071***	0.011	0.018
Demo specification	0.050**	0.039*	0.009	0.014
Income specification	0.041*	0.025	0.006	0.007

Source: authors' calculations from HRS, NPHS and SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category). The education specification is simply the regression of the incidence of any LADL on education levels. The demo specification adds socio-demographic variables (time dummies, sex, age groups, household size and marital status). The income specification adds employment status, income and wealth (except for Canada) and a dummy variable that captures the fact the respondent's mother is still alive.
Legend: * p<0.05; ** p<0.01; *** p< 0.001

The US and Canada are the only two countries where incidence of any chronic condition is significantly higher among those with secondary education than among those with tertiary education. However, in the US, these differences disappear in the income specification, whereas they remain important in Canada. Inequalities for individuals with less than secondary education are highest in Spain, where the probability of having at least one chronic disease in the next period is around 25%, even after taking into account demographic characteristics, income, wealth, employment and genetics.

TABLE 8: MARGINAL EFFECTS FOR THE ESTIMATION OF ANY CHRONIC CONDITION INCIDENCE

	Secondary	Less than secondary	Secondary	Less than secondary
	US		**Canada**	
Education specification	0.034**	0.053**	0.053*	0.061*
Demo specification	0.023	0.032	0.046*	0.031
Income specification	0.006	0.004	0.044*	0.026
	Spain		**Italy**	
Education specification	0.093	0.276**	0.079	0.134
Demo specification	0.115	0.232*	0.108	0.144*
Income specification	0.122	0.253*	0.099	0.123
	France		**Netherlands**	
Education specification	-0.022	0.108*	0.080	0.138***
Demo specification	-0.026	0.056	0.066	0.091*
Income specification	-0.048	0.019	0.046	0.061

Source: authors' calculations from HRS, NPHS and SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category). The education specification is simply the regression of the incidence of any ADL on education levels. The demo specification adds socio-demographic variables (time dummies, sex, age groups, household size and marital status). The income specification adds employment status, income and wealth (except for Canada) and a dummy variable that captures the fact the respondent's mother is still alive.
Legend: * $p<0.05$; ** $p<0.01$; *** $p< 0.001$

4.2 How do health behaviours and health care use affect the incidence-education gradient?

Results from the previous section suggest the existence of inequalities in health condition incidence by education levels. However, once we add controls for demographic characteristics as well as employment, income, wealth and genetics, we find that individuals with secondary education are not more likely to develop health conditions than those with a tertiary education, with the exceptions of the US for SRPH incidence, France for any ADL limitation incidence and Canada for any chronic condition incidence. For individuals with less than a secondary education, inequalities remain more important, especially for SRPH incidence, even after controlling for the

aforementioned characteristics. As previously stated, other explanations of differences in the health-education gradient across countries are health behaviours (obesity and smoking) and health care use (number of doctor visits). Thus, our fourth specification adds the health care use variable to the income specification described above (utilisation specification), the fifth specification adds the health behaviours (behaviours specification) and the last specifications adds them both (all specification).

Table 9 shows the results of the last three specifications for incidence of SRPH. In comparison with the income specification in Table 6, the utilisation specification shows the health education gradient is more pronounced in the US and Canada for individuals with secondary and less than secondary education. For the European countries, we find the opposite effect. In the Netherlands, the differences in SRPH incidence between less than secondary and tertiary education disappears. In all countries, the health utilisation variable is significant at 0.1% and remains significant after controlling for behavioural variables (see tables in appendix B).

TABLE 9 : MARGINAL EFFECTS FOR THE ESTIMATION OF SELF-REPORTED POOR HEALTH INCIDENCE

	Secondary	Less than secondary	Secondary	Less than secondary
	U.S.		**Canada**	
Utilisation specification	0.027***	0.067***	0.021*	0.050***
Behaviours specification	0.017***	0.058***	0.007	0.038**
All specification	0.021***	0.063***	0.016	0.045***
	Spain		**Italy**	
Utilisation specification	0.077	0.165*	0.059	0.065
Behaviours specification	0.100	0.160*	0.073	0.065
All specification	0.075	0.144*	0.058	0.058
	France		**Netherlands**	
Utilisation specification	0.017	0.075**	0.011	0.039
Behaviours specification	0.013	0.065*	0.015	0.043
All specification	0.013	0.069**	0.006	0.031

Source: authors' calculations from HRS, NPHS and SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category). The utilisation specification adds number of doctor visits to the income specification. The behaviours specification adds obesity and smoking status to the income

specification. The all specification adds number of doctor visits, obesity and smoking status to the income specification. Legend: * p<0.05; ** p<0.01; *** p< 0.001

When we add the two behavioural variables, we find a reduction in the magnitude of the health-education gradient in all countries (when compared to the income specification). However, except for the Netherlands and Italy, SRPH incidence remains significantly higher for individuals with lower education levels. The conclusion remains the same when we include both health care use and health behaviours in the all specification. Therefore, incidence inequalities in individuals' perception of their health condition persist even after taking into account various factors that are likely to influence that incidence.

Table 10 shows the marginal effects of the estimation of any LADL incidence. For three of the countries considered in our analysis (Canada, Italy and the Netherlands), the health-education gradient disappeared in the income specification, where we controlled for demographic variables as well as income, wealth, employment and genetics (see Table 7).

TABLE 10: MARGINAL EFFECTS FOR THE ESTIMATION OF ANY LADL INCIDENCE

	Secondary	Less than secondary	Secondary	Less than secondary
	U.S.		**Canada**	
Utilisation specification	0.003	0.019***	0.008	0.009
Behaviours specification	-0.001	0.014**	0.007	0.009
All specification	0.001	0.017***	0.007	0.009
	Spain		**Italy**	
Utilisation specification	0.035	0.082*	0.008	0.044
Behaviours specification	0.020	0.064	0.014	0.049
All specification	0.035	0.073	0.008	0.043
	France		**Netherlands**	
Utilisation specification	0.037*	0.024	0.006	0.007
Behaviours specification	0.038*	0.020	0.005	0.006
All specification	0.034*	0.019	0.005	0.006

Source: authors' calculations from HRS, NPHS and SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category). The utilisation specification adds number of doctor visits to the income specification. The behaviours specification adds obesity and smoking status to the income

specification. The all specification adds number of doctor visits, obesity and smoking status to the income specification.
Legend: * p<0.05; ** p<0.01; *** p< 0.001

Adding health behaviours or health care use does not alter that conclusion. In the US and Spain, we find that adding health care use (utilisation specification) increases the inequalities between education levels compared to the income specification in Table 7. However, including health care behaviours has the opposite effect. Once we include behaviours and utilisation, we find the health-education gradient remains statistically significant in the US (for individuals with less than secondary education) and in France (for individuals with secondary education).

Table 11 shows the results of the last three specifications of our model for the incidence of any chronic condition. As was the case with the incidence of any LADL, for three of the countries considered in our analysis (US, France and the Netherlands), there were no statistically significant differences in incidence by education level in the income specification of Table 8.

TABLE 11: MARGINAL EFFECTS FOR THE ESTIMATION OF ANY CHRONIC CONDITION INCIDENCE

	Secondary	Less than secondary	Secondary	Less than secondary
	U.S.		**Canada**	
Utilisation specification	0.017	0.019	0.047*	0.044
Behaviours specification	0.002	-0.000	0.034	0.013
All specification	0.014	0.015	0.038	0.032
	Spain		**Italy**	
Utilisation specification	0.045	0.209*	0.104	0.141*
Behaviours specification	0.122	0.236*	0.100	0.115
All specification	0.041	0.190*	0.106	0.133
	France		**Netherlands**	
Utilisation specification	-0.046	0.008	0.040	0.051
Behaviours specification	-0.046	0.021	0.040	0.044
All specification	-0.043	0.011	0.036	0.038

Source: authors' calculations from HRS, NPHS and SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category). The utilisation specification adds number of doctor visits to the income specification. The behaviours specification adds obesity and smoking status to the income specification. The all specification adds number of doctor visits, obesity and smoking status to the income specification.
Legend: * p<0.05; ** p<0.01; *** p< 0.001

Adding health utilisation and behaviours does not change these results. For Italy and Canada, controlling for the number of doctor visits in the past 12 months exacerbates the health education gradient. If we replace the number of doctor visits by the two health behaviours, we find a reduction in the probability of having at least one chronic condition in the next period by 50% for individuals with less than secondary education in Canada (when comparing to the income specification). The effect for those with secondary education is much smaller.

Once we consider both health utilisation and health behaviours, we find that Spain is the only country in which individuals with less than secondary education are statistically more likely to develop a chronic condition in the next period. The results show they have a 19% chance of any chronic disease incidence.

5. Robustness

In the previous section, we have found that even after controlling for variables that are likely to influence the health-education gradient, differences in disease and health condition incidence by education levels remain. Although this is mostly true for SRPH incidence, we ran various robustness checks for all health conditions considered in this paper to ensure that our results were not sensitive to our variable and functional form choices. We started by including different non-linear functions of age. We also replaced the variable that indicates whether the mother is still alive by one that indicates if the father is still alive. We included them both in another specification. We also changed the health care use variables: in one specification, we replaced the number of doctor visits by the number of nights in hospital, and in a subsequent, one we included them both. We also considered the number of drinks consumed in a week as a health behaviour, but had to remove smoking because of the interaction between the smoking and drinking

variables. The results described in the previous sections do not change qualitatively under any of the robustness specifications.

In Canada and the US, given that we have four waves of data, there is a possibility that individuals may experience incident health conditions twice between 2004 and 2010. In Canada, we find that this situation does not occur for individuals who suffer from at least one chronic condition. However, for any ADL and SRPH, between 3% and 7% of individuals report two incident episodes during the period. We performed the regressions without these individuals and find that the results are qualitatively unchanged. Results do not vary for the US.

We have also explored other dimensions of health dynamics, such as the improvement of health. We consider that an individual's health has improved if he suffered from a disease in a current wave and does not in the subsequent one. However, given the aging factor, there are fewer individual whose health improves between two waves than deteriorates, and we do not find conclusive results with regards to health incidence improvement.

6. Discussion and Conclusion

In accordance with a large body of literature that looks at the health-education gradient, we find the presence of inequalities in disease and health condition prevalence across countries and over time by education level. For most of the countries studied, the difference in disease prevalence is more pronounced between individuals who do not have a high school diploma and those who do, than between those who have a high school degree and those who went to college. However, we do not find evidence that supports the presence of similarities in health condition prevalence between geographically close countries.

To better understand if differences in prevalence by education level are due to differences in the risk of developing diseases or health conditions or to pre-existing health conditions, we

focused on health outcome dynamics. More precisely, we developed three measures of disease and health condition incidence using three longitudinal surveys that cover the United States, Canada, France, the Netherlands, Spain, and Italy. We started by looking at the average incidence rates of three health measures (SRPH, any limitation in ADL and any chronic condition) by education level and countries over time. We found that disease incidence is systematically higher for individuals with lower levels of education.

We then analysed how potential variables could affect the health-education gradient, by estimating the probability of disease incidence as a function of potential confounders. In opposition to other cross-country studies, where geographically close are sometimes grouped together on the claim of similarities in health status, we chose not to pool the countries together. An important first result is that contrary to the previous literature, we find differences between geographically close countries (France and the Netherlands, Spain and Italy and the US and Canada). Secondly, by adding demographic characteristics and income variables sequentially, we were able to analyse how each set of confounders affect the disease incidence-education gradient per country and over time. For example, in the US and Canada, adding the income variables has a greater impact on reducing the incidence-education gradient for any ADL than adding demographic characteristics.

Our results suggest the existence of inequalities in health condition incidence by education levels. However, once we add demographic characteristics as well as employment, income, wealth (except for Canada) and genetics, we find that individuals with secondary education are not more likely to develop health conditions than those with a tertiary education, with the exception of SRPH in the US, any ADL limitation in France and any chronic condition in Canada. For individuals with less than a secondary education, inequalities remain more important, especially for SRPH incidence.

We then examine how factors other than socio-economic status, such as health behaviours and health care use, can help to understand differences across countries. Adding health care use makes the education gradient more pronounced for SRPH incidence in both North American countries and in France (for less than secondary education), while for the other countries, we find the opposite effect. In the Netherlands, adding number of doctor visits makes the differences between less than secondary and tertiary education disappear. With both health behaviours and utilization, the health-education gradient decreases in magnitude for certain countries. In the US and Spain, for example, adding these variables reduces inequalities between education levels.

Overall, although the probabilities of health condition incidence remain different even after controlling for many variables, most effects are not statistically significant. This could suggest the differences in health prevalence by education are due to pre-existing health conditions rather than incidence differences at older ages.

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APPENDIX A

TABLE A.1: NUMBER OF OBSERVATIONS, MEAN AND STANDARD DEVIATION FOR ALL VARIABLES (US, CANADA AND SPAIN)

Variable	US		Canada		Spain	
	Mean or proportion	Standard deviation	Mean or proportion	Standard deviation	Mean or proportion	Standard deviation
Age (years)	66.65	10.14	64.61	11.10	66.07	10.80
Women	0.55	0.50	0.47	0.50	0.54	0.50
Education level						
Tertiary	49.10	-	18.63	-	9.77	-
Secondary	34.34	-	55.48	-	9.29	-
Less than secondary	16.56	-	25.89	-	80.94	-
Married	0.67	0.47	0.69	0.46	0.69	0.46
Household size	2.19	1.12	2.19	1.07	2.49	1.20
Work	0.43	0.50	0.44	0.50	0.24	0.43
Total income	69,938	83,318	71,850	62,851	22,168	27,281
Total wealth	522,223	1,179,125	-	-	312,356	772,882
Mother still alive	0.22	0.41	0.47	0.50	0.20	0.40
Father still alive	0.09	0.29	0.26	0.44	0.07	0.26
Number of doctor visits	9.94	17.35	4.88	7.80	7.56	9.43
Number of overnight hospital stays	1.89	8.35	1.59	14.34	1.40	8.23
Obesity	0.30	0.46	0.23	0.42	0.22	0.41
Smoking	0.56	0.50	0.58	0.49	0.39	0.49
Drinking	0.55	0.50	0.58	0.49	0.26	0.44
Any ADL prevalence	0.14	0.35	0.06	0.24	0.12	0.33
SRPH prevalence	0.25	0.43	0.18	0.38	0.45	0.50
Any chronic disease prevalence	0.83	0.37	0.66	0.47	0.69	0.46
Any ADL incidence	0.08	0.27	0.03	0.18	0.09	0.29
SRPH incidence	0.11	0.32	0.10	0.29	0.31	0.46
Any chronic disease incidence	0.22	0.41	0.24	0.43	0.46	0.50

Source: Authors' calculations from HRS, NPHS and SHARE.

TABLE A.2: NUMBER OF OBSERVATIONS, MEAN AND STANDARD DEVIATION FOR ALL VARIABLES (ITALY, FRANCE AND THE NETHERLANDS)

Variable	Italy		France		Netherlands	
	Mean or proportion	Standard deviation	Mean or proportion	Standard deviation	Mean or proportion	Standard deviation
Age (years)	66.20	10.39	65.45	10.78	64.68	10.05
Women	0.55	0.50	0.55	0.50	0.53	0.50
Education level						
Tertiary	5.93	-	20.24	-	23.15	-
Secondary	21.31	-	30.38	-	25.07	-
Less than secondary	72.76	-	49.37	-	51.78	-
Married	0.69	0.46	0.67	0.47	0.71	0.45
Household size	2.36	1.10	2.08	0.98	1.98	0.87
Work	0.22	0.41	0.29	0.45	0.33	0.47
Total income	27,455	29,069	40,309	41,522	43,703	42,227
Total wealth	266,609	518,171	400,672	873,844	328,941	870,307
Mother still alive	0.19	0.39	0.26	0.44	0.21	0.41
Father still alive	0.07	0.26	0.11	0.31	0.08	0.27
Number of doctor visits	8.52	10.61	6.63	6.23	4.69	6.41
Number of overnight hospital stays	1.65	6.94	1.69	9.67	1.20	9.02
Obesity	0.17	0.37	0.16	0.37	0.15	0.36
Smoking	0.42	0.49	0.43	0.50	0.62	0.49
Drinking	0.39	0.49	0.34	0.47	0.33	0.47
Any ADL prevalence	0.12	0.33	0.12	0.32	0.08	0.27
SRPH prevalence	0.43	0.49	0.36	0.48	0.29	0.45
Any chronic disease prevalence	0.69	0.46	0.69	0.46	0.59	0.49
Any ADL incidence	0.08	0.27	0.08	0.27	0.05	0.23
SRPH incidence	0.28	0.45	0.22	0.42	0.18	0.37
Any chronic disease incidence	0.39	0.49	0.37	0.48	0.31	0.46

Source: Authors' calculations from HRS, NPHS and SHARE.

TABLE A.3.: PREVALENCE OF SELF-REPORTED POOR HEALTH, ANY LADL AND ANY CHRONIC CONDITION PER YEAR (U.S. AND CANADA)

	US			Canada		
	Tertiary	Secondary	Less than Secondary	Tertiary	Secondary	Less than Secondary
	Self-reported health			**Self-reported health**		
2004	14.43%	24.67%	46.64%	10.22%	16.65%	28.65%
2006	15.75%	27.45%	50.81%	9.75%	16.15%	30.39%
2008	16.71%	28.22%	50.09%	8.63%	14.43%	31.59%
2010	15.88%	25.31%	45.58%	7.95%	14.10%	28.29%
	LADLs			**LADLs**		
2004	7.35%	12.09%	20.90%	2.35%	5.90%	10.66%
2006	10.17%	14.51%	27.06%	1.14%	4.69%	10.87%
2008	9.86%	15.25%	25.48%	1.30%	3.86%	13.60%
2010	11.04%	15.80%	29.05%	1.23%	4.68%	13.44%
	Any chronic condition			**Any chronic condition**		
2004	72.49%	82.23%	85.05%	52.43%	64.42%	73.35%
2006	77.89%	86.24%	89.30%	56.34%	65.07%	75.86%
2008	81.40%	88.59%	91.21%	54.62%	66.49%	76.98%
2010	84.76%	91.59%	93.53%	55.01%	65.24%	78.37%

Source: Authors' calculations from HRS and NPHS.

TABLE A.4.: PREVALENCE OF SELF-REPORTED POOR HEALTH, ANY ADL AND ANY CHRONIC CONDITION PER YEAR (SPAIN AND ITALY)

	Spain			Italy		
	Tertiary	Secondary	Less than Secondary	Tertiary	Secondary	Less than Secondary
	Self-reported health			**Self-reported health**		
2004	21.78%	21.52%	45.41%	17.33%	26.23%	47.94%
2006	23.68%	23.16%	52.41%	16.35%	30.61%	52.90%
2010	26.49%	23.38%	51.02%	16.10%	25.59%	47.59%
	LADLs			**LADLs**		
2004	4.57%	3.49%	13.16%	4.88%	3.20%	14.63%
2006	1.71%	3.65%	13.25%	4.76%	4.38%	14.49%
2010	6.88%	4.60%	15.87%	5.34%	2.64%	17.00%
	Any chronic condition			**Any chronic condition**		
2004	62.19%	56.04%	69.96%	63.66%	70.43%	76.44%
2006	53.62%	52.33%	70.37%	59.18%	65.19%	70.42%
2010	59.24%	59.54%	75.23%	62.45%	67.35%	75.49%

Source: Authors' calculations from SHARE.

TABLE A.5: PREVALENCE OF SELF-REPORTED POOR HEALTH, ANY LADL AND ANY CHRONIC CONDITION PER YEAR (FRANCE AND NETHERLANDS)

	France			Netherlands		
	Tertiary	Secondary	Less than Secondary	Tertiary	Secondary	Less than Secondary
	Self-reported health			**Self-reported health**		
2004	16.01%	28.34%	42.91%	15.50%	21.18%	32.49%
2006	20.13%	31.74%	47.83%	20.03%	25.63%	36.19%
2010	19.54%	29.37%	49.59%	22.07%	24.97%	37.12%
	LADLs			**LADLs**		
2004	3.56%	8.24%	16.79%	4.33%	5.82%	9.89%
2006	4.12%	8.58%	16.65%	4.45%	4.50%	9.87%
2010	5.80%	9.74%	16.13%	4.92%	5.64%	10.78%
	Any chronic condition			**Any chronic condition**		
2004	67.82%	65.51%	75.65%	58.12%	59.89%	65.96%
2006	60.23%	65.34%	74.25%	48.69%	54.65%	61.38%
2010	57.93%	66.89%	75.74%	50.59%	52.84%	63.06%

Source: Authors' calculations from SHARE.

TABLE A.6: PERCENTAGE POINT DIFFERENCE BETWEEN SECONDARY AND TERTIARY EDUCATION AND BETWEEN LESS THAN SECONDARY AND SECONDARY EDUCATION LEVELS (U.S. AND CANADA).

	US		Canada	
	Secondary/tertiary	Less than secondary/secondary	Secondary/tertiary	Less than secondary/secondary
	Self-reported health		**Self-reported health**	
2004	10.24%	21.97%	6.43%	12.00%
2006	11.70%	23.35%	6.39%	14.24%
2008	11.52%	21.87%	5.80%	17.17%
2010	9.43%	20.27%	6.15%	14.19%
	LADLs		**LADLs**	
2004	4.75%	8.81%	3.55%	4.76%
2006	4.34%	12.56%	3.56%	6.18%
2008	5.39%	10.24%	2.56%	9.74%
2010	4.76%	13.25%	3.45%	8.76%
	Any chronic condition		**Any chronic condition**	
2004	9.74%	2.81%	11.98%	8.93%
2006	8.35%	3.06%	8.73%	10.79%
2008	7.19%	2.61%	11.87%	10.50%
2010	6.83%	1.94%	10.24%	13.13%

Source: Authors' calculations from HRS and NPHS.
Notes: A positive number indicates that individuals with lower education levels have a higher prevalence of poor health, ADLs or chronic condition.

TABLE A.7: PERCENTAGE POINT DIFFERENCE BETWEEN SECONDARY AND TERTIARY EDUCATION AND BETWEEN LESS THAN SECONDARY AND SECONDARY EDUCATION LEVELS (SPAIN AND ITALY).

	Spain		Italy	
	Secondary/tertiary	Less than secondary/secondary	Secondary/tertiary	Less than secondary/secondary
	Self-reported health		**Self-reported health**	
2004	-1.08%	9.66%	-1.69%	11.44%
2006	1.95%	9.60%	-0.38%	10.10%
2010	-2.29%	11.27%	-2.70%	14.36%
	LADLs		**LADLs**	
2004	-0.26%	23.90%	8.89%	21.72%
2006	-0.52%	29.25%	14.26%	22.29%
2010	-3.11%	27.64%	9.49%	22.00%
	Any chronic condition		**Any chronic condition**	
2004	-6.15%	13.91%	6.77%	6.01%
2006	-1.29%	18.04%	6.01%	5.23%
2010	0.29%	15.69%	4.91%	8.13%

Source: Authors' calculations from SHARE.
Notes: A positive number indicates that individuals with lower education levels have a higher prevalence of poor health, ADLs or chronic condition.

TABLE A.8: PERCENTAGE POINT DIFFERENCE BETWEEN SECONDARY AND TERTIARY EDUCATION AND BETWEEN LESS THAN SECONDARY AND SECONDARY EDUCATION LEVELS (FRANCE AND NETHERLANDS).

	France		Netherlands	
	Secondary/tertiary	Less than secondary/secondary	Secondary/tertiary	Less than secondary/secondary
	Self-reported health		**Self-reported health**	
2004	12.34%	14.57%	5.68%	11.31%
2006	11.62%	16.09%	5.60%	10.55%
2010	9.83%	20.22%	2.89%	12.15%
	LADLs		**LADLs**	
2004	4.68%	8.55%	1.49%	4.07%
2006	4.46%	8.07%	0.05%	5.37%
2010	3.95%	6.39%	0.72%	5.14%
	Any chronic condition		**Any chronic condition**	
2004	-2.32%	10.14%	1.76%	6.08%
2006	5.12%	8.91%	5.96%	6.73%
2010	8.96%	8.84%	2.25%	10.22%

Source: Authors' calculations from SHARE.
Notes: A positive number indicates that individuals with lower education levels have a higher prevalence of poor health, ADLs or chronic condition.

APPENDIX B

TABLE B.1: MARGINAL EFFECTS FOR THE ESTIMATION OF SRPH INCIDENCE: U.S.

	Marginal effects					
Secondary	0.044***	0.041***	0.021***	0.027***	0.017***	0.021***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Less than Secondary	0.121***	0.104***	0.061***	0.067***	0.058***	0.063***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Health utilization				0.003***		0.002***
				(0.00)		(0.00)
Obesity					0.037***	0.034***
					(0.00)	(0.00)
Smoke ever					0.029***	0.028***
					(0.00)	(0.00)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	29,030	29,030	29,030	29,030	29,030	29,030

Source: authors' calculations from HRS.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.2: MARGINAL EFFECTS FOR THE ESTIMATION OF SRPH INCIDENCE: CANADA

	Marginal effects					
Secondary	0.031**	0.027*	0.012	0.021*	0.007	0.016
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Less than secondary	0.090***	0.071***	0.046***	0.050***	0.038**	0.045***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Health utilization				0.008***	-	0.008***
				(0.00)	-	(0.00)
Obesity				-	0.033***	0.021**
				-	(0.01)	(0.01)
Smoker ever				-	0.023**	0.019**
				-	(0.01)	(0.01)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	6,590	6,590	6,590	6,590	6,590	6,590

Source: authors' calculations from NPHS.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.3: MARGINAL EFFECTS FOR THE ESTIMATION OF SRPH INCIDENCE: SPAIN

	Marginal effects					
Secondary	0.103	0.113	0.102	0.077	0.100	0.075
	(0.09)	(0.09)	(0.08)	(0.08)	(0.08)	(0.08)
Less than Secondary	0.254***	0.206**	0.184**	0.165*	0.160*	0.144*
	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)
Health utilization				0.011***		0.010***
				(0.00)		(0.00)
Obesity					0.152***	0.129***
					(0.03)	(0.03)
Smoke ever					-0.006	-0.012
					(0.04)	(0.03)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	904	904	904	904	904	904

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.4: MARGINAL EFFECTS FOR THE ESTIMATION OF SRPH INCIDENCE: ITALY

	Marginal effects					
Secondary	0.092	0.095	0.073	0.059	0.073	0.058
	(0.06)	(0.06)	(0.06)	(0.05)	(0.06)	(0.05)
Less than Secondary	0.156**	0.125*	0.073	0.065	0.065	0.058
	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)
Health utilization				0.013***		0.013***
				(0.00)		(0.00)
Obesity					0.097**	0.090**
					(0.03)	(0.03)
Smoke ever					-0.004	-0.002
					(0.03)	(0.02)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	1,335	1,335	1,335	1,335	1,335	1,335

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.5: MARGINAL EFFECTS FOR THE ESTIMATION OF SRPH INCIDENCE: FRANCE

	Marginal effects					
Secondary	0.035	0.034	0.018	0.017	0.013	0.013
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Less than Secondary	0.143***	0.106***	0.072**	0.075**	0.065*	0.069**
	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Health utilization				0.017***		0.016***
				(0.00)		(0.00)
Obesity					0.052	0.040
					(0.03)	(0.03)
Smoke ever					-0.004	-0.012
					(0.02)	(0.02)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	1,716	1,716	1,716	1,716	1,716	1,716

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.6: MARGINAL EFFECTS FOR THE ESTIMATION OF SRPH INCIDENCE: NETHERLANDS

	Marginal effects					
Secondary	0.048	0.036	0.025	0.011	0.015	0.006
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Less than Secondary	0.096***	0.081***	0.057*	0.039	0.043	0.031
	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)
Health utilization				0.019***		0.018***
				(0.00)		(0.00)
Obesity					0.090***	0.050*
					(0.02)	(0.02)
Smoke ever					0.027	0.020
					(0.02)	(0.02)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	1,743	1,743	1,743	1,743	1,743	1,743

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.7: MARGINAL EFFECTS FOR THE ESTIMATION OF LADLS INCIDENCE: U.S.

	Marginal effects					
Secondary	0.022***	0.016***	0.002	0.003	-0.001	0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Less than Secondary	0.065***	0.045***	0.017***	0.019***	0.014**	0.017***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Health utilization				0.001***		0.001***
				(0.00)		(0.00)
Obesity					0.039***	0.038***
					(0.00)	(0.00)
Smoke ever					0.009**	0.008**
					(0.00)	(0.00)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	33,502	33,502	33,502	33,502	33,502	33,502

Source: authors' calculations from HRS.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.8: MARGINAL EFFECTS FOR THE ESTIMATION OF LADLS INCIDENCE: CANADA

	Marginal effects					
Secondary	0.012*	0.012*	0.008	0.008	0.007	0.007
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Less than secondary	0.025***	0.018**	0.009	0.009	0.009	0.009
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Health utilization				0.001***		0.001***
				(0.00)		(0.00)
Obesity					0.005	0.005
					(0.00)	(0.00)
Smoker ever					0.001	0.000
					(0.00)	(0.00)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	no	no	no	no
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	7,492	7,492	7,492	7,492	7,492	7,492

Source: authors' calculations from NPHS.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.9: MARGINAL EFFECTS FOR THE ESTIMATION OF LADLS INCIDENCE: SPAIN

	Marginal effects					
Secondary	0.019	0.022	0.019	0.035	0.020	0.035
	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Less than Secondary	0.104*	0.078*	0.072	0.082*	0.064	0.073
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Health utilization				0.004***		0.004***
				(0.00)		(0.00)
Obesity					0.067***	0.061***
					(0.02)	(0.02)
Smoke ever					0.033	0.028
					(0.02)	(0.02)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	1,459	1,459	1,459	1,459	1,459	1,459

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.10: MARGINAL EFFECTS FOR THE ESTIMATION OF LADLS INCIDENCE: ITALY

	Marginal effects					
Secondary	0.030	0.020	0.015	0.008	0.014	0.008
	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Less than Secondary	0.104*	0.063	0.051	0.044	0.049	0.043
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Health utilization				0.002***		0.002***
				(0.00)		(0.00)
Obesity					0.038***	0.031**
					(0.01)	(0.01)
Smoke ever					0.013	0.016
					(0.01)	(0.01)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	2,070	2,070	2,070	2,070	2,070	2,070

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.11: MARGINAL EFFECTS FOR THE ESTIMATION OF LADLS INCIDENCE: FRANCE

	Marginal effects					
Secondary	0.050**	0.050**	0.041*	0.037*	0.038*	0.034*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Less than Secondary	0.071***	0.039*	0.025	0.024	0.020	0.019
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Health utilization				0.004***		0.004***
				(0.00)		(0.00)
Obesity					0.056***	0.051***
					(0.01)	(0.01)
Smoke ever					0.015	0.013
					(0.01)	(0.01)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	2,262	2,262	2,262	2,262	2,262	2,262

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.12: MARGINAL EFFECTS FOR THE ESTIMATION OF LADLS INCIDENCE: NETHERLANDS

	Marginal effects					
Secondary	0.011	0.009	0.006	0.006	0.005	0.005
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Less than Secondary	0.018	0.014	0.007	0.007	0.006	0.006
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Health utilization				0.003***		0.003***
				(0.00)		(0.00)
Obesity					0.024*	0.018
					(0.01)	(0.01)
Smoke ever					0.016	0.012
					(0.01)	(0.01)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	2,187	2,187	2,187	2,187	2,187	2,187

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.13: MARGINAL EFFECTS FOR THE ESTIMATION OF ANY CHRONIC CONDITION INCIDENCE: U.S.

	US					
Secondary	0.034**	0.023	0.006	0.017	0.002	0.014
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Less than Secondary	0.053**	0.032	0.004	0.019	-0.000	0.015
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Health utilization				0.008***		0.008
				(0.00)		(0.00)
Obesity					0.085***	0.082
					(0.01)	(0.01)
Smoke ever					0.030**	0.026
					(0.01)	(0.01)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	5,932	5,932	5,932	5,932	5,932	5,932

Source: authors' calculations from HRS.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.14: MARGINAL EFFECTS FOR THE ESTIMATION OF ANY CHRONIC CONDITION INCIDENCE: CANADA

	Canada					
Secondary	0.053*	0.046*	0.044*	0.047*	0.034	0.038
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Less than secondary	0.061*	0.031	0.026	0.044	0.013	0.032
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Health utilization				0.022***	-	0.022***
				(0.00)	-	(0.00)
Obesity				-	0.091***	0.087***
				-	(0.02)	(0.02)
Smoker ever				-	0.047**	0.040*
				-	(0.02)	(0.02)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	2,642	2,642	2,642	2,642	2,642	2,642	2,642

Source: authors' calculations from NPHS.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.15: MARGINAL EFFECTS FOR THE ESTIMATION OF ANY CHRONIC CONDITION INCIDENCE: SPAIN

	Spain					
Secondary	0.093	0.115	0.122	0.045	0.122	0.041
	(0.13)	(0.13)	(0.13)	(0.11)	(0.12)	(0.11)
Less than Secondary	0.276**	0.232*	0.253*	0.209*	0.236*	0.190*
	(0.10)	(0.10)	(0.10)	(0.09)	(0.10)	(0.09)
Health utilization				0.037***		0.037***
				(0.00)		(0.00)
Obesity					0.187**	0.153**
					(0.06)	(0.05)
Smoke ever					-0.027	-0.062
					(0.05)	(0.05)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	456	456	456	456	456	456

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.16: MARGINAL EFFECTS FOR THE ESTIMATION OF ANY CHRONIC CONDITION INCIDENCE: ITALY

	Italy					
Secondary	0.079	0.108	0.099	0.104	0.100	0.106
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Less than Secondary	0.134	0.144*	0.123	0.141*	0.115	0.133
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Health utilization				0.009**		0.009*
				(0.00)		(0.00)
Obesity					0.116*	0.106*
					(0.05)	(0.05)
Smoke ever					0.006	0.012
					(0.04)	(0.04)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	649	649	649	649	649	649

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.17: MARGINAL EFFECTS FOR THE ESTIMATION OF ANY CHRONIC CONDITION INCIDENCE: FRANCE

	France					
Secondary	-0.022	-0.026	-0.048	-0.046	-0.046	-0.043
	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)
Less than Secondary	0.108*	0.056	0.019	0.008	0.021	0.011
	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
Health utilization				0.039***		0.038***
				(0.01)		(0.01)
Obesity					0.036	0.017
					(0.05)	(0.05)
Smoke ever					0.073	0.052
					(0.04)	(0.04)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	733	733	733	733	733	733

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001

TABLE B.18: MARGINAL EFFECTS FOR THE ESTIMATION OF ANY CHRONIC CONDITION INCIDENCE: NETHERLANDS

	The Netherlands					
Secondary	0.080	0.066	0.046	0.040	0.040	0.036
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Less than Secondary	0.138***	0.091*	0.061	0.051	0.044	0.038
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Health utilization				0.024***		0.023***
				(0.00)		(0.00)
Obesity					0.157***	0.124**
					(0.05)	(0.04)
Smoke ever					0.060	0.067*
					(0.03)	(0.03)
Time dummies	no	yes	yes	yes	yes	yes
Demo	no	yes	yes	yes	yes	yes
Work status	no	no	yes	yes	yes	yes
Income	no	no	yes	yes	yes	yes
Wealth	no	no	yes	yes	yes	yes
Mother alive	no	no	yes	yes	yes	yes
Health utilization	no	no	no	yes	no	yes
Health behaviour	no	no	no	no	yes	yes
N	964	964	964	964	964	964

Source: authors' calculations from SHARE.
Notes: Results from a probit regression. We present the marginal effects of secondary and less than secondary education (tertiary education is the omitted category).
Legend: * p<0.05; ** p<0.01; *** p< 0.001